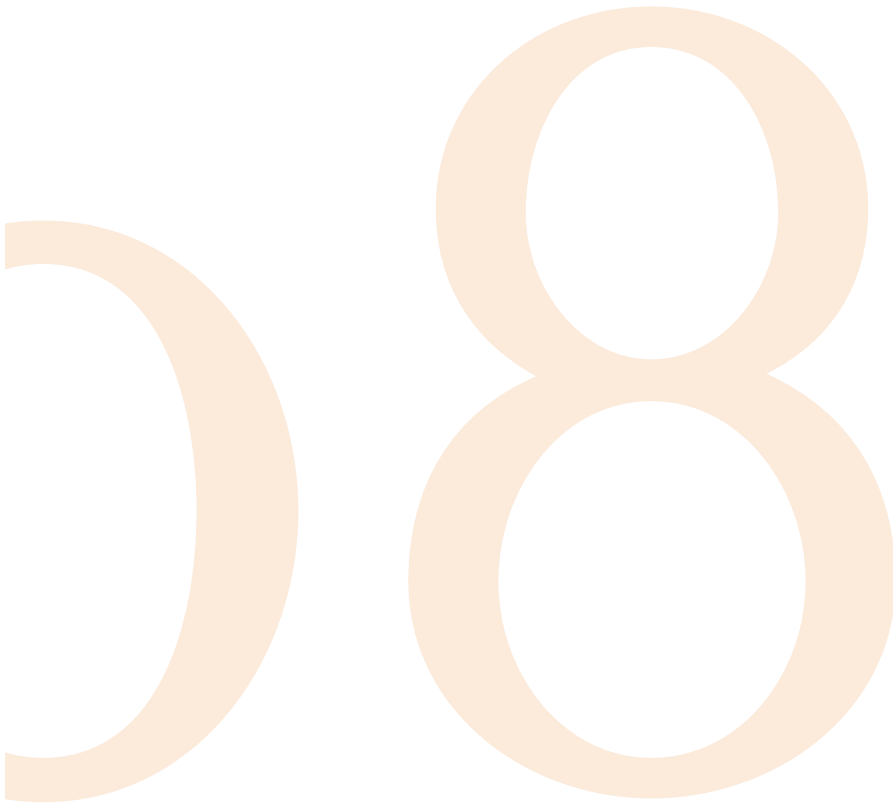
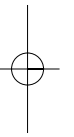
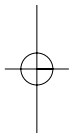
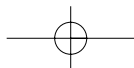


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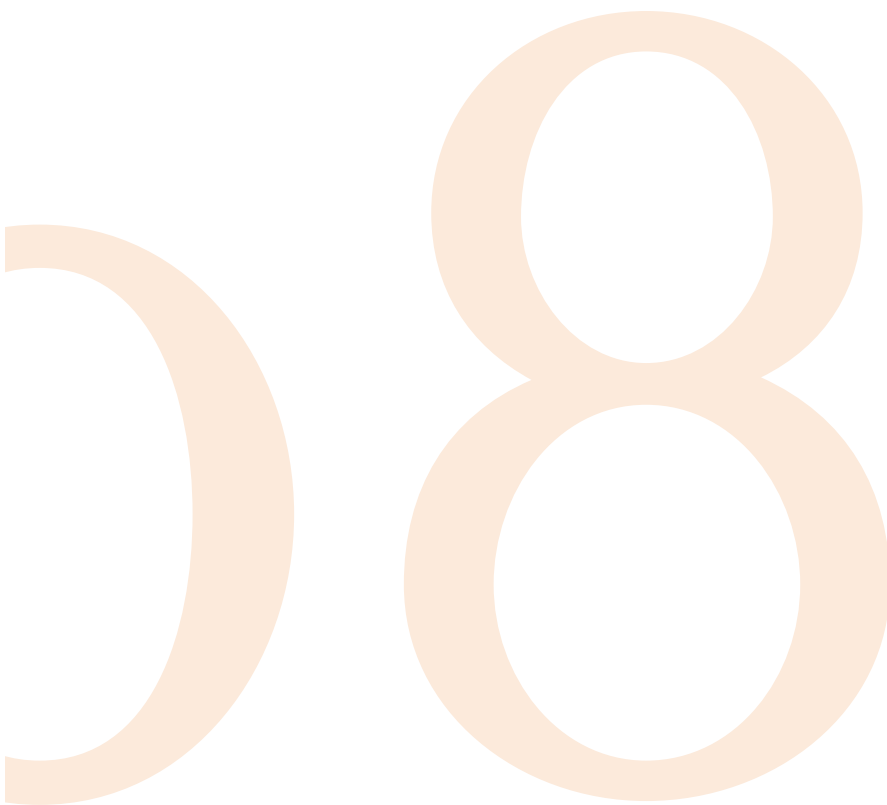
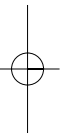
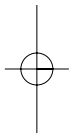
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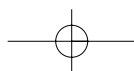
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THE FUTURE OF AGRICULTURE AND
FOOD IN MEDITERRANEAN COUNTRIES



**INTERNATIONAL CENTRE FOR ADVANCED MEDITERRANEAN AGRONOMIC STUDIES
PRESSES DE SCIENCES PO**







Founded in 1962 on the joint initiative of the OECD and the Council of Europe, the International Centre for Advanced Mediterranean Agronomic Studies (Ciheam) is an inter-governmental organisation comprising thirteen member countries from the Mediterranean Basin (Albania, Algeria, Egypt, Spain, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Tunisia and Turkey).

Ciheam is made up of a General Secretariat based in Paris and four Mediterranean Agronomic Institutes (MAI) located in Bari (Italy), Chania (Greece), Montpellier (France) and Zaragoza (Spain).

In pursuing its three central missions (education, research and cooperation) Ciheam has come to be recognised as an authority in its fields of activity: Mediterranean agriculture, food and sustainable rural development.

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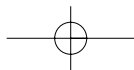
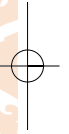
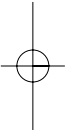


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PREFACE



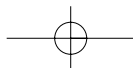
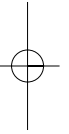
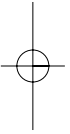
The product of collaborative analysis, the Ciheam annual report has gradually become one of the flagships of the Centre, one of whose very missions is for research to benefit regional cooperation. *Mediterra 2008* is Ciheam's tenth annual report, and is henceforth available in five languages: Arabic, English, French, Italian and Spanish.

This tenth report presents a forecast of the state of food, agriculture and rural affairs in the Mediterranean with a forecast horizon of 2020. The analysis, which brought together multi-disciplinary Mediterranean teams, took place in a context characterised simultaneously by agriculture's return to prominence and a resurgence of the political debate surrounding the practical modalities of Mediterranean cooperation. Given that the period in which the report was compiled was also characterised by renewed environmental awareness, growing concern about food and nutrition and the rediscovery that agriculture and rural affairs can be a mainstay for the development of societies, the extent to which *Mediterra 2008* is a strategic tool for contemplating Mediterranean agriculture and considering its future is clear.

This is entirely to the credit of the experts who agreed to participate in this forecasting exercise, jettisoning individual paths in order to pursue this collaborative work and consider the place of food, agriculture and rural affairs from the perspective of various possible futures for the Mediterranean. For this, I wish to thank them sincerely, and especially the numerous colleagues in Ciheam's Mediterranean Agronomic Institutes who have been closely involved in this process.

I should point out that the remarks made in this report about the state of food, agriculture and rural affairs in the Mediterranean, the dynamics at work, the fields to explore, the possible scenarios and the proposals for action are the result of the analysis and consideration of pooled expertise that in no way involves Ciheam as an Institution. Lastly, I note that this report was completed in the winter of 2007/2008 and that our analyses and conclusions do not take into account any events that may have occurred since then.

Bertrand Hervieu
Ciheam Secretary General



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ABBREVIATIONS AND acronyms

AB	organic farming (<i>agriculture biologique</i>)
AFI	Agro-Food Industry
AHDR	Arab Human Development Report
ALEF	Advancing Learning and Employability for a better Future
AMAP	Association of smallholders (<i>Association pour le maintien d'une agriculture paysanne</i>)
APECITA	French employment organisation for the food and agricultural sector (<i>Association pour l'emploi des cadres, ingénieurs et techniciens de l'agriculture et de l'agro-alimentaire</i>)
ARIMNet	Project for the coordination of agricultural research in the Mediterranean (European Research Area Network, ERANET)
ASCN	Adaptative Supply Chain Networks
ASPO	Association for the Study of Peak Oil
BMENA	Broader Middle East and North Africa
BMI	Body Mass Index
CAMRE	Council of Arab Ministers Responsible for the Environment
CAPRA	production cooperatives of the agrarian revolution (<i>coopératives agricoles de production de la révolution agraire</i>)
CCS	carbon capture and storage
CEEC	Central and Eastern European Countries
Climagri	Cambiamenti Climatici e Agricoltura
CMO	Common Market Organisation
CNER	National committee for evaluation of research (<i>Comité national d'évaluation de la recherche</i>)
COMADER	Moroccan confederation of agriculture and rural development (<i>Confédération marocaine de l'agriculture et du développement rural</i>)
COPEIAA	Council for the study of the European and international outlook with regard to agriculture and food policy planning (<i>Conseil de prospective européenne et internationale pour l'Agriculture et l'Alimentation</i>)
CRAI	Commission for international agricultural research (<i>Commission pour la recherche agronomique internationale</i>)
CRD	Centre for applied research for policy makers (<i>Centre d'études et de recherche des dirigeants</i>)
CRM	Customer Relationship Management

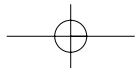
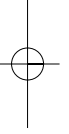
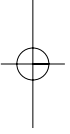
DAI	Digital Access Index
DDC	Directorate for Development and Co-operation
DIACT	Interministerial delegation of land planning and regional competitiveness (<i>Délégation interministérielle à l'aménagement et à la compétitivité des territoires</i>)
DIMAS	Deficit Irrigation for Mediterranean Agricultural Systems
DSPG	post-graduate diploma (<i>diplôme de spécialisation post-graduate</i>)
DSR	Driving Forces State and Response
EAFRD	European Agricultural Fund for Rural Development
EAGF	European Agricultural Guarantee Fund
EAGGF	European Agricultural Guidance and Guarantee Fund
ECTS	European Credit Transfer System
EEA	European Environment Agency
EFSA	European Food Safety Authority
EIB	European Investment Bank
EMFTA	Euro-Mediterranean Free Trade Area
EMP	Euro-Mediterranean Partnership
ENEA	Ente per le Nuove tecnologie, l'Energia e l'Ambiente
ENP	European Neighbourhood Policy
ENPI	European Neighbourhood and Partnership Instrument
ERA	European Research Area
ERDF	European Regional Development Fund
ERP	Enterprise Resource Planning
ESDAC	European Soil Data Centre
ESF	European Social Fund
ESIS	European Survey of Information Society
EU	European Union
EUMEDIS	Euro-Mediterranean Information Society
FAO	Food and Agriculture Organisation of the United Nations
FEMISE	Euro-Mediterranean network of economic institutes (<i>Forum euro-méditerranéen des instituts économiques</i>)
FPAM	mass vocational agricultural training (<i>formation professionnelle agricole de masse</i>)
FPRTD	Framework Programme for Research and Technological Development
FQI	Food Quality Indicator
GAP	Southeast Anatolia Project (<i>Güneydoğu Anadolu Projesi</i>)
GATT	General Agreement on Tariffs and Trade
GHG	greenhouse gas
GID	Inter-trade date group (<i>Groupe interprofessionnel des dattes</i>)

GLASOD	Global Assessment of Human Induced Soil Degradation
GMS	large and medium-sized supermarkets (<i>grande et moyenne surface</i>)
HACCP	Hazard Analysis Critical Control Point
IAASTD	International Assessment of Agricultural Science and Technology for Development
ICHN	compensatory allowance for natural handicaps (<i>indemnité compensatoire pour le handicap naturel</i>)
IDRC	International Development Research Centre
IEA	International Energy Agency
IFAP	International Federation of Agricultural Producers
IGC	International Grains Council
ILO	International Labour Organisation
IMF	International Monetary Fund
INA	Algerian national institute of agronomy (<i>Institut national agronomique</i>)
INDH	Moroccan national initiative for human development (<i>Initiative nationale pour le développement humain</i>)
INEA	Istituto Nazionale di Economia Agraria
IPCC	Intergovernment Panel on Climate Change
ISGP	Algerian higher institute of management planning (<i>Institut supérieur de gestion et de planification</i>)
ISM	special allowance for mountain regions (<i>indemnité spécifique de montagne</i>)
ISO	International organisation for standardisation
ISRIC	International Soil Reference and Information Centre
ISSS	International Society of Soil Science
ITC	information and communication technologies
ITSAS	Souihla institute of technicians specialising in agriculture (<i>Institut des techniciens spécialisés en agriculture de Souihla</i> (Marrakech))
JRC	Joint Research Centre
KAM	Knowledge Assessment Methodology
KBE	Knowledge-Based Economy
KEI	Knowledge Economy Index
KI	Knowledge Index
LAG	Local Action Group
LEADER	Links between actions for the development of the rural economy
MAP	Mediterranean Action Plan of the United Nations Environment Programme
MAU	Maghreb Arab Union
MCSD	Mediterranean Commission for Sustainable Development

MDG	Millennium Development Goals
MEDREC	Mediterranean Renewable Energy Centre
MEDREP	Mediterranean Renewable Energy Programme
MENA	Middle East and North africa
METAP	Mediterranean Environmental Technical Assistance Program
MPC	Mediterranean Partner Countries
MSSD	Mediterranean Strategy for Sustainable Development
NAPCD	National Action Plan to Combat Desertification
NUTS	Nomenclature of territorial units for statistics
OBCD	Organisation for Economic Co-operation and Development
OME	Mediterranean energy observatory (<i>observatoire méditerranéen de l'énergie</i>)
ONA	North-African omnium (<i>omnium nord-africain</i>)
OST	Observatory of Science and Technologies
PAI	Population Action International
PDO	Protected Designation of Origin
PGI	Protected Geographical Indication
PLM	Product Life Cycle Management
PNDA	Algerias national agricultural development plan
PNLC	national programmes to combat desertification
PREDIT	French programme for research and innovation in land transport (<i>programme de recherche et d'innovation dans les transports terrestres</i>)
QWPSR	Quality Wine Produced in a Specific Region
RDO	Registered Designation of Origin
RFID	Radio Frequency Identification
SARD-M	Sustainable Agriculture and Rural Development in Mountains
SBA	Skills-Based Approach
SCN	Standing Committee on Nutrition
SEMCs	Southern and Eastern Mediterranean Countries
SNHP	Spanish National Hydrological Plan
SNMG	Algerian minimum guaranteed wage (<i>salaire national minimum garanti</i>)
TRIPS	Agreement on trade-related aspects of intellectual property rights
TSG	Traditional Specialty Guaranteed
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
UTAP	Tunisian agriculture and fisheries union (<i>union tunisienne de l'agriculture et de la pêche</i>)

Abbreviations and acronyms

Vae	Validation of Acquired Experience
Wb	World Bank
Who	World Health Organisation
Wrb	World Reference Base for Soil Resources
Wtca	World Trade Center Algeria
Wto	World Trade Organisation
Wwf	World Wide Fund for Nature





INTRODUCTION



Building the future

Now with a development perspective and available in five languages, *Mediterra 2008* today stands out – as well as for the methodology that was used to compile it – for the chance that it presents to go beyond mere description of the rural and agricultural systems of the Mediterranean and propose a forecast interpretation; this is the bold gamble that Ciheam has taken in 2008 by choosing to put together a forecast for food, agriculture and rural areas in the Mediterranean in 2020, in the hope of helping to enlighten actors and decision-makers.

Joining forces thanks to Ciheam

This report, which was conceived, compiled and written collaboratively, is the culmination of work carried out since 2005 by a group of Ciheam teacher and researchers and a panel of experts from different shores of the Mediterranean. The process of writing the report has relied heavily on the multi-disciplinary and contrasting approaches that are indispensable in any forecasting exercise.

The six components of the analysis of the state of agriculture in the Mediterranean were determined at an initial workshop held in 2005. The final structure has emerged over time, through meetings and discussions, and is based on a series of analytical forecasts, the key challenges seen as action priorities and general scenarios depicting various paths for the future of the region. The structure of the report has evolved from the questions that were asked at the outset, which were: What are the predominant and emerging trends for agriculture and rural areas in the Mediterranean? What are the main challenges they face in their years to come? In what areas might intervention be realistic? And what possible futures might be envisaged in 2020?

No fewer than seven international seminars were held between spring 2005 and autumn 2007, as well as several select committee workshops and countless discussions held remotely. In addition, a monitoring system was established to observe disruptive phenomena or major trends in Mediterranean agriculture. This collaborative work forms the basis of the various chapters of *Mediterra 2008*.

Why opt for a forecasting approach?

Analysis of the Mediterranean “agriculture question” has all too often been limited to an update of economic, social and commercial indicators, supplemented by agricultural and technical scientific commentaries. Unfortunately, although this sort of exercise is vital, at the political level it is not sufficient.

There is no hiding the fact that this report, as a result, has a dual objective. First, it aims – as highlighted above – to provide actors and decision-makers with the keys for interpretation; how can they be expected to approach the future with determination and readiness to act without first having correctly assessed the dynamics of the present and considered the key challenges ahead? Secondly, the report aims to abandon the usual compartmentalised approach in order to show the multidimensional nature of agriculture in the region, by encompassing issues relating to public health, nutrition and the environment, land management and equilibrium, and social and cultural practices, as well as the strategies of the economic actors and the innumerable challenges posed by the geopolitical restructuring of the world at the beginning of this 21st century.

Many institutions have carried out forecasting work on the future of the Mediterranean in recent years. Ciheam has joined this trend but, unfortunately, it has been necessary to make choices and some subjects, such as Mediterranean maritime resources (fishing and aquaculture), have had to be excluded. Nonetheless, the ambition is to make the Mediterranean an area of life and a region of the future at a time when some analysts are using turbulence in the region as an excuse to declare that misunderstandings will be perpetuated.

The time horizon of 2020 was chosen in order to allow the actors to spot significant long-term trends, determine what action should be taken and envisage what futures might result within a reasonable timescale. The future cannot be predicted, but it can be prepared for. Forecasting is about neither prophecy nor prediction, but has the sole objective of helping us to construct the future. What that future, which comprises several possible futures, will look like will depend to a large extent on human action, and the decisions made by State officials will prove critical. This is the philosophy of reflection and action on which *Mediterra 2008* is based: Ciheam is trying to fulfil its role as a laboratory of ideas in the interests of Mediterranean action and cooperation.

The geopolitics of the Mediterranean

It is vital to consider the general context of the broader geopolitics at work in the Mediterranean, as the main themes – agriculture, food, environment and rural affairs – demonstrate that considering the future of Mediterranean agriculture in the end means considering geopolitical changes in the region.

Between unity and diversity: a plural Mediterranean

An intimate meeting place between humankind and the earth, the Mediterranean has a rich history and a very specific geography. The characteristics of the region are well known: centuries of heritage have bequeathed to the world the most brilliant but also the most turbulent of civilisations; the cultural, architectural and social imprints of the three major monotheistic religions that have become established in the Mediterranean are apparent everywhere; its strategic location at the intersection of three continents (Africa, Asia and Europe) inevitably promotes trade and the intermingling of people. Lastly, whether one thinks of Ancient Rome or Alexandria, the birth of the Phoenician alphabet or the strength of Arabic science, Moorish Andalusia or present-day Tunisia, the Mediterranean has consistently been at the heart of global dynamics, where the urban world has developed, innovation has occurred and coexistence has been a necessity.

Mediterraneans have thus always been too close to be able to ignore one another. A social, ethnic and cultural mosaic, the Mediterranean seems too heterogeneous to form a single whole. This imbroglio has become worse over time, the passage of which goes against the tide of the Mediterranean. Over the centuries, the region has ceased to be a corridor, and become a frontier: although trading has increased and independencies have become stronger, tensions and deadlocks have increased too. Neither the religious wars nor the strategies of empires have been able to flatten the wall that seems slowly to be erecting itself within the Mediterranean Basin. The colonial era, followed by two world wars with lasting geopolitical consequences, have further complicated a Mediterranean context that is already particularly vulnerable. When there was a thaw in international relations at the end of the 20th century, it resonated across the entire Mediterranean, revealing the multiple divisions that criss-cross the region. The North has realised that the South can no longer wait patiently for development, and the nagging feeling that the clash between the dominant powers now in decline and the emerging countries asserting their ambitions could be brutal is growing.

The Mediterranean seems to act as a magnifying mirror of a new world context in which the necessity of coexistence has given way to misunderstanding and mistrust of the Other. Put to the test once again by the terrorist attacks of 11 September 2001, the Mediterranean, already divided, has become a source of worry. This dual impression of repulsion and fascination brings down a heavy wall of silence on an area where the real and the imaginary intermingle. Line of conflict and zone of friction, both merging and dividing, a closed sea but an open land, the Mediterranean interface is collapsing. As what seems to be one of the most instable areas of the world – because divisions are concentrated and instability persists there – the Mediterranean quite logically attracts attention, provokes covetousness or elicits reactions.

Is the Mediterranean at the epicentre of contemporary international relations? Given the strategic policies that the big powers use in the region, there is little doubt that the Mediterranean is at the heart of global geopolitics: not, as in the past, because it lies at the centre of the world, but because it crystallises all the tensions of the globe, from the battle for resources to the multiple crisis zones, via the numerous migrants determined to reach Europe.

The end of the bipolar world and the semblance of international order that emerged following the end of the first Gulf war left the Mediterranean at the beginning of the 1990s in a fairly favourable position. Emerging hopes of peace in the Middle East and the European Union's stated desire to develop a real foreign policy on its peripheries reinforced the sense of a novel situation for the Mediterranean Basin. This prompted the European Union (EU) to embark on a broad initiative in the region, and led to the birth of a project that represented a real gamble on the future: the Euro-Mediterranean Partnership. Established in November 1995 by the Barcelona Declaration, the project was at the time seen as a strong signal of hope in the region because it brought together most of the countries that have Mediterranean shorelines and the entire European Union.

The Euro-Mediterranean challenge

An extension of European policies on the Mediterranean initiated in the 1970s, the Euro-Mediterranean Partnership (EMP) represents a double geo-political challenge.

For the EU, it means gaining visibility on the international stage by developing its security and defence policy whilst enlarging the natural area for its economic and commercial expansion, in order to embody the concept of European power. For the Mediterranean Partner Countries (MPCs)¹, the main objective was obtaining a vital external foothold at a time when their development was at a standstill and globalisation was accelerating. Behind this strategic alliance, which seeks to combine the security needs of the EU with the imperative of economic growth for the Southern shores of the Mediterranean, there are two symbolic dimensions of the EMP that must be emphasised: the multilateral nature of cooperation (in particular the presence of the Palestinian Authority side by side with Israel) and the absence of the American superpower.

Technically, the partnership is divided into three aspects (political and security; economic and financial; social, cultural and human) that determine the objectives to be obtained in the Mediterranean: to establish a common area of peace and stability, create a free trade area by 2010 and strengthen human and social relations. The attraction of these objectives is that they foresee the gradual construction of an integrated Euro-Mediterranean area. At the time, that prospect rallied hearts and minds determined to link the destinies of the two shores of the Mediterranean.

Unfortunately, in the space of a decade, the Euro-Mediterranean promise has turned into first an aspiration and then a disappointment. Aspiration, first of all, because the partnership did not have the resources to match its ambitions. The EU has been focused primarily on enlargement to the East and has not managed to develop a common foreign policy. The financial resources allocated through the MEDA Programme often proved ineffective. For their part, none of the MPCs have made adequate progress in terms of opening up their markets and implementing reforms. Next, it became a disappointment, because to date none of the three main objectives of the Barcelona Declaration have been achieved. The aim was to calm tensions, yet the region is more wracked by tensions than ever. There was supposed to be a free-trade area by 2010, yet there is no economic integration. Lastly, the aim of promoting cultural dialogue has sometimes come up against the erosion of a culture of dialogue even though it is so characteristic of the region.

Moreover, the development of the Partnership has been undermined by two unfavourable dynamics: on the one hand, the too hesitant and incoherent commitment to the Mediterranean of southern European countries, who have been incapable of taking the lead in the way that Germany has done for the countries of Eastern Europe. On the other, the increased influence of the United States in the region following the events of 11 September 2001, in particular through the "Broader Middle East and North Africa" (BMENA) initiative, the often pernicious consequences of which have exposed Europe's political impotence and the fragility of the Mediterranean States, whilst fuelling the likelihood of a clash of civilisations.

However, these circumstantial factors must not be allowed to disguise the EMP's own shortcomings: its Europe-centred nature, cumbersome bureaucracy, institutional inadequacies and the complexity of procedures were the reproaches generally made

1 - Algeria, Egypt, Jordan, Israel, Lebanon, Morocco, Syria, Palestinian Territories, Tunisia and Turkey. Cyprus and Malta used to be considered Mediterranean Partner Countries but became EU Member States in May 2004.

against it on the occasion of the tenth anniversary in 2005. But for all that, criticism of the partnership cannot eclipse its role or its relevance. Over the past ten years, the cost of not having a Euro-Mediterranean partnership would probably have been detrimental. Harsh but fair, this negative appraisal of Barcelona should therefore be interpreted above all as a shared regional frustration.

The neighbourhood policy

Moreover, the initial ambitions of the Barcelona Process have been confused by the implementation since 2004 of the European Neighbourhood Policy (ENP). The ENP is gradually becoming the primary vehicle for the EU's cooperation with the three large areas that, following its enlargement to the East, are now at its borders: far-eastern Europe, the Caucasus and the Mediterranean (sixteen countries in total, of which ten are Mediterranean countries).

The aim of the ENP is to renew and strengthen relations between the EU and its neighbouring countries. Plans of action – documents that genuinely provide thematic orientations determining the axes of cooperation between the EU and the neighbouring countries, which clearly identify the technical and political measures that must be undertaken – have been realised. At the time of writing, seven Mediterranean countries have signed plans of action with the European Union: Tunisia, Jordan, Israel, the Palestinian Authority and Morocco in 2004, followed by Egypt and Lebanon in 2007. Moreover, the ENP has led to the creation of a financial programme unique to the area: the European Neighbourhood and Partnership Instrument (ENPI), which had a budget of 11.2 billion Euros for the period 2007-2013.

The main objective of the ENP is to extend certain advantages of the Union to neighbouring countries with the aim of strengthening the stability, security and well-being of Europe's perimeter. The ENP aims to strengthen existing cooperation, but also to set out new rules and determine significant efforts to be made by the partner countries. Thus, in exchange for tangible progress in respect for European values (democracy, human rights, rule of law, market economy, sustainable development) and the effective implementation of political, economic and institutional reforms, the EU offers its neighbours the chance to participate in the internal market. However, it must be recognised that the area covered by the ENP, which stretches from Morocco to Ukraine, has little in common except a lack of development, imperfect democratisation and geographical proximity to Europe.

The ENP has not been met with tremendous enthusiasm in the Mediterranean. By situating the region within a geographical area that is simply too vast, it could de facto sanction the growing bi-lateralisation of relations between the EU and MPCs. At the same time, the link between the EMP and the ENP has never really been clarified, although Brussels refers officially to the complementarity of the two policies. In reality, there are several co-existing cooperation frameworks in the area, especially if the informal 5+5 Dialogue, the Mediterranean Forum, the North Atlantic Treaty Organisation's (NATO) Mediterranean Dialogue or the League of Arab States are included. This tapestry of political forums gives the impression of a multi-speed Mediterranean, and makes the construction of a genuinely integrated Euro-Mediterranean region seem a long way off.

Agriculture: a strategic sector for the Mediterranean

For essentially commercial reasons based on a mutual fear of the eventual liberalisation of trade, agriculture has not been at the centre of cooperation policies within the framework of the EMP. The discrete place given to agriculture in the Euro-Mediterranean area is surprising given the extent to which the Common Agricultural Policy was the cement for European construction, and the reticence is all the more astonishing given how important agriculture is for the equilibrium of the societies and economies of the Mediterranean Basin. Tackling agriculture, i.e. making it a priority for reflection and action in embodiment of the plan for the construction of an integrated Euro-Mediterranean region, would make sense. It would be prejudicial to deny the potential role of the agricultural sector as a motor for major cooperation in the region and an undeniable foundation of all the development policies that one might wish to put in place.

At a time when the future of Euro-Mediterranean cooperation is in question – to the point that some think that strengthened cooperation between a group of determined States would be more influential, Mediterranean agriculture should be viewed as fertile ground for giving concrete form to solidarities in the region and considering the future of Euro-Mediterranean cooperation in new terms. That is the overall aim of this report, which attests throughout to the geopolitical nature of agriculture in the Mediterranean.

Mediterra 2008 begins with dynamic analysis of Mediterranean agriculture that looks at socio-demographic change, geo-economic developments and agricultural trade, the state of natural resources, scientific and technological capacities, food consumption and the management of rural affairs and agriculture in the Mediterranean.

In the second part of the report, five key areas are identified in which it would be appropriate to invest if one wished to construct a Mediterranean agriculture that is more sustainable and has greater solidarity by 2020. The key areas identified as action priorities are: knowing how to produce resource-efficiently; ensuring the qualitative and quantitative food security of populations; building the supply and marketing of agricultural products; forming new development strategies for rural areas; and, lastly, strengthening, reinforcing and consolidating capacity for research and training in the agriculture and agro-food sector.

Lastly, the report outlines broad general scenarios for the future of agriculture in the Mediterranean, in order to investigate the fields of the future in a region where the future must surely be approached with greater conviction and therefore more confidence, even if the likely scenario is not a reassuring one for the Mediterranean.

Mediterra 2008 concludes with a series of reflections intended to challenge Euro-Mediterranean decision-makers and actors to at last put agriculture, food and rural areas at the heart of regional cooperation.

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Forums for Mediterranean Cooperation

1. *The Euro-Mediterranean Partnership*, launched in 1995, brings together the twenty-seven Member States of the European Union and ten partner countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestinian Authority, Syria, Tunisia and Turkey), a political body that therefore comprised thirty-seven countries in 2007, as well as the European Commission. Cyprus and Malta, which were formerly considered to be partner countries, have been members of the European Union since May 2004. Libya is not a member but sometimes participates as an observer. Albania and Mauritania will be gradually integrated into the Partnership from 2008.

2. *The European Neighbourhood Policy (ENP)*, launched in 2004 and officially active since 2007, applies to sixteen States that share borders with the European Union: Algeria, Egypt, Jordan, Israel, Lebanon, Libya, Morocco, Palestinian Authority, Syria and Tunisia (Mediterranean zone), Armenia, Azerbaijan and Georgia (Caucases zone), Belarus, Moldova and Ukraine (Eastern Europe zone).

3. *The 5+5 Dialogue* is an informal process that was created in 1990 and brings together ten western Mediterranean countries – France, Italy, Malta, Portugal and Spain in the North and Algeria, Libya, Morocco, Mauritania, and Tunisia in the South – for targeted thematic meetings.

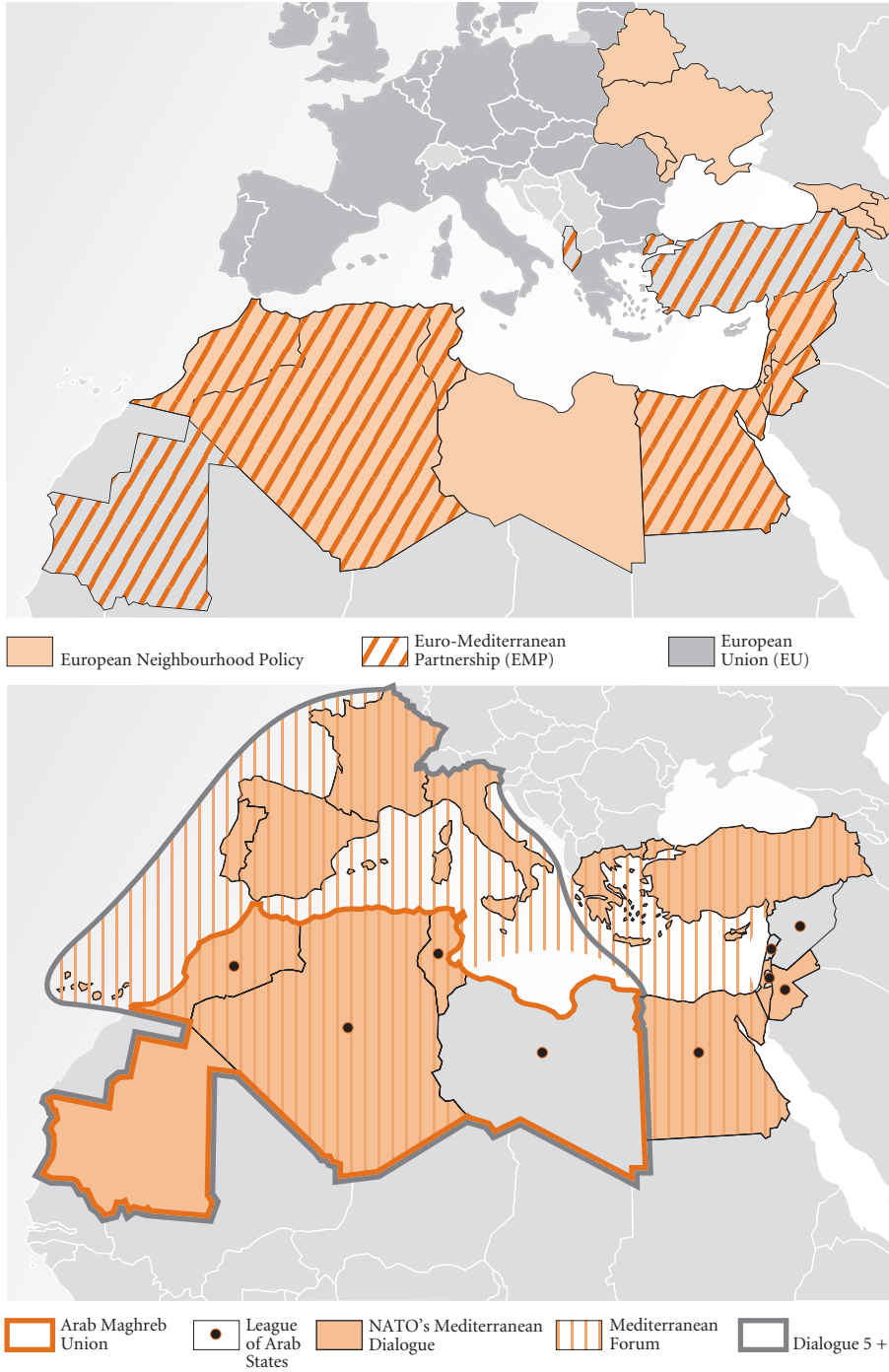
4. *The Mediterranean Forum*, launched in 1994, is an informal collaboration between eleven countries in the region: Algeria, Egypt, France, Greece, Italy, Malta, Morocco, Portugal, Spain, Tunisia and Turkey.

5. *The Arab Maghreb Union*, created in 1989, brings together five North African States: Mauritania, Algeria, Morocco, Tunisia and Libya.

6. *The League of Arab States*, established in 1945, is composed, inter alia, of nine Mediterranean countries: Algeria, Morocco, Tunisia, Libya, Egypt, Palestinian Territories, Libya, Jordan, Syria.

7. *NATO's Mediterranean Dialogue*, launched by the United States in 1994, positions itself as the Atlantic alliance's regional response in the post-bipolar context. It is a forum for political and strategic consultation as well as practical military cooperation. Today, it brings together the twenty-seven NATO Member States (including Portugal, France, Spain, Italy, Turkey and Greece) and seven non-member countries from the Mediterranean region: Algeria, Egypt, Israel, Jordan, Mauritania, Morocco and Tunisia.

Map 1 - Forums for Mediterranean Cooperation



Source: Ciheam.

Atelier de cartographie de Sciences Po, 2008



1 PART ONE

ANALYSIS

of agriculture and the
agro-food situation in
the Mediterranean region





CHAPTER 1

THE SOCIO-DEMOGRAPHIC CONTEXT*

The Mediterranean has always been a tremendous crossroads of civilisation, a place of exchange where human mobility combines with the intermixing of cultures. It owes its existence primarily to the variety and intermarriage of its peoples.

The 20th century will come to be seen as the century of the demographic explosion. The world's population has now quadrupled to around 6.5 billion people. Although this demographic growth has slowed since the 1970s, it will probably still be necessary to wait until the middle of the 21st century for the world population to stabilise, probably at around 9 billion. In the meantime, the demographic map of the world will be re-drawn, since certain demographic zones are experiencing rapid population growth (Asia, Africa) while others, conversely, are stagnating in demographic terms (Europe). It is "continental demographic drift" (Chasteland and Chesnais, 2003).

The Mediterranean area is a perfect illustration of this global trend. The demographic stagnation of the northern shore contrasts with the demographic thrust of the southern. This contrast is highly significant in a regional context already marked by economic imbalances and differences in development. Examining the demographic trends of the Mediterranean countries is of crucial importance if one wishes to map the contours of the Mediterranean basin up to 2020 and highlight the development dynamics of the region and the profound social changes which accompany these demographic changes.

* - This chapter was written on the basis of documents prepared by Sébastien Abis (Ciheam Secretariat) and Pierre Blanc (Ciheam-MAI Montpellier).

ANALYSIS of agriculture and the agro-food situation in the Mediterranean region

The method adopted here involves examining the demographic situation of the Mediterranean countries¹ whose aggregation, both at regional level (the Basin)² and subregional (the various geographical groupings),³ provides a global overview of the population dynamics of the Mediterranean and shows general trends. This exercise also offers the possibility of examining the major socio-demographic challenges in the region up to 2020, a necessary exercise when considering the future of Mediterranean agriculture and the rural world.

The demographic dynamics in the Mediterranean

The demographic dynamics in the Mediterranean countries between 1990 and 2020 probably deserve a separate work given the amount of data and analyses that can be drawn from them. There is, of course, no question here of presenting all the population statistics but rather of identifying the major demographic trends at work in the Mediterranean, among which six stand out.

Demographic growth in the Mediterranean Basin is taking place in the South

The Mediterranean had 285 million inhabitants in 1970 and 378 million in 1990. In 2005, the population of the Basin was 454 million inhabitants (7% of the world's population on 6.3% of its land surface) and is likely to be around 520 million in 2020. The population is not far from doubling in the space of just half a century.

However, only the populations of the southern shore are currently increasing and will rise by 65% between 1990 and 2020, while the North Mediterranean countries achieve barely 8% population growth. The Mediterranean is split into two, with a North where the population is now scarcely increasing (+14 million people between 1990 and 2020) and a South where the population is exploding (+130 million people). Thus, while the North Mediterranean increases by one inhabitant, the South has ten new people, with the prospect of upsetting the demographic balance. While until the 1980s, the North Mediterranean more or less equalled the South Mediterranean, in 2020, two thirds of Mediterraneans will be located on the southern shore.

1 - These forecasts are based on data provided by the United Nations Population Division, which every two years publishes a statistical directory of world population, World Population Prospects, containing projections of numerous demographic variables for each of the countries of the world. The perspectives are a general authority for demographic work. For this study, the data collected and used come from the 2004 version using in each case the average assumed projections. Only the paragraph concerning overall population figures for the Mediterranean emphasises the range of United Nations projections, indicating the measurements with the low, median and high variants.

2 - According to the geographical perimeter defined for this study, 19 Mediterranean States are analysed here, either members of the European Union, or members of the Euro-Mediterranean Partnership, or concerned by the establishment of the European Neighbourhood Policy. Albania, a Member State of Ciheam, is associated with this analysis. A geographical distinction is deliberately made between the States of the northern shore (Albania, Cyprus, France, Greece, Italy, Malta, Portugal and Spain) and the States of the southern shore (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia, Turkey and the Palestinian Authority).

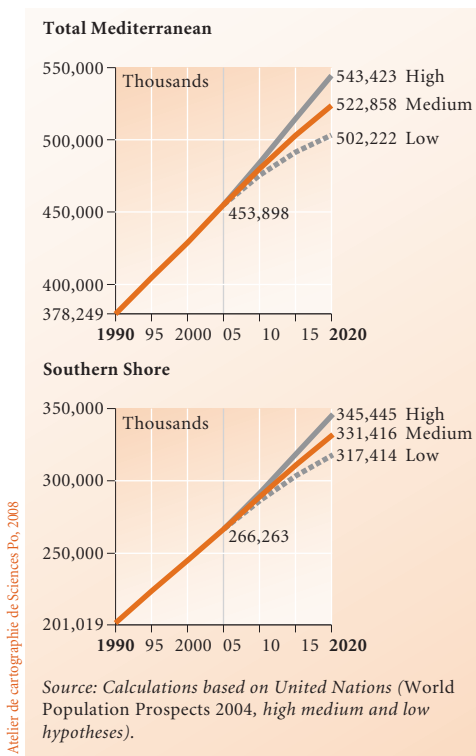
3 - For this study, apart from the distinction drawn between the northern and southern shore (which also includes the eastern shore) four other geographical categories were defined: the European Mediterranean (Cyprus, France, Greece, Italy, Malta, Portugal and Spain), the zone of the of Arab Mediterranean countries partners of the European Union (Algeria, Egypt, Jordan, Lebanon, Morocco, Syria, Tunisia and the Palestinian Territories), the Maghreb (Algeria, Libya, Morocco and Tunisia) and the Near East (Egypt, Israel, Jordan, Lebanon, Syria and the Palestinian Authority). These distinctions are very useful in observing the different demographic dynamics in the Mediterranean.

The socio-demographic context

This demographic vitality of the countries of the South needs to be qualified: they are not all growing at the same pace. The population is growing much faster in the Near East than in the Maghreb. While the demographic transition is now well established in the Maghreb, in Tunisia for example, certain countries are literally exploding between 1990 and 2020 (population 2.6 times higher in the Palestinian Territories and a twofold increase in Syria and Jordan). At the same time, the demographic ranking of countries is changing. In 1990, four States (Egypt, France, Italy and Turkey) had more or less the same population (55 to 57 million inhabitants). By 2020, two demographic giants are expected to dominate: Egypt (with some 95 million inhabitants) and Turkey (some 87 million inhabitants) making up 35% of the total population of the Mediterranean Basin. France and Italy, with 63 and 57 million inhabitants respectively, would then be outstripped.

The United Nations population projections for the Mediterranean up to 2020 give 502 million inhabitants for the low hypothesis and 543 million for the high hypothesis. Should these projections be challenged? The question is worth raising because some demographers, relying on a rapid decline in fecundity in the South Mediterranean countries, think that the population of the area will reach between 310 and 320 million inhabitants in 2020 (Courbage, 1999), 10 to 20 million persons less than the United Nations data (Chart 1).

Chart 1 - The population of the Mediterranean, 1990-2020



Finally, considering the Euro-Mediterranean geopolitical area as a whole, i.e. the 27 Member States of the European Union (some 500 million inhabitants) and the Mediterranean partner countries (330 million inhabitants), there are some 830 million people, or 11% of the global population, who are likely to fill this space by 2020.

Urbanisation, from ancient times, has been global and unstoppable

Whether in ancient times with Athens and Rome, in the Middle Ages with Venice and Constantinople or today with Barcelona, Alexandria or Algiers, the Mediterranean has always been marked by cities. In the mid 20th century, the Mediterranean already had some ten cities with a million or more inhabitants. Now there are around thirty, most of them on the coast.⁴ Istanbul and Cairo could pass the official

4 - According to the work of the Blue Plan, it is estimated that between 20 and 25% of the Mediterranean population was both urban and coastal (Benoit and Comeau, 2005).

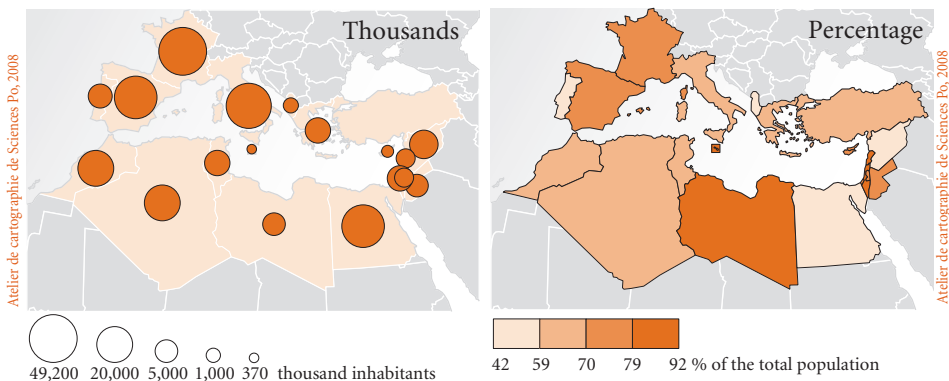
ANALYSIS of agriculture and the agro-food situation in the Mediterranean region

figure of 15 million by 2015. And if the world had to wait until 2006 to see the number of urban dwellers exceed those in rural areas, the Mediterranean for its part has had an urban majority since the 1960s.

The urbanisation of the Mediterranean area is thus ancient, global and probably irreversible by 2020. The growth of cities continues, at an even faster pace than in past decades. The increase in urban populations is staggering: they have quite simply doubled between 1970 and 2005. Currently, 64% of Mediterraneans live in urban areas and the ratio could even reach as high as 68% by 2020. It is in the Maghreb and the Near East that the highest rates of urban growth in the region are recorded. Thus on the southern shore, the number of city-dwellers rises from 108 to 214 million between 1990 and 2020 (of each five additional inhabitants of the area, 4 will be city-dwellers) (Maps 1 and 2, Chart 2).

Map 1 - The urban population of the Mediterranean, 2005

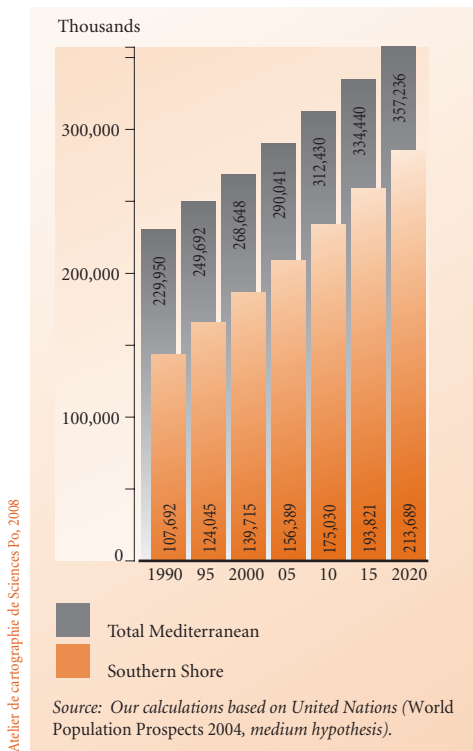
Map 2 - The urban population of the Mediterranean, 2005



While the countries of the North became urbanised earlier, the countries of the South are rapidly catching up. Thus, by far the bulk of demographic growth in the Maghreb is now in cities. Between 1990 and 2020, the zone will have 35 million new city-dwellers compared with only 0.5 million new rural dwellers. This demographic surplus will be mainly the result of migration from the country to the cities, by far exceeding natural urban growth. This pace in the Maghreb, the fastest in the Mediterranean region, is also greater than the average registered at global level. On the northern shore, some countries are experiencing accelerated urbanisation (Albania, Portugal) and in 2020, 7 Mediterranean countries are likely to have over 80% of city-dwellers (France, Malta, Israel, Jordan, Lebanon, Libya and Spain).

The relations between town and country have changed in the last third of the 20th century. The interdependency of urban and rural areas in the countries of the southern shore was much stronger than now, where a new gap is forming. In the North Mediterranean, the phenomenon of “urbanisation” or the notorious “desire for the country” of urbanised European societies has helped in recent years to mitigate geographical distortions and invent new relations between town and country.

Chart 2 - The urban population of the Mediterranean, 2005

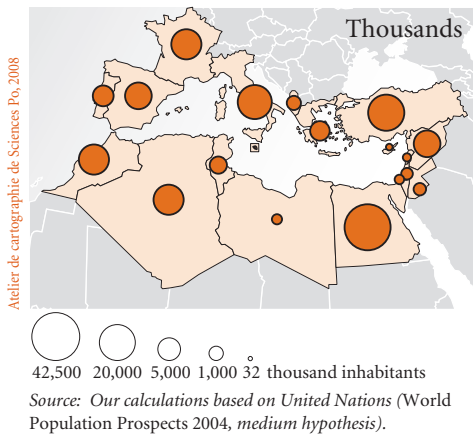


The rural world is still populated

Despite this, the Mediterranean countryside is not in demographic decline. In 1990, the number of rural dwellers was 148 million for the Mediterranean as a whole. There were 164 million in 2005 and likely to remain the same in 2020. The region retains a profoundly rural character with a third of the population living in the country, now and in 2020. In the South, this ratio is as much as 41% today (Maps 3 and 4, Chart 3).

Here, too, there are major disparities. In the majority of countries of the North, the rural population will decline (Albania, Malta, Portugal, Lebanon, Libya and Morocco), while others, conversely, will experience sustained demographic growth in rural areas (Egypt, Israel, the Palestinian Territories, Syria and Jordan in particular). Thus for apparent growth of 2 million inhabitants in rural areas in the Mediterranean between 2005 and 2020, there will in fact be a decline of 6 million rural inhabitants in the North and an increase of 8 million in the South of the Basin (almost exclusively in Egypt).

Map 3 - The rural population of the Mediterranean, 2005

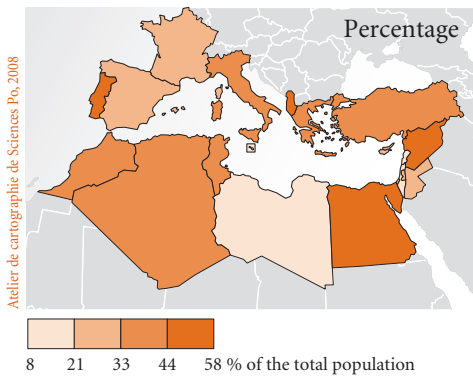


Let us be quite clear: if the Mediterranean is becoming increasingly urban, both numerically and in relation to the total population, the rurality (the ratio of the rural population to the total) of Mediterranean societies is in steady decline.⁵ This finding applies to all the countries of the Basin, both in the North and the South.

⁵ - It is in the Maghreb that the most spectacular decline in rurality can be seen, with a variation index of - 35% compared with - 13% in the Near East. On a case by case basis, it is found that rurality is declining strongly in Malta (- 53,2%), Libya (- 49%) and Lebanon (- 45,2%). Egypt is by far the most rural country in the Mediterranean region, with 58% of rural dwellers today. But other States retain a much higher rural population than the regional average, such as Albania (55%), Portugal (44%), Syria (50%), Algeria (40%) or Morocco (41%).

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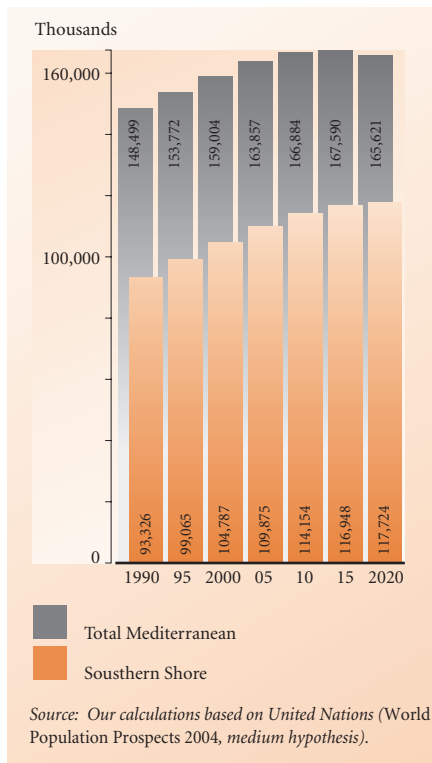
Map 4 - The rural population of the Mediterranean, 2005



Source: Our calculations based on United Nations (World Population Prospects 2004, medium hypothesis).

However, for all that, under the effect of demographic growth, the rural world is not being depopulated in the South of the Mediterranean. In the Maghreb, the rural population is neither declining nor increasing and this trend is likely to continue. In the Near East, rural dwellers are likely to remain in large numbers and with an unchanged overall population. Here the weight of Egypt must be highlighted, as it could have 7 million new rural dwellers between 2005 and 2020 (out of a total of 18 million between 1990 and 2020). At that date, moreover, 30% of Mediterranean rural dwellers would be Egyptian. In this context, it is not irrelevant to mention the strategic importance of the agricultural sector. In 2003, the Mediterranean had a total of 38.5 active agricultural workers, of whom 86% were located in the countries of the Southern shore.⁶

Chart 3 - The rural population of the Mediterranean, 2005



The South is undergoing a late but rapid demographic transition

Compared with Latin America or South-east Asia, the demographic transition of the countries of the South Mediterranean is taking place late, but at a more rapid pace than ever observed. Three indicators should be mentioned here:

- The demographic transition is observed through the significant decline in infant mortality. While it is true that the gap remains at 1 to 5 between the countries of the North and the countries of the South (5.7% 0 against

⁶ - In 2003, it is estimated that a third of active workers in the countries of the southern shore worked in the agricultural sector. This ratio may rise to 44% in Turkey and 46% in Albania. There are 15 million active agricultural workers in Turkey and some 8.5 million in Egypt, thus the two countries account for 60% of all active agricultural workers in the Mediterranean Basin. These calculations were made on the basis of information available in the Directory *MedAgri 2006* (Allaya, 2006) drawing on FAO statistics.

The socio-demographic context

25.9% 0), the latter are on the way to halving their infant mortality between 1990 and 2020 (from 38.6% 0 in 1990 to 18.6% 0 in 2020). Certain countries are recording even more spectacular progress, especially Egypt and Morocco which will reduce their infant mortality by two thirds in the same period.

- The extension of life expectancy is also part of this demographic trend. With advances in medicine and better living conditions, Mediterranean populations are living longer, up to 75 years on average in the Basin (or eight years more than globally). In the Maghreb, life expectancy is expected to rise from 68 to 75 years between 1990 and 2020, and in Egypt from 64 to 74 years. In the European countries of the North, the 80 year threshold has already been passed (Italy) or will shortly do so (Spain, France, Cyprus).
- Fecundity has been falling strongly for some years (Annex 1). It fell from an average of 6 children per woman in the 1970s to 4 children in 1990 and then to 3 today.⁷ The Maghreb countries are particularly marked by this phenomenon: the forecast average for the region is for 2.1 children per woman by 2020. Tunisia is already below this threshold. This new reality is largely the fruit of the dissemination of contraceptive methods, especially in urban areas, and their use by women who thereby manage their sexuality more easily, even if governments have often presented this question as a matter of demographic control for the good of the country and less as a personal choice for women. In France, fecundity took about two centuries (mid-18th to mid 20th) to fall from 6 to 2 children per woman. The Maghreb countries will only need fifty years to complete the same journey (1970-2020). This abrupt decline in the countries of the South echoes the fecundity crisis in the majority of the countries of the northern shore, with very low indices in Spain, Italy and Greece, in particular, where, however, the number of children per woman was still high in the 1970s.

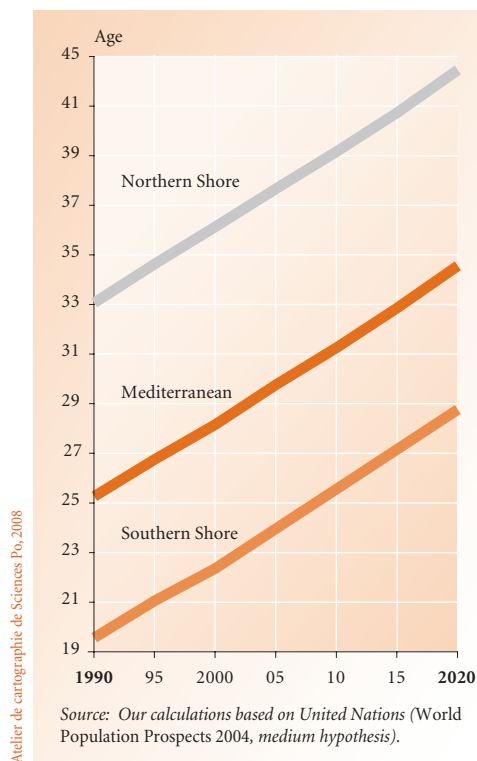
The scale and speed of this demographic transition in the South of the Mediterranean are such that the shift occurs without the country's economic and social structures having time to adjust.

Demographic ageing is very rapid

The general demographic ageing of Mediterranean populations is the corollary of all the demographic dynamics described above. Age is increasing everywhere: between 1990 and 2020, it will rise by 33 to 38 years in the North and 19 to 24 years in the South. This demographic ageing appears much more pronounced in the Mediterranean than in the world in general and will primarily affect the Maghreb countries, since the average age there will rise by 19 to 31 years. In the great majority of cases, the age pyramid of the Mediterranean countries shows a contraction at the base in favour of a broadening of the mature age groups (40-70 years in the North) or intermediate groups (20-40 years in the South) (Chart 4).

⁷ - In the Mediterranean, the fecundity index declines steadily between 1990 and 2020, from an average of 3.07 to 2.07. This is a significant decline, more rapid than observed at global level (from 3.04 to 2.38). Spain and Italy had the lowest fecundity indexes of the Mediterranean zone during the decade of the 1990s, now it is Greece where the index is lowest. It is collapsing in Malta, Cyprus and Albania. By 2020, apart from the Palestinian Territories, no southern shore State should have a fecundity index higher than 2.6.

Chart 4 - Average age of the population, 1990-2020



Although they still have a very young population, the countries of the southern Mediterranean are undergoing profound changes in their age structure with a high rate of growth of older populations. This phenomenon can be explained by the speed and scale of the demographic transition (lower fecundity, decline in mortality, increase in life expectancy) which is under way.

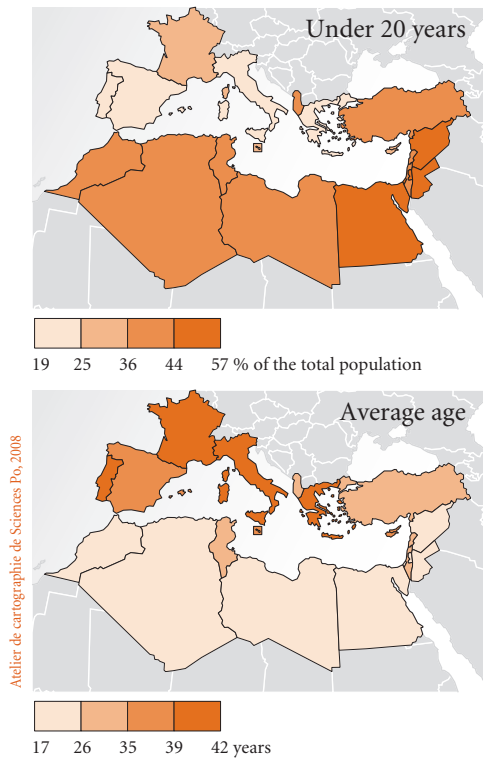
There remains a strong contrast between the northern shore with an aged population and the Southern shore with a population that is still young. Whether in 1990, today or 2020, there will always be a gap some fifteen years higher in the North of the Mediterranean, a not inconsiderable time. At the extremes will be Italy, which will be the oldest country in the region (some 49 years average age in 2020 compared with an average of 34.5 years for the Mediterranean as a whole) and the Palestinian Territories, which are likely to retain the youngest population (average of 20 years in 2020).

The proportion of youth is gradually eroding

The proportion of Mediterranean youth is still considerable in numerical terms. It is estimated today that 35% of the population of the Basin is aged under 20 years. This ratio rises to 43% on the southern shore, with peaks of over 50% in Palestine, Syria or Jordan, but only 25% in the North. By 2020, over one third of inhabitants living in the South will still be aged under 20 years (Map 5).

With the general ageing of populations, the relative proportion of youth in the population, however, is gradually declining. It will fall between 1990 and 2020 from 30% to 21% on the northern shore and from 52% to 36% on the southern.⁸ The “dejuvenalisation” of the South is matched by the “gerontogrowth” of the countries of the North. The contrast by 2020 can be striking between a country like Egypt where 40% of the population will still be under 20 years old and a country like Italy where half the population will be over 50.

⁸ - The fall is even more spectacular in the Maghreb, since the proportion of under-20s in the population falls from 52% to 33% between 1990 and 2020. Tunisia has the most surprising figures: the under-20s were 48.5% in 1990, 36.5% in 2005 and according to projections, will be 28% in 2020.

Map 5 - Age of the population, 2005

Source: Our calculations based on United Nations (World Population Prospects 2004, *medium hypothesis*).

These demographic dynamics in the Mediterranean area are naturally accompanied by the emergence of new trends, such as the rise in celibacy among young people, the delay in the age of marriage or new life styles of the elderly whose expectations and needs are very different from those of preceding generations.

In the South, these demographic changes in a very short space of time have a considerable impact on societies, which in turn evolve very rapidly with, for example, the re-balancing of roles in the household (linked to the development of female work) and within families (progressive weakening of patriarchal authority over increasingly well educated children and now urbanised socio-cultural benchmarks). The progressive arabisation of education, the reaffirmation of the pre-eminent role of Islam in daily life and an international context which stigmatises the Arab world are also signals that should not be ignored. Even if these populations are opening up to the world (foreign travel, internet, satellite), they play little part in globalisation. This marginalisation can encourage tensions in these countries,

in particular the resurgence of identity as an issue and the growing success of religious political parties. They attest to the divorce from the governing elites and constitute strategic dynamics to be included in the prospective analysis of the socio-demographic context of the region.

The South of the Mediterranean, whose priorities are the Millennium Goals, must face other development challenges (poverty, hunger, gender equality or sustainable development). A specific manifestation of poverty, the problem of under-nutrition, less persistent than in South Asia or sub-Saharan Africa, is still significant. The gap between demographic growth and under-performing agricultural productivity, added to the chronic economic upheavals, inevitably leads to an increase in the number of undernourished (cf. Annex 4): 9.2 million people (3.9% of the population of the zone) compared with 7.3 million people in 1990 (3.8% of the population). Like other regions of the world, the South of the Mediterranean will probably not reach the goals set by 2015.⁹

9 - The Millennium Goals for development number eight: the eradication of extreme poverty and hunger, primary education for all, promotion of gender equality and empowerment of women, reduction of child mortality, improvement in maternal health, combating HIV/AIDS, malaria and other diseases, ensuring environmental sustainability and developing a global partnership for development (United Nations General Assembly, 2000).

The outlook for the Mediterranean

The strong trends and uncertainties analysed above seem to suggest seven major challenges to the Mediterranean socio-demographic sphere. Already a perceptible problem, these challenges are likely to be further evident in the years ahead, heralding both challenges to be met and the risks of breakdown to be envisaged.

Women in the Mediterranean

The status of women in the Mediterranean countries, where the patriarchal order is still firmly entrenched and remains a topical issue. Of course, more and more Mediterranean women are working, empowering themselves in society or attending university. Access to education has probably been the chief revolution for women in the region. Moreover, they are increasingly entering the circles of power. Militant associations have undoubtedly contributed to recognition of their rights.

Several countries have adopted important reforms of their Family Codes. Worth mentioning are the example of the Moudawana in Morocco in 2003 and the Code of Personal Status in Tunisia, promulgated in 1956, which is still the most revolutionary text on women's rights in the Arab world thanks to its amendment in the early 1990s. Reforms have also taken place in Algeria and Syria. However, as recently underlined by a recent report, "The changes of laws are only one – but important step – in working towards equality. It needs to be followed by awareness raising of the changes and by ensuring implementation of the laws" (Euro-Mediterranean Human Rights Network, 2006).

Nevertheless, these efforts do not yet allow men and women to be regarded as being truly on an equal footing in legal, economic or social terms. The situation of women is still more difficult than men's when it comes to jobs, wages and rights. Their independence is subject to restrictions in the majority of countries and, what is more, huge disparities in the status and conditions of women can be seen between women living in the large towns and those in rural environments (the changes in terms of attitudes and family organisations occur first in the towns). This imbalance between the two sexes is the result of a combination of historical, socio-economic, political and cultural factors. All these findings are not specific to the countries of the southern shore. They apply equally to the North Mediterranean States (Spain and Italy especially), even if gender inequalities there are less pronounced.

Women are still under-represented in national parliaments¹⁰ (Eurosmesco, 2006) in the South Mediterranean countries (4.5% of elected members in Turkey, 5.3% in Algeria, 4.3% in Egypt, 15% in Israel, 7.9% in Jordan, 12% in Syria, 11.9% in Morocco and 22.8% in Tunisia), and also in Europe (14% in Greece, 30.5% in Spain, 13.9% in France, 10.4% in Italy and 20% in Portugal). On the southern shore, polygamy, although banned in some countries, is still common, as is the practice of forced marriages. Very often, the wife only inherits part of the assets in the case of widowhood while divorce proceedings are still generally very difficult. Illiteracy affects more women than men (62% of adult women compared with 39% of adult men in Morocco in 2003), and two thirds

¹⁰ - National parliaments were examined over the period 2003-05.

of adult women in the Mediterranean Arab countries do not work, although they represent over 30% of the total active work force of those countries.

They are essentially active in the agricultural sector, manufacturing industry (textiles-clothing), services or public administration. Parallel to the feminisation of work, particularly rapid in recent years, a feminisation of poverty can also be observed in the southern shore of the Mediterranean: in periods of crisis or adjustment, the rate of women's unemployment rises faster than that of men, for they are more vulnerable to contractions in the job supply (Roques, 2006). The development of local financial instruments such as micro credit can sometimes alleviate these difficulties, especially in working class districts where women, the primary beneficiaries, are able to redefine their role in the family and the immediate social environment.

Gender discrimination is even more pronounced in the rural world than in the towns. As underlined by several international reports (Radwan and Reiffers, 2006), the fragility of the economic and social conditions of women in the countryside of the South Mediterranean is amplified by the poverty that prevails there. While the environment of men in rural areas is above all outside, thus generating income and social recognition of the family, the woman's world is generally restricted to daily family life (in the home and working of the neighbouring farm). Even today, a girl in the countryside of the South will be less well cared for, less well fed and less well educated than her brother.

The share of agriculture in total women's employment is evaluated at 22% in Algeria, 39% in Egypt, 57% in Morocco and Turkey and 58% in Syria. Another equally telling figure is that in Egypt 200,000 girls aged under 14 years work and in over 80% of cases, this work is in the agricultural sector (fields and farms essentially).

As can be seen, improving the status of women remains a priority challenge for the Mediterranean,¹¹ with a dual objective: greater integration in economic life and continued promotion of their rights in the civil, political and social fields. Over and beyond the different situations in the countries of the North and the South, most of all there is an asymmetry between the two shores. In the North, women are no longer excluded from the public domain, even if they are still victims of various types of discrimination (such as greater exposure to unemployment and precariousness). On the other hand, in the countries of the South, exclusion is the prime form of domination of women (Audibert and Khodja, 1998), maintained both by the insufficiently reformed legal framework and local customs.

From neglect of the countryside to the urban explosion: the dual territorial risk

In the North of the Basin, the last decades have been marked by the progressive convergence of the level and quality of life in the towns and the countryside. The socio-demographic and economic changes in the rural world have been to some extent taken

11 - For the first time since the launch of the Euro-Mediterranean Partnership in 1995, a ministerial meeting on women was held in Istanbul on 14 and 15 November 2006. UNDP also made it the central theme of its fourth *Arab Human Development Report*, published in December 2006. This report, which examines the situation of women in the Arab-Islamic region deals in particular with their health, level of education and participation in political life.

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into account by political strategies. The modernisation of the countryside was driven by European Community policies (Common Agricultural Policy, structural funds, regional actions) or by national policies of States anxious to develop their territory.

In the South, there are still major inequalities between urban (mostly coastal) and rural areas. Progress has been made, it is true, thanks to the actions of governments and public development aid provided by international donors, especially in the period 1970-1980. The lagging of the development of the countryside behind the towns was undoubtedly less in the last third of the 20th century. However, at present, the gaps are still considerable and the gulf could even widen in some cases. The country areas in the South of the Mediterranean are still characterised by poverty, under-employment and lack of access to communal facilities. Links with towns are often inadequate and the urban-rural relationship appears to be growing more complex with the globalisation of the economy and societies. While towns are increasingly facing out towards the outside world and trade, rural areas in these countries with a fragile and fragmented geographical balance remain landlocked and under-developed.

To illustrate this trend in a nutshell, three significant divides can be noted (WHO, 2006 and World Bank, 2006). The first concerns access to drinking water. In 2002, in the majority of countries, rural dwellers had more limited access than city dwellers (only 56% of rural dwellers in Morocco, for example). The second concerns access to health services. Here too, in 2002, it was better to live in the town than in the country (only half the people living in the country in Egypt have access to health services, some 62% in Turkey and 31% in Morocco). Lastly, there is less poverty in the towns than in the country. Estimates of the proportion of the rural population living on less than one dollar a day in 2000 were 23% in Egypt, 18% in Jordan, 34% in Turkey, 27% in Morocco and 14% in Tunisia. These figures should probably be seen as relative, given the extent to which the informal economy remains crucial to the functioning of Mediterranean societies. Indeed the grey economy conceals often imperceptible realities.

These geographical development divides do not seem to have diminished in recent years. In some areas, countries are showing positive results in the development of the countryside (Tunisia, Turkey), but others are experiencing difficulty in equipping and modernising rural areas where the population is not declining. However, gaps in development between town and country can still be seen everywhere or almost everywhere. Is this a case of a new impoverishment of rural areas as seems to be suggested by the poverty indicators of the 1990s? Should one take the cynical view that it is better to be poor on the periphery of a major coastal city than in a faraway village in the interior? These questions alert us to the importance of developing rural areas, albeit allowing for certain interactions. It is a matter of striking a balance between demographic growth, the growing fragility of natural resources and the needs for modernisation in terms of communal facilities.

This second territorial challenge concerning the future of the Mediterranean socio-demographic context concerns the question of geographical balance in the countries of the South. It means ensuring the convergence of territories in order to obviate the amplification of development gaps between the urban and rural worlds. There are two dangerous trends lying in wait for these countries under the effect of the current socio-demographic dynamics:

- The first is the unstoppable expansion of towns with all its corollaries: over-population, uncontrolled urban sprawl cutting off agricultural land, destruction of the coasts, growth of unregulated spontaneous housing, development of squalid marginal districts, environmental pollution, land speculation, unplanned urbanism, rising crime, inadequate or inappropriate infrastructure. Towns must also take responsibility for the rise in unemployment among young graduates and the geographical inequalities that are occurring. At the same time, urban populations, plugged in to the outside world thanks to satellite, trade or tourism, have adopted new patterns of behaviour imitating Western lifestyles. Pressures, tensions and fragmentation of the urban environment engender the risk of Mediterranean “monstropolises” (Troin, 2006) in an already abused natural environment.
- The second danger echoes the first: the new impoverishment of rural areas, victims of under-development, economic stagnation, human exodus and environmental degradation. Lacking dynamism, these remote areas could be further marginalised if the towns, conversely, are swallowed up by globalisation and the market economy. These two contrasting trends could accentuate the marginalisation of the countryside.

The South Mediterranean is thus confronted with a dual geographical risk: uncontrolled growth of the towns, on the one hand, and, on the other, a proliferation of land-locked areas. A final breach of the link between the urban and rural world would be a new handicap for these societies. Apart from geographical balance, there is the question of non-development of the rural interior which is a serious risk.

Literacy and education: causes and vectors of development

The region has seen a rapid rise in literacy rates thanks to the increase in public spending on education, far higher than in other developing regions.¹² If one looks at the progress from 1993 to 2003, the results are incontrovertible: the number of illiterate adults aged over 15 years fell from 47 to 30% in Algeria, from 53 to 29% in Egypt, from 18 to 10% in Jordan, and likewise from 41 to 26% in Tunisia and from 22 to 13% in Turkey (UNESCO, 2005).

This progress should not blind us to the scale of the phenomenon. Even today, between one quarter and one third of the adult population of these countries cannot read or write. In Morocco, the rate is still exceptionally high, with some 48% of illiterates (albeit compared with 61% in 1990). These results do not take account of the quality of the education which is all too often irrelevant to the tight local labour market. Neither does it lead to increased admission to employment among the ever-growing number of graduates.

The rapid growth in adults in the South Mediterranean countries means that the figures expressed as percentages need to be qualified. In absolute terms, the number of illiterates among the population does not appear to have diminished.¹³ This progress is all the more relative in that, once again, worrying signs seem to be emerging concerning

¹² - Thus between 1970 and 2000, the Arab Mediterranean countries devoted an average of 5.3% of GDP annually to education, compared with 2.8% in East Asia, 3.3% in Latin America and 2.4% in South Asia (Ould Aoudia 2006).

¹³ - Taking the case of Algeria, for example, 47% of illiterates in the adult population in 1990 represents some 7 million individuals. In 2003, the rate had fallen to 30% which represents between 7 and 8 million people based on the estimated population at that date. This type of calculation can be repeated for the other South Mediterranean countries.

the current ability of young school children to read and write as well as their elders. The decline in illiteracy could level off further in the coming years rather than continuing its progressive downward path.

Demographic change transforms societies: the inter-generation challenge

The third strategic challenge concerns demographic change. In the European countries of the northern shore, the equation to be solved is known: how to sustain the welfare state system when the number of pensioners is rising and the number of those of working age is falling. Pensions funding is no longer guaranteed in the medium term in these countries where at times the only demographic growth is the result of the balance of migration (Spain and Italy in particular).

In the South of the Basin, the same problem could arise, albeit with a time lag, if current demographic trends continue. But the urgency lies elsewhere. Based on raw figures, population experts think that the southern Mediterranean countries are now in a demographic windfall phase, with considerable human resources of working age and a relatively low inactive population (young children and the elderly). However, this demographic manna is nothing of the sort in countries which lack an institutional environment capable of mobilising this human capital effectively. The number of unemployed graduates is rising in families where parents keep their children under their roof later and later. So long as these parents work (i.e. the current 40-60 age group in particular), the economic and demographic shock is damped. This will no longer be true, however, if income runs out or the children's economic inactivity is prolonged in a system where there is no proper social security system. Whence, perhaps, the new demographic behaviour of couples who must plan and space births to maximise the chances of sending one or more children into higher education. The economic problem is thus increasingly reflected in demographic practices. The growing complexity of the economic and demographic environment is turning Mediterranean societies upside down: although the inter-generation bond is sometimes strengthened (importance of the family, responsibility of parents and children), unfortunately it is also mortgaged (how long can this vulnerable situation be maintained?).

Hopes and despair of Mediterranean youth

What does the future hold for young Mediterraneans? Unemployment, precariousness and malaise affect the youth of the countries of the northern shore just as much as those of the southern, even if the circumstances vary. Tensions in the labour market are especially felt by urban youth and graduates. In the South, with strong demographic growth of recent years, the population of working age has shown a marked increase. However, the economic tempo is not keeping up with the pace of the demography. Barring a miracle, it will probably be the same in the future given that, in spite of everything, the current growth is vulnerable.

14 - Our calculations are based on statistical data provided by the United Nations and the French National Institute for Demographic Studies, presented in the work of the economist Jacques Ould Aoudia (2006). Labour market tension in

The number of net entries into the labour market in the Arab Mediterranean countries between 1995 and 2025 can be estimated at between 80 and 85 million, with some 45 million for the period 2005-2020,¹⁴ i.e. an average of 3 million entries annually over these fifteen years. These figures show the huge number of jobs that would have to be created in these countries already subject to high unemployment.

Faced with this problem, two responses seem to have predominated for some years: emigration, either with the opportunity to go abroad in acceptable conditions (e.g. the brain drain to North America in particular and less to Europe), or the temptation to clandestine exile, and the development of informal activity which puts a brake on national development but allows people to live (this phenomenon also occurs in Italy) or quite simply to survive. This underground economy reflects an adaptation strategy necessary in societies marked by a governance deficit.

The rise in the average marriage age is linked to these socio-economic problems, especially in the Maghreb and particularly for men (thus in Tunisia, it was 19.5 years for women and 26.3 years for men in 1996 against 26.6 years and 32.3 years respectively in 2000). Fecundity in the Arab-Muslim countries is largely conditioned by marriage, and the decline in births is also due to this increasingly delayed union. The hypothesis of an increase in celibacy at all ages may also be proposed in these societies where unemployment, precariousness and powerful demographic changes due to urbanisation, extension of education and progressive feminisation of labour are superimposed.

There is an urgent need to create jobs, but also to purge development of a sense of frustration and despair in the minds of parents who have often invested heavily in the education of their children. This social malaise, moreover, is set in a context already marked by public disaffection with the governing elites and growing economic problems. It is undoubtedly in part on the back of this desperation that political and religious extremists prosper. The centre of social activism, moreover, is increasingly occupied by moderate Islamic organisations which in return benefit from a deep gratitude and thus a growing electoral following.

Migration

Migration, mostly South-North, can be seen daily across the Mediterranean Basin, and has been so for a very long time. Of all demographic problems, immigration is the one which very often attracts the attention of public opinion and the media. Yet international migration is of little weight compared with a country's fecundity and mortality. An English population expert has estimated the net inflow of migrants into the current members of the European Union from 1955 to 2005 at between 10 and 15 million. Over the same period, there were some 300 million births in the same countries. Of course, the period studied is that of the population boom in Europe and migration gradually increased over the last third of the 20th century. However, as the same expert recalls, the total number of births in the European Union is still four times higher than the number of immigrants each year (Wilson, 2005).

International and Mediterranean migration will probably not decline but the volumes will still not be enough to disturb fundamentally the demographic structure of the

¹⁴ the Arab Mediterranean countries will peak between 2000 and 2010, while the decline in net entries is likely to begin around 2015.

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North Mediterranean countries in the period to 2020. This does not mean, however, that the emotional and social impact of migration in the European countries will be negligible, quite the contrary. It can be seen from several perspectives:

- The first perspective is that of the European, who observes that the migrant question has become a priority in political debate and that clandestine immigration is on the rise, reflected in the *boat people* who regularly wash up on the coasts of Italy and Spain.
- The second perspective is that of the southern Mediterranean, emphasising that the hope of being able to migrate is born primarily from despair at not being able to stay at home. Many are migrants who have already travelled the road from country to town. Going abroad, in sometimes dramatic circumstances, is not a relief but first and foremost yet another sacrifice to be endured. Exile is always or almost always dictated by financial constraints, lack of freedom, insecurity or extreme poverty. Migration from the South to the North of the Mediterranean can be explained by other factors: the image of social success displayed by some immigrants returning to the country during the summer holidays or the impact of the audiovisual via satellite and Internet which daily transport them in spirit to a near and comforting other world.
- The last perspective is that of the analyst who must emphasise three dimensions. First, he will recall the decisive role in migration of economic, demographic and political disparities between the countries of origin in the South and the host countries in the North. Treating the question solely as a security matter will lead nowhere. It is primarily a challenge of development. Then there is the socio-economic role of this migration for populations in the South. Since 1990, total financial transfers by immigrants has been greater than government development aid or foreign direct investment in these South-Mediterranean countries. These transfers, most of which come from Europe, for example, represented between 6 and 9% of Moroccan GDP over the period 1998-2003 (EIB, 2006). By supporting families who stay behind in the country of origin, these transfers act as social safety nets alleviating the difficulties of everyday life, especially in rural areas. Lastly, the analyst will emphasise that profound changes have occurred or are occurring. While in the past Italy and Spain were countries of emigration, since the 1990s, they have become hosts. Another emerging phenomenon is that certain countries of the southern shore, Morocco and Libya in particular, have gradually been changing into transit zones for migrants from sub-Saharan Africa. This pressure from outside the Mediterranean accentuates the migration phenomenon at the southern gates of the Mediterranean Basin. The Maghreb is in an unprecedented geopolitical situation as both a zone of emigration to Europe and a zone of immigration for the trans-Saharan flows.¹⁵ Another new case is that of the Near-East States which have had to accommodate Iraqi refugees since the outbreak of the conflict in 2003: Syria (from 1.2 to 1.5 million), Jordan (from 500,000 to 750,000), and also Egypt (over 80,000) and Lebanon (some 20,000).¹⁶

15 - An international symposium was organised on this subject from 2 to 4 November in Marseille by the Institute for Arab and Islamic Studies and Research (IREMAM), with the title *Immigration, transit and retention: the Maghreb put to the test by the trans-Saharan traffic*.

16 - These figures are taken from Resolution P6_TA (2007) 0357, adopted on 12 July 2007 in Strasbourg by the European Parliament concerning the humanitarian situation of Iraqi refugees.

The on-going demographic growth and the lack of prospects in local markets suggest that migratory pressures will continue from now until 2020, even if European States tighten their border controls and policies. Specific European demand for jobs now regarded as socially undesirable because they are precarious and arduous could become ever more manifest, creating a need for skilled and targeted immigration (for example in construction and personal services) or alternatively giving rise to recourse to clandestine labour (in the agricultural sector, especially in southern and eastern Europe).

For the people of Europe and the Mediterranean, these migrations also raise the question of living together in a Europe where cultures could merge rather than collide with each other, despite a regional and media environment which might suggest the opposite. Cultural cross-fertilisation, the first signs of which can already be seen, could become increasingly decisive for every European society. Those who reject it are likely to be hung up on identity and thus to advocate turning inwards. Those who make a strategic decision to stake their development model on it could find that it gives them a comparative advantage in a world where multiculturalism will probably carry more weight than an amalgamation of similarities.

In conclusion, one figure should be mentioned: in 2004, the twenty-five member European Union had some 5.8 million foreigners from the South Mediterranean countries (i.e. some 20% of foreigners resident on European soil and 1.3% of the population of the Union) (Fargues, 2005).¹⁷ That should not, however, conceal the importance of South Mediterranean emigration to non-European destinations, namely the Gulf States and especially North America (United States and Canada) which take in a considerable number of skilled migrants.

Birth of a hidden Mediterranean social divide

A sixth and last challenge seems to be emerging, a hidden social divide. Just as territories split into areas connected to the outside world and landlocked areas, Mediterranean societies seemed to be splitting into categories of globalised populations and marginalised categories. While this divide can be found in many regions of the world, it is particularly prevalent in the Mediterranean. This trend stems from the current forms of globalisation, essentially inspired by a liberal dogma underlying widening social inequalities within each national territory.

The globalised Mediterraneans are fewer in number. They have stable families, jobs and weave strong personal relationships. They travel and are enriched by meetings with others. They have the financial and intellectual means to follow the dynamics and changes brought by globalisation. They are not necessarily the wealthiest or best placed in the professional hierarchy, even if there is often a close correlation. Rather, they are modern elites, mastering technological and communication tools, constantly keeping up to date with everything, and able to access the various forums of expression (political, purchasing power, speaking, commitments, militant action). This last is a growing strategic comparative advantage. They are proactive in the face of social change. Confident and

¹⁷ - Note that the proportion of South Mediterranean migrants among the total number of foreigners present exceeds the approximate Community average (20% in the period 2002-04) in France (42%, some 2 million South Mediterraneans), in Germany (29.2%, 2.15 million) and in Italy (20.9%, 360,000 people).

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masters of their own destiny, these globalised Mediterraneans are the real architects of their own future. Their world is both polycentric (network, multi-task) and “globalised” (participation in globalisation and intensive involvement in local social life).

The marginalised Mediterraneans, on the other hand, are detached from globalisation. They are not cut off from it, but rather spectators or victims. They live globalisation at a distance (Internet and satellite are only ways of relieving boredom or windows on the world) or suffer its negative effects (precariousness, impoverishment, inflation). The recent acceleration of history and the upheavals induced by the market economy have left them behind. These populations are cut off from decision-making circles or centers of socialisation. They tend to turn inwards on themselves, their neighbours or their beliefs. Their world functions in a sealed jar. Faced with this sense of unfairness and a globalisation which leaves them behind, the marginalised Mediterraneans say nothing (physical or intellectual incapacity), give up saying anything (depoliticisation, individualism, loss of reference points) or, conversely, shout loudly (rise of political and religious radicalism, revolts in the suburbs of large urban centres). Women make up the majority of this category, especially because a situation of subservience to men persists in the Mediterranean.

This Mediterranean social divide is still barely perceptible, but it cannot conceal the main asymmetries which separate the northern shore from the southern (wealth and development). It could gradually emerge and impact on the future socio-demographic environment of the Mediterranean.

Probable socio-demographic trends

Among the principal dominant trends and major uncertainties concerning the demographic context of the Mediterranean, several trends are likely to continue or intensify up to 2020:

- Population growth in the countries of the southern Mediterranean shore, although less rapid than at the end of the 20th century.
- In the North of the Basin, the majority of States could see a demographic crisis related to the decline in fecundity rates and especially the numerical growth in the number of elderly in their societies. Only France is today experiencing a natural demographic resurgence with a rising fecundity rate.
- The urbanisation of Mediterranean societies will continue, albeit more rapidly on the southern shore. This process will be accompanied by increasing resettlement of these urban and peri-urban populations along the coast. The number of large cities in the Mediterranean is likely to increase further, while landlocked and neglected rural areas could multiply in the interiors of southern shore State.
- In some countries, the countryside may not suffer massive depopulation. Between now and 2020, rural dwellers will probably still be more numerous in Egypt, Jordan, Syria and the Palestinian Territories. The rural nature of the population of the Mediterranean region is thus not likely to disappear over the next fifteen years, even though its size is gradually being eroded in the North of the Basin and declining in the Maghreb and Turkey.

- The demographic change in the countries of the southern shore will continue and even accelerate in the Maghreb zone. People there will have fewer children, live longer and mortality rates will continue to decrease. This phenomenon can be explained by the spread of modern medicine and health systems, growing use of contraception and family planning.
- Ageing of the population in the Mediterranean region will probably intensify, especially in the countries of the southern shore and more particularly in the Maghreb and Turkey, where the average age continues to rise, despite the still youthful character of the population, compared with European societies, like Italy or Greece, increasingly composed of old people. If in numerical terms, it does not diminish over the next fifteen years, the number of young persons under the age of 20 is crumbling substantially in relative terms in all the countries of the southern shore of the Mediterranean.

The major uncertainties of the Mediterranean demographic context up to 2020 rather concern the socio-economic aspects and impacts of the demographic trends described above. The question is how can Mediterranean societies be managed and organised when they are generally increasingly urban, coastal, educated and ageing?

In the North, the chief uncertainties concern the chances of being able to perpetuate social and pensions systems ad aeternam without major reforms. The majority of European countries will be faced with a diminution of assets and an increase in the non-working population, in an economic climate probably characterised by weak growth and high unemployment. Precarious or informal employment could at the same time increase in the northern Mediterranean countries, where individuals, both the forsaken and immigrants, will need to combine several activities or hold thankless jobs simply to live.

In the South Mediterranean, the challenges are of a different nature. In increasingly urbanised States, where women are gradually gaining their independence, social and religious customs could change. Lifestyles are also becoming increasingly individual in countries where celibacy is on the rise, the number of births is drying up and bonds are coming untied. In addition, a dangerous mismatch is being created between an educated population of working age and an adverse or sclerotic labour market. The numerical growth in the number of jobless and unemployed graduates is turning the South-Mediterranean countries into very real socio-economic powder kegs, finding expression now and doubtless in the future in migration on the one hand and radicalisation (political and religious) on the other. Finally, the questions of governance and the development model in these countries, where indicators of living standards, education and health seem to have stopped improving in the face of current and accelerating socio-economic change, should not be overlooked.

The demographic changes at work in the Mediterranean coupled with the development dynamics thus provide a complex and somewhat disturbed panorama for the future of the region in the years ahead. The Mediterranean will be more urban and older. Populations will be bigger on the southern shore in countries where the countryside, while still well populated, is at risk of marginalisation. Mal-development may continue to characterise the situation of several Mediterranean countries. Environmental degradation and the scale of the socio-economic challenges will unfortunately further cloud the horizon.

This analysis of the dynamics of the socio-demographic context in the Mediterranean, the effects of which on forms of consumption, work or government agricultural policies can be foreseen, will be highlighted by the examination of the major challenges ahead for the region's agriculture.

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Annexes

Annex 1 - Fecundity index in the Mediterranean

Country	1990-1995	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020
Albania	2.78	2.43	2.29	2.18	2.09	2.01
Cyprus	2.36	1.92	1.63	1.6	1.6	1.64
Spain	1.27	1.18	1.27	1.35	1.42	1.49
France	1.71	1.76	1.87	1.85	1.85	1.85
Greece	1.37	1.3	1.25	1.25	1.29	1.36
Italy	1.28	1.21	1.28	1.38	1.41	1.45
Malta	2.02	1.85	1.5	1.5	1.53	1.6
Portugal	1.52	1.48	1.47	1.47	1.5	1.57
Algeria	4.13	2.88	2.53	2.39	2.27	2.17
Egypt	3.91	3.53	3.29	2.99	2.75	2.57
Israel	2.93	2.94	2.85	2.66	2.49	2.36
Jordan	5.14	4.32	3.53	3.13	2.81	2.54
Lebanon	3	2.7	2.32	2.21	2.12	2.03
Libya	4.1	3.41	3.03	2.72	2.47	2.26
Morocco	3.66	3	2.76	2.58	2.43	2.3
Syria	4.61	3.95	3.47	3.08	2.76	2.51
Tunisia	3.13	2.32	2	1.87	1.73	1.7
Turkey	2.9	2.69	2.46	2.31	2.21	2.11
Palestinian Authority	6.46	5.99	5.57	5	4.4	3.85
Mediterranean	3.07	2.68	2.44	2.29	2.16	2.07
SEMC	4.00	3.43	3.07	2.81	2.59	2.40
European Mediterranean	1.65	1.47	1.47	1.49	1.51	1.57
World	3.04	2.79	2.65	2.55	2.46	2.38

Source: Our calculations based on United Nations (World Population Prospects 2004, mean hypothesis).

Composition of categories:

- SEMC: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia, Turkey and the Palestinian Authority.
- European Mediterranean: Cyprus, France, Greece, Italy, Malta, Portugal and Spain.

Annex 2 - The Human Development Index (HDI) shows deep disparities between the Mediterranean countries

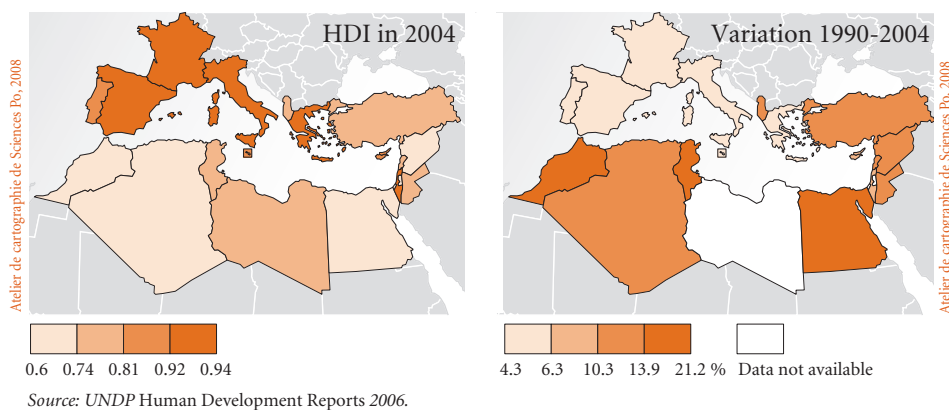
However debatable it may be, a composite indicator now measures the state of development of societies as a whole. This is the Human Development Indicator (HDI) suggested each year by the United Nations Development Programme (UNDP). The HDI measures three dimensions of human well-being: average wealth (GDP per capita in purchasing power parity (PPP), life expectancy at birth (longevity and health) and level of education (literacy and knowledge). The HDI value ranges from 0 to 1. The maximum value corresponds to an excellent rating and the minimum is extremely poor. Countries ranked between 0.8 and 1 are considered the most favoured. Countries whose HDI is less than 0.5, on the other hand, are considered to be in a state of weak development.

It is true that the indicator is not perfect, since it does not take sufficient account of the disparities within the same country. Nevertheless, the HDI is an interesting barometer since it is unique of its kind, and provides an annual snapshot of the level of development of each country in the world and thus the ability to cross-reference the data regionally and observe gaps within a given geographical area. How does this apply to the Mediterranean region and how has the HDI evolved over the last thirty years? Three rapid observations can be made.

The first is that the HDI has improved in each of the Mediterranean countries since 1975, and more rapidly on the southern shore, especially in the Maghreb States. The second observation flows from the previous: as the HDI has improved in each of the countries, gaps therefore persist between the European States of the northern shore and the Arab countries of the southern shore even if they have been gradually narrowing. Thus in 2004 the average HDI for the former was 0.918 compared with 0.767 for the latter, or an average gap of 0.151. In 1975, however, the gap was 0.328 and in 1990, 0.232. Ranking the Mediterranean countries according to their HDI for 2004, it appears that France is in first place (0.942), Israel on the southern shore makes fourth place (0.927), Libya is the top-ranked Arab country (0.798) and Morocco remains the Mediterranean country with the lowest HDI. The third and last observation emphasises that no Arab country has so far attained the symbolic threshold of 0.8 and that all of them, apart from Libya (64th), are ranked between 78th and 123rd in the world, i.e. in the middle.

In the light of these observations, it could be that the convergence between the North and the South Mediterranean in terms of HDI will continue in the future. The reason that this process will probably continue is that, on the one hand, the European States of the North are now approaching the maximum ceiling of the index while, on the other, those of the South, apart from Israel, are still at the development stage (since the HDI there is below the 0.8 threshold). Lastly, as world HDI is rising more or less everywhere, it is a safe bet that the Arab Mediterranean countries will remain in the middle of the ranking for a long time yet.

Annex 3 - Human Development Index of the Mediterranean

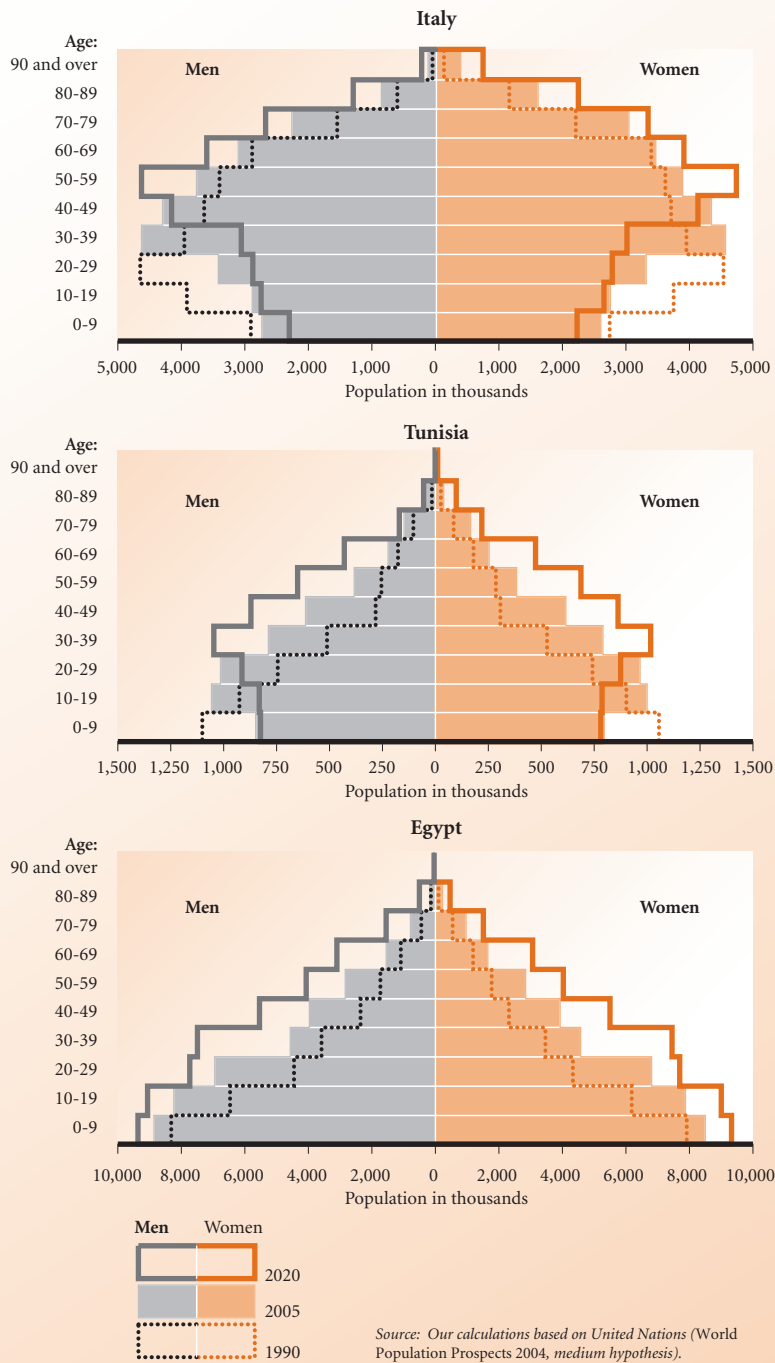


Annex 4 - Trends in under-nutrition among South Mediterranean populations

Country	Number of under-nourished persons (millions)		Proportion of under-nourished persons in the total population	
	1990-1992	2001-2003	1990-1992	2001-2003
Algeria	1.3	1.7	5.1%	4.2%
Egypt	2.5	2.4	4.5%	3.6%
Jordania	0.1	0.4	3.1%	8%
Lebanon	0.1	0.1	3.7%	3%
Libya	nc	nc	nc	nc
Morocco	1.5	1.9	6%	6.3%
Syria	0.7	0.6	5.5%	3.6%
Tunisia	0.1	0.1	1.2%	1%
Turkey	1	2	1.7%	2.8%
Total South Mediterranean	7.3	9.2	3.8%	3.9%

Source: Our calculations based on Faostat 2006 and UN 2004.

Annex 5 - Age pyramid trends in Italy, Tunisia and Egypt





CHAPTER 2

THE GEO-ECONOMIC CONTEXT*

The globalisation of the economy has been accelerating since the end of the 20th century, and as a corollary the geo-economic landscape of the planet is changing rapidly. So-called “emerging” countries have become veritable economic powers, whilst others have been unable to keep pace with the new dynamics in the international context. The Mediterranean countries are not the big winners in this globalisation process. The Mediterranean region is composed of countries with very different economic profiles: the Member States of the European Union¹ (EU) are very different from the countries in the southern and eastern Mediterranean (SEMCs),² where realities are very mixed. In this region, economic disparities are still much more marked than any signs of convergence.

In the introduction to the present publication we discussed how the SEMCs have been unable to capitalise the natural or cyclical advantages they have enjoyed in order to transform economic and financial dynamics into development processes benefiting their societies. This inability to mobilise the factors available inevitably reflects a general lack of development in Mediterranean area. The economy, which could play an active role to ease political tensions, is suffering from a number of weaknesses, which are still preventing the countries from keeping abreast of the sociodemographic dynamics that are underway and the environmental changes that are taking place in the region.

In this context, agriculture continues to play a key role and to occupy an essential place in the societies and economies of the Mediterranean. It is precisely because agriculture is a strategic sector that the forms of trade liberalisation that are underway must be closely monitored, bearing in mind that the agricultural trade situation in the Mediterranean is now extremely critical. A whole series of questions are thus arising on the future of agriculture in the Mediterranean countries, which are becoming increasingly dependent on the changes in the global agro-food system, and on the ways and means of strengthening Euro-Mediterranean co-operation through agro-food policy.

*- This chapter has been based on documents prepared by Sébastien Abis (Ciheam-General Secretariat), Pierre Blanc (Ciheam-Montpellier) and Jacques Ould Aoudia (economist).

1- Portugal, Spain, France, Italy, Malta, Greece and Cyprus.

2- In the analyses in the present chapter this denomination includes Morocco, Algeria, Tunisia, Egypt, Lebanon, Israel, Turkey, Syria and Jordan, i.e. the countries of the Euro-Mediterranean Partnership with the exception of the Palestinian Territories, since we do not have sufficient data.

Economic dynamics in the Mediterranean region

Analysis of the place of region holds in the world economy, how trade is developing in the zone, and the trade policies that are being implemented provides a basis for considering the general prospects for the Mediterranean economy.

The Mediterranean in the world economy

The main trends and those that are emerging in the Mediterranean economies will be measured in terms of growth, wealth creation, income disparities and investments.

High, yet insufficient, growth rates in the Mediterranean region

Economic growth in the Mediterranean has on the whole been higher than the world average since 2000 (3.5% compared to 2.5% in the period from 2000 to 2004). It has accelerated considerably in the past few years in Albania, Algeria, Morocco, Jordan, Turkey and Greece. Some countries, however, have been registering lower growth rates since 2000 compared to the state of their economy in the 1990s; this is the case in Egypt, Syria and, in particular, Israel in the South, and in France, Italy and Portugal in the North.

SEMC growth amongst the riparian States of the Mediterranean as a whole is favourable compared to the rest of the world and Europe (although still lagging far behind the performance of Asian countries and China), but it is insufficient to meet the employment challenge in the current phase of population transition. An annual growth rate of 6% to 7% would be needed in order to absorb the influx of new workers on the employment market (almost 45 million by 2020 in the Arab Mediterranean countries) and to allow the economies of these countries to get off the ground.

Unemployment is still high, generally above 10%, although it has recently dropped in some countries as the result of the new flexibility on the labour market (in Morocco) or of the favourable situation in the global economy (it dropped from 29% to 15% in Algeria between 2000 and 2005). Unemployment is hitting young people in particular in the countries around the Mediterranean, despite the fact that their level of education is rising and the number of university graduates is increasing; this is the case in Egypt (34% of young people under 25 are unemployed compared to 11% of adults), Lebanon (21% compared to 8%), Algeria (31% compared to 15%) or Syria (26% compared to 12%), for example, but also in Europe, where almost 19% of the under-25s are out of work, whereas the Community average for adults is around 9%. There is thus a dual challenge, which concerns both employment for young people (and thus training systems) and, more generally, the ways and means of boosting growth modes on a sustainable basis (see Annex 1).

To complete this analysis, we would underline that the labour force participation rate is still low in most SEMCs: 41% in Algeria, 50% in Egypt, 38% in Jordan, 46% in Morocco and Tunisia, and 51% in Turkey. These figures must no doubt be corrected in view of the significance of the informal sector in the economies of these countries, where unskilled work is sometimes a way out. In Europe, labour force participation rates of 70% to 75% are registered on average – except in Italy (62%) and Malta (58%). The financing of pension schemes partly depends on the labour force participation rate,

and this is a problem which could become acute in the southern Mediterranean countries, given the current population trends, particularly in the Maghreb.

Mediterranean GDP – disparities and weight in the world economy

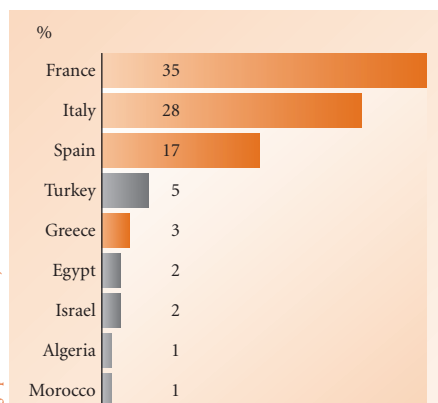
The zone formed by the European Union and the SEMCs accounted for 31% of world GDP in 2004 (29% for the EU-25 and 2% for the SEMCs). The Mediterranean area accounted for 13.3% of world GDP, compared to 12.5% in 1990; taken as a whole, the Euro-Mediterranean region, accounting for 31% of global GDP, is thus the world leader compared to other geo-economic zones of similar area: the United States (29%), Japan and South-East Asia (12%), China (5%), Russia (2%) or Brazil (2%). This statement must of course be seen in proportion, given the overwhelming economic dominance of the EU within the region as a whole – a dominance which is obviously also present in the Mediterranean Basin. In 2004, the Mediterranean countries of the EU accounted for 87% of total Mediterranean GDP (Spain, France and Italy alone accounting for 80% of that total). The remainder was distributed as follows: Turkey almost 5%, Israel 2.2%, the Maghreb 3.2% and Egypt 1.7%. This was also the case in 1990, when the countries on the European shores in the North accounted for 85% of Mediterranean GDP. Since there are few trade links amongst the various sub-regions of this zone, it is not an integrated economic area (Chart 1).

The aggregate GDPs of Algeria, Morocco and Tunisia amounted to just under the GDP registered in Portugal in 2004. A further revealing observation is that the total GDP of the SEMCs (\$709 billion) still does not reach that of Russia alone (\$764 billion). These figures show the extent of economic disparity in the Mediterranean zone, but also the SEMCs'

limited share of the global economy (just under 1.8% of world GDP, 55% of the amount being attributed to Turkey and Israel). Comparison of the macroeconomic data with population figures highlights the economic weight of the Euro-Mediterranean pole compared to the size of its population (11% of the world population in 2005 but 31% of world GDP). The GDP of the Mediterranean region alone amounts to 13.3% of world GDP, which is almost twice as high as the significance of the region in population terms (7%). On the other hand, the SEMCs weigh twice as much in population terms as they do in economic terms (4% of the world population but 1.8% of world GDP). The Arab Mediterranean countries, which account for 2.8% of the world population, contribute only 0.8% to global GDP (Chart 2).

GDP is clearly growing in most Mediterranean countries; in many cases the results doubled between 1990 and 2004, but the gaps between the northern and southern shores persist (Chart 3).

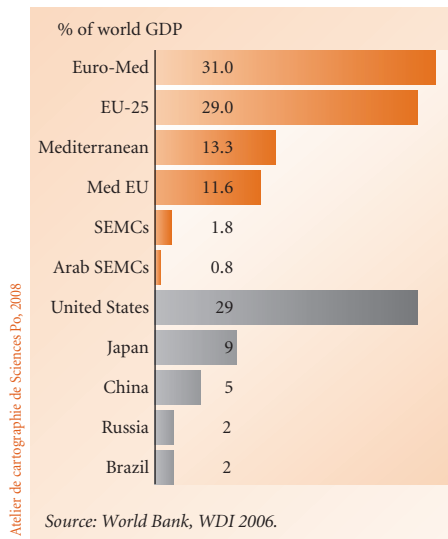
Chart 1 - Share of the various States in total Mediterranean GDP, 2004



Atelier de cartographie de Sciences Po, 2008

Source: World Bank, WDI 2006.

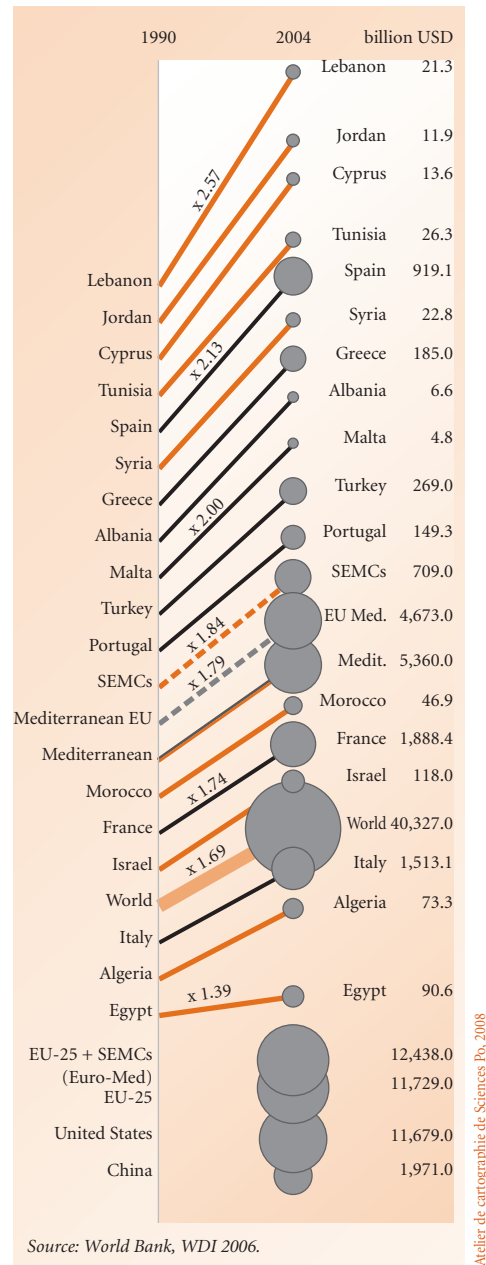
Chart 2 - Position of the Mediterranean region in the world economy, 2004



Per capita GDP reveals lack of Mediterranean convergence

Analysis of the development of per capita GDP in terms of purchasing power parity (GDP/capita/PPP) since 1990 reveals the wealth inequalities in the Mediterranean region. In 2004, GDP in France was still four times higher than GDP in Morocco, as was already the case in 1990 (see Annex 2). The distance between Morocco and Spain in the straits of Gibraltar is only 14 km, but this geographical proximity actually conceals a considerable economic gulf: whereas GDP/capita/PPP in Spain was \$24,750 in 2004 it was less than \$4,250 in Morocco – a ratio of 6 to 1. This asymmetry is mirrored throughout the Mediterranean Basin, where the average ratio between the European Union and the Arabic Mediterranean countries is 5 to 1 (or 3 to 1 if one includes Israel and Turkey). Taken as a whole, there was no change in this gap between 1990 and 2004: economic integration simply is not happening in the Euro-Mediterranean region. There has been no sign of the SEMCs converging with the countries on the northern shores in the past few years. The problem is that this gap is persisting despite the establishment of Euro-Mediterranean co-operation.

Chart 3 - GDP trends in the Mediterranean region, 1990-2004



The trends differ from one region to another. In the North, Albania is an isolated case, since its GDP/capita/PPP is similar to the values registered in the Arab countries in the region. In the South, Israel is also an exception, since its GDP/capita/PPP is similar to that of Spain. The Maghreb region is faring better than the Middle East (\$6,000 per capita compared to \$4,500). With \$7,720 and \$7,430 per capita, Turkey and Tunisia are the two countries on the southern and eastern shores of the Mediterranean in that are the best-off, with the exception of Israel. Egypt and Morocco have the lowest GDP/capita/PPP in the entire region. During the period under review, France always had the highest GDP/capita/PPP in the Mediterranean, except in 1995, when Italy took the lead. The European Community average rise in the indicator since 2000 is higher than that registered in the Mediterranean countries in the south of Europe, where the trend is more sluggish.

When we observe the variation index over the 1900-2004 period, we see that progression was most marked in Malta, Cyprus and Greece. In the South, Lebanon definitely caught up after the civil war, GDP/capita/PPP rising from \$2,177 in 1990 to \$5,550 in 2004. Progression is strong and steady in Tunisia, where GDP/capita/PPP was \$7,430 in 2004 compared to \$4,540 in 1990. Some of the countries in the South, however, have been unable to get off the ground; this is the case in particular in Algeria (affected by civil war throughout the 1990s), Jordan, Morocco and Syria.

One must not oversimplify, however; there are “Norths” and “Souths” in the economic field in the Mediterranean. In terms of GDP/capita/PPP, Albania is in the South and Israel is in the North. And there are regional disparities within individual countries, certain regions in the south of Europe lagging far behind the respective national averages; this is particularly true of the south of Spain and the south of Italy. And there is also a gulf between the rural world and urban zones in the SEMCs.

Acceleration and diversification of foreign direct investments (FDI)

Over the longer term, FDI flows into the SEMCs have been particularly limited, accounting for only some 5% of global FDI flows dedicated to developing countries in the course of the 1990s. In 2005, only 3% of FDI flows went to those countries, i.e. just slightly over the amount flowing into sub-Saharan Africa. The EU is still the most attractive zone in the world, capturing almost 50% of FDI inflows. The SEMCs received \$111.7 billion in FDI in the period from 1995 to 2004, but Turkey and Israel captured almost half of these inflows (22% and 26% respectively). Egypt, Morocco and Tunisia were fairly well endowed compared to the limited stock of FDI received by Jordan and Syria (Chart 4 and Annex 3).

When we compare FDI flows into the SEMCs with those flowing into the Central and Eastern European Countries (CEECs) which joined the EU in 2004, we observe that during the period from 1995 to 2003 the CEECs received \$152.6 billion of FDI, i.e. more than twice that received by the SEMCs (69.7 billion) and approximately 4 times more than the Arab Mediterranean States (35.9 billion), which only received a stock comparable to that received by Hungary alone (31.7 billion). The EU contributed 55% of the CEECs' stock of FDI (\$84.6 billion), whereas its share in the SEMCs' stock was only 34% (22.5 billion). Thus, in the course of that decisive period during which the Eastern

ANALYSIS of agriculture and the agro-food situation in the Mediterranean region

Chart 4 - FDI flows in the Mediterranean region, 1995-2005

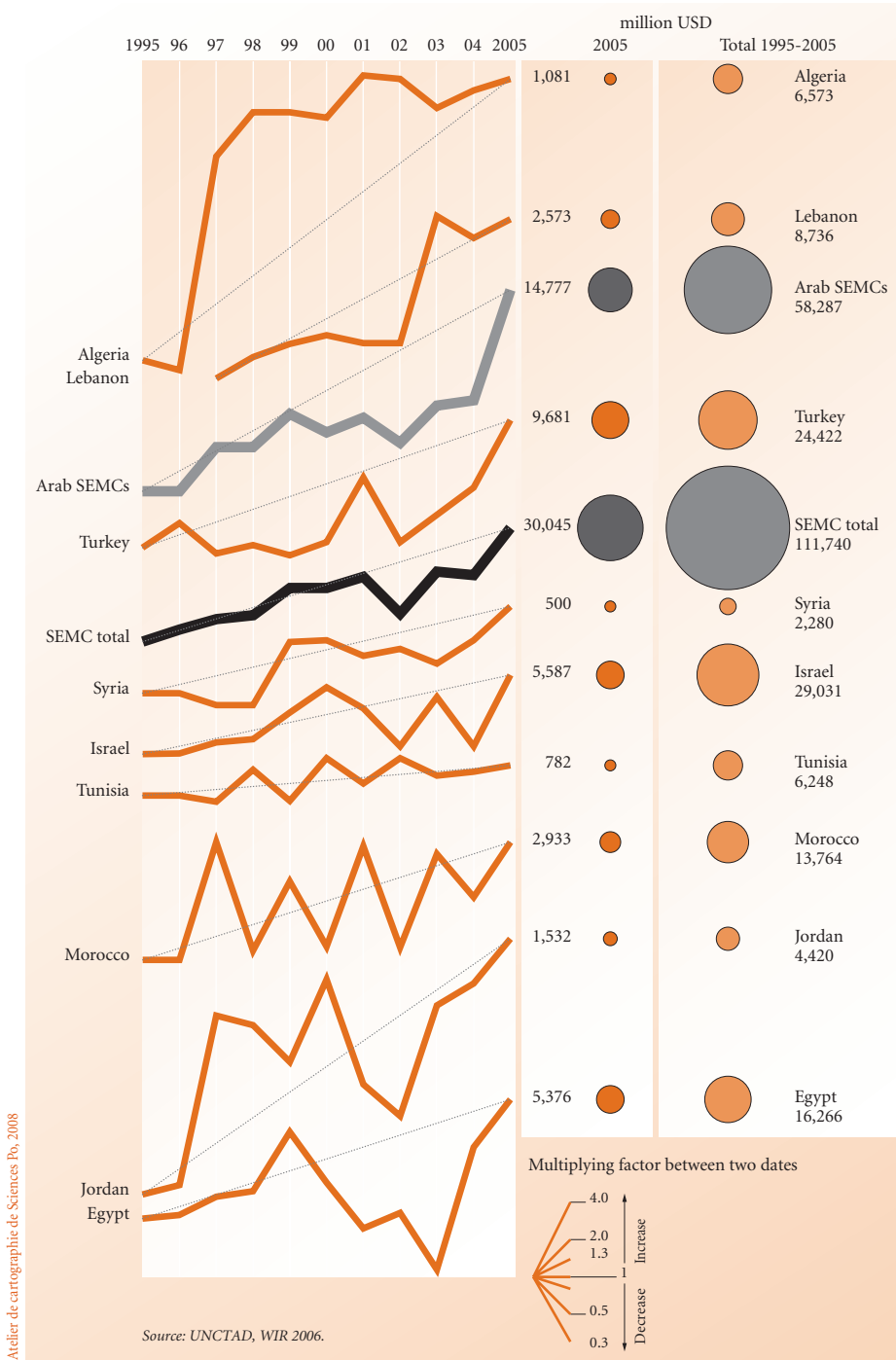
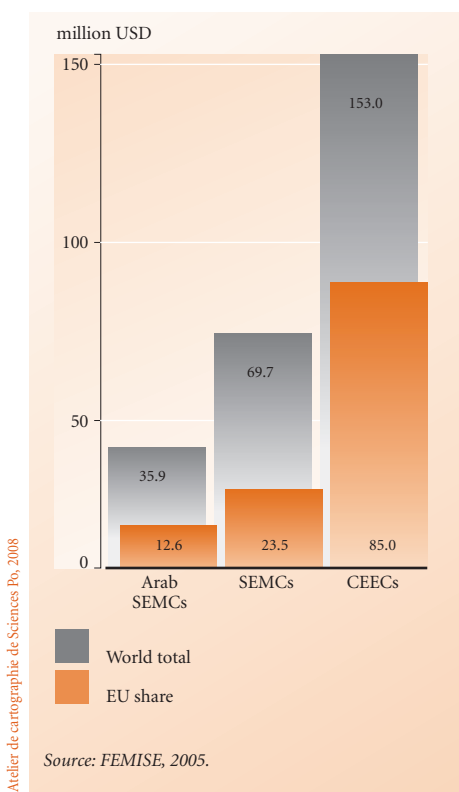


Chart 5 - FDI flows in the CEECs, 1995-2003



European countries joined the Union and the countries in the South became stabilised, the amount of FDI the EU transferred to the CEECs was approximately 4 times what it transferred to the SEMCs. This discrepancy symbolises the difference in political investment in integration on the one side and in partnership on the other, for when Brussels was spending € 27 per capita per annum on the countries in the East (within the framework of the TACIS, PHARE and SAPARD financial tools), the SEMCs were receiving € 2 per capita per annum (within the framework of the MEDA programme), i.e. almost 15 times less (Chart 5).

The past few years have been marked by considerable acceleration in FDI flows into the SEMCs (\$69.7 billion between 1995 and 2003 but \$42.1 billion during the 2004-2005 period alone). Estimates even anticipate an overall volume of \$50.6 billion for 2006 alone (60% of this flowing into Israel and Turkey, the two attractive countries in the region). In the case of the Arab SEMCs, this increase is mainly to be explained by the situation on the oil market, as the result of which investments from the oil-producing countries in the Gulf have been multiplying.

A further factor explaining the trend is the recent increase in privatisation moves, particularly in the telecommunications sector, which has boosted opportunities for foreign investments. Certain measures to enhance the attractiveness of certain regions, such as the establishment of “competitiveness zones” and technology parks (in Morocco, Tunisia and Turkey) are also creating areas that are more conducive to FDI. The most dynamic sectors at the present time are telecommunications, energy, banking, the property market and civil engineering, tourism and the chemical industry. However, this improvement conceals the fact that the percentage of employment-intensive FDI is low, except in the telecommunications sector, and that few FDI are dedicated to manufacturing or agro-food activities.

And finally, foreign investors in the SEMCs are becoming more diversified: the share of the EU and its member countries is decreasing (25% in 2006 compared to 50% on average in the 2003-2005 period), although French, Spanish and Italian investors still play a major role, focusing essentially on the Maghreb market. And the Gulf States are strengthening their position, becoming the leading investors in the region in 2006 (36% of inflows in 2006 as against 17% over the 2003-2005 period). The United States and

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Canada are strengthening their foothold, in view of the situation on the energy market, accounting for 31% of FDI in 2006. Investors in the emerging countries (China, Brazil, India, South Korea, Russia, South Africa) are also entering the economic sector in the Mediterranean, albeit with a lower profile.

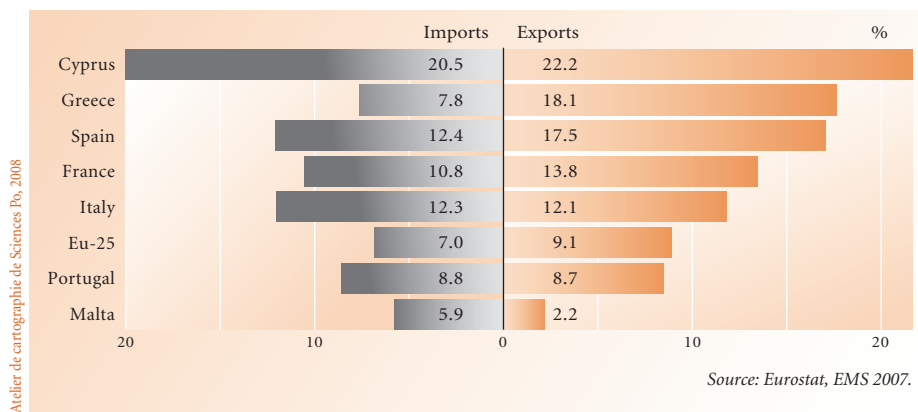
Complex trade policies

The trade situation in the Mediterranean

All of the SEMCs showed a trade deficit in the period from 2000 to 2005. Algeria was the only country showing a surplus in its foreign trade as a whole, thanks to oil revenue. Syria came close to equilibrium, as did Tunisia, whose deficit was not excessive. The trade deficit registered in Turkey, on the other hand, was considerable (- € 34.6 billion in 2005) but was less marked in Egypt (-7.4 billion) and Morocco (-7.7 billion). These deficits were financed in part or entirely through services in the tourist industry (in Morocco, Tunisia, Egypt, and Turkey) and through the transfers of funds by emigrants, who contribute a substantial volume of capital to the countries of origin in all SEMCs, particularly Morocco and Lebanon. The trade situation in the northern Mediterranean countries was also unfavourable. Although they trade essentially with other European partners, they generally show deficits in extra-Community foreign trade, with the exception of France in 2000 and the following years and Malta (Charts 7 and 8).

The SEMCs' share of EU foreign trade has been relatively low since 1999, 7% of EU imports coming from the region and 9% of EU exports. The Mediterranean countries of the EU trade more with these countries, however; this is mainly the case with France, Italy, Spain, Greece and, in particular, Cyprus. But these trade relations are not particularly intensive (trade with the SEMCs does not account for more than 20% of any southern European country's foreign trade, except for Cyprus) and they also underline the fact that, with the exception of Malta, they all export more to SEMCs than they import from them (Chart 6).

Chart 6 - Position of the SEMCs in EU trade, 1999-2005



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Chart 7 - SEMC trade balance, 2000-2005

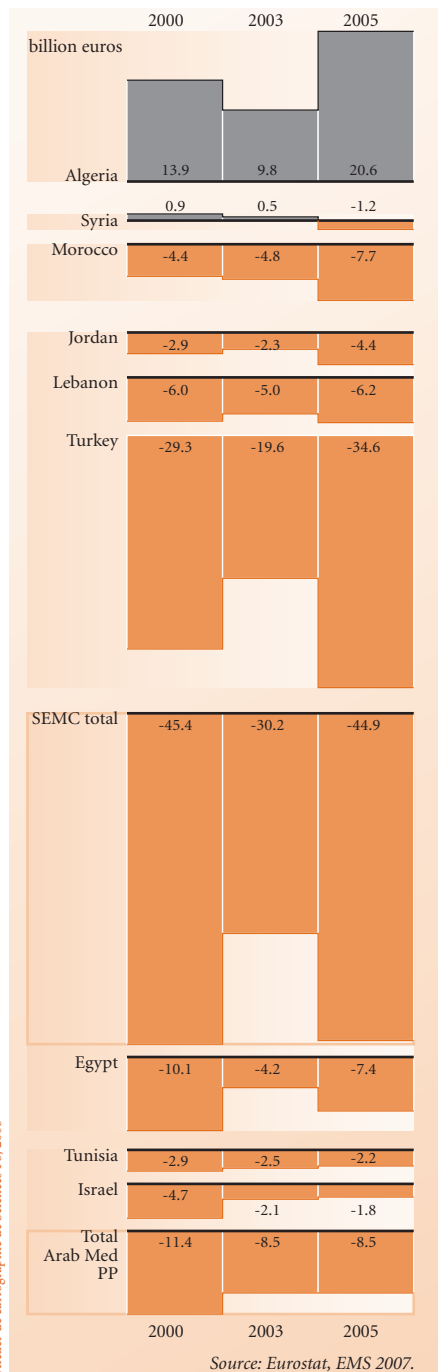


Chart 8 - Trade balance of the EU Mediterranean countries, 2000-2005

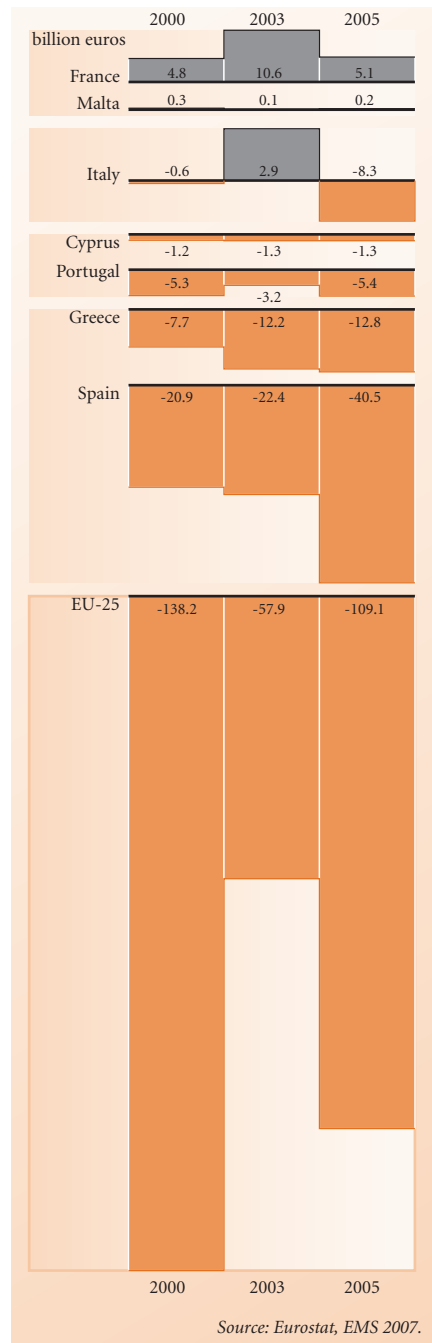
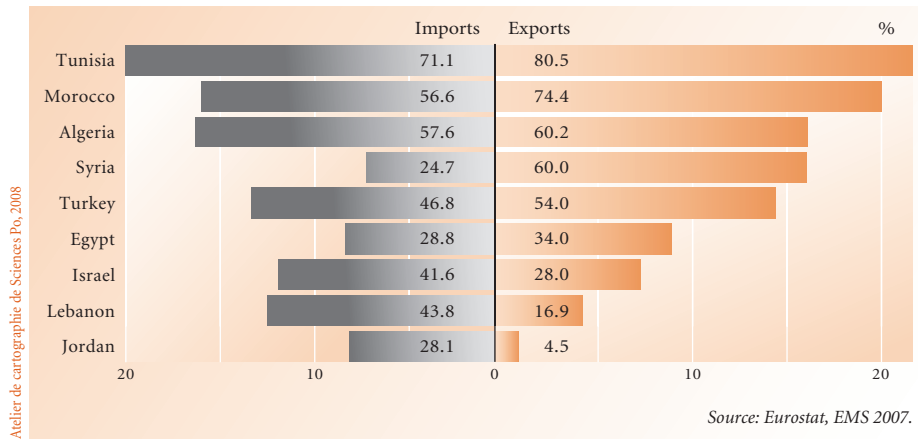


Chart 9 - Position of the European Union in SEMC trade, 2000-2005

Conversely, trade with the SEMCs is highly polarised towards EU countries, as regards both imports and exports. This is the case with the three Maghreb countries, and in particular with Tunisia, the EU accounting for 71% on average of Tunisian imports and 80% of Tunisian exports over the 2000-2005 period. The EU share of Turkish, Israeli and Egyptian foreign trade also reflects the SEMCs' close trading links with Europe. Lebanese exports to the European market are limited, however (17%), Jordan's are very limited (4%), and trade between Syria and Europe has been waning since 2004 (see Chart 9 and Annex 4).

These data must not mask the role played by other zones of the world in SEMC trade. In 2004, the United States had a trade presence in the region (particularly in Israel, Egypt and Jordan), accounting for 7% of SEMC imports and almost 17% of their exports. China accounted for 5% of imports and 2% of exports, but the weight of Asia (15% of imports and 11% of exports) must be added in order to show the extent to which the SEMCs now have trade links with the Asian continent as a whole. South-South trade in the Mediterranean region is still limited, on the other hand – for many reasons (political difficulties amongst riparian countries, similarity of production systems, etc.); the SEMCs trade very little with one another, inter-SEMC trade accounting for 4.5% of their imports and 6.2% of their exports in 2004, although three SEMCs – Egypt, Syria and Jordan – do entertain more intensive South-South trade relations.

A mosaic of trade agreements

The Mediterranean region is today a mosaic of political and trade agreements, in which Euro-Mediterranean relations are not in fact exclusive. The liberalisation of trade in the region has taken the form of a dual movement of multilateral and bilateral associations. The agreements concluded between the EU and the SEMCs within the framework of the Euro-Mediterranean partnership play a special role. This process, which was launched in Barcelona in 1995, aims in particular to establish a free trade area by 2010 constructed on the basis of a series of association agreements concluded between the EU and each

of the SEMCs. It was a leap of faith aiming to enable the countries on the southern shores to open up to trade in order to stimulate economic growth, which, in turn, would provide a firmer basis for political reforms initiating the transition to democracy. But due to the inflexibility of Mediterranean political systems and the lower level of regional integration in terms of South-South trade these objectives have not been achieved.

The result is disappointing: Euro-Mediterranean trade relations between the northern and southern shores are still totally asymmetrical. There has been no sign of any move towards economic integration in the region for over 10 years, a fact that is evidenced by the persistently low level of South-South trade and the wealth disparities between the populations in the North and the South. At the institutional level, Syria and Lebanon still have not ratified their association agreements with the EU, and Algeria did not do so until 2005. The other States have progressed at varying paces, pioneered by Tunisia (which ratified its association agreement in 1998) and then Morocco (2000). In view of the delays in the signing of the agreements and the 12-year transition periods that have been scheduled, the time span for the full opening of trade will run from 2008 to 2020. The countries in the North have also been slow to ratify the agreements (taking from two to five years).

The MEDA programme, the financial instrument of Euro-Mediterranean co-operation, has proved difficult to implement: from 1995 to 2005 almost € 6.9 billion were committed to the Arab SEMCs (neither Turkey nor Israel were eligible for aid from this programme, since the former had embarked on negotiations for joining the EU and the latter had a “western” economy very different to those of the Arab SEMCs), but only € 4 billion were actually expended (i.e. an average of 364 million per year over 11 years) due to an insufficient disbursement rate and ponderous bureaucratic procedures in both North and South (see Annex 5). Since the Arab SEMCs have a total population of some 180 million, the figure of € 2 per person per year is quoted here again, as mentioned above.

This Euro-Mediterranean facility, which is already problematical due to mutual concern and distrust as to the impact that opening will have on these economies, has been complicated by the implementation of the European Neighbourhood Policy (ENP). The EU is in fact reforming its foreign policy regarding its immediate neighbours with a view to adapting its action to its new geography and meeting the demands arising from the changes in its geopolitical environment following the integration of the CEECs; this new foreign policy focuses on these “new” neighbours (Russia and Ukraine in particular) and on Europe’s “old” Mediterranean neighbours.

The new European offer is designed to pave the way for institutional convergence, the neighbouring countries taking over part of the Community *acquis* at their own pace (according to the expression of “Everything but the institutions”, which means that the neighbouring countries are invited to adopt the necessary tools for joining the large Community market without becoming members). This policy has been based since 2007 on a new financial instrument, the ENPI (European Neighbourhood and Partnership Instrument), which has a total budget of € 11.2 billion for the 2007-2013 budget period and for all of the regions concerned by the ENP. The bilateral approach prevails in EU relations with each of the neighbouring countries. The regional dimension – the

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original feature of the Euro-Mediterranean partnerships – has thus been reduced or even eliminated, although it must be admitted that it never really enjoyed strong support either by the European States or by the partner countries or by the Commission. This trend is now being confirmed by the implementation of action plans between the EU and its neighbours, which complement the association agreements in the Mediterranean. Each plan establishes an agenda of reforms and co-operation between the EU and the third country, which could gradually take part in European programmes, depending on the progress made. In return for this concrete progress in compliance with Community values (democracy, human rights, State governed by the rule of law, market economy, sustainable development) and for the effective implementation of political, economic and institutional reforms, the EU would offer these countries the prospect of taking part in the internal market. By 2007, seven Mediterranean countries (Egypt, Lebanon, Jordan, Israel, Morocco, Tunisia and the Palestinian Authority) had already signed an action plan with the EU.

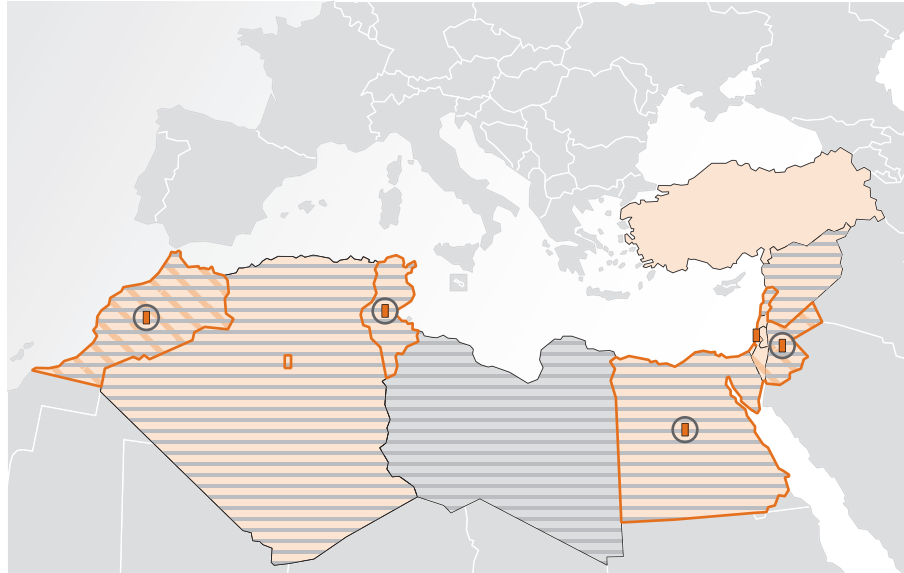
A mosaic of political and trade agreements overlaps with these Euro-Mediterranean relations:

- Although the Maghreb Arab Union (MAU) still seems to be at a standstill, efforts are underway in the Arab League to create an extensive free trade area. Numerous trade agreements have been signed more recently at the regional level, such as the Agadir Process in 2004 (involving Morocco, Tunisia, Egypt and Jordan), or at the bilateral level (in particular between Turkey and other countries in the southern Mediterranean), evidencing the will to step up South-South relations.
- The United States has a strong presence in the Mediterranean region and is establishing strategic alliances with several States in the zone in line with the objectives that have been set in the US BMENA (Broader Middle East and North Africa) policy. A free trade agreement was concluded with Israel in 1985, with Jordan in 2001 and with Morocco in 2004. Washington is now seeking to pursue this trend, and other Mediterranean countries (Tunisia and Algeria in particular) could conclude agreements in the future.

How do the Mediterranean countries stand in relation to the World Trade Organisation (WTO)? The negotiating positions of the EU and the SEMCs are asymmetrical: the EU negotiates en bloc for all of its 27 Member States, whereas the SEMCs each negotiate separately (as a reminder, Lebanon and Syria are not members of the WTO, and Algeria has only observer status). Since the SEMCs do not resolve their diverging interests within their own specific framework, they can find themselves in negotiating groups which sometimes adopt opposing positions. For the SEMCs, there are also two very different fronts in the multilateral negotiations when it comes to agriculture, two very sensitive issues: access to the markets of the EU (their main trading partner), and Europe's treatment of the other developing countries (Map 1).

The rapid expansion of new players is creating other dynamics. China, the Asian dragons, the Gulf monarchies, Russia, Brazil and South Africa are becoming increasingly important trading partners for the countries in the southern and eastern Mediterranean. This trend is obviously connected with the multcentred pattern of trade which globalisation has brought.

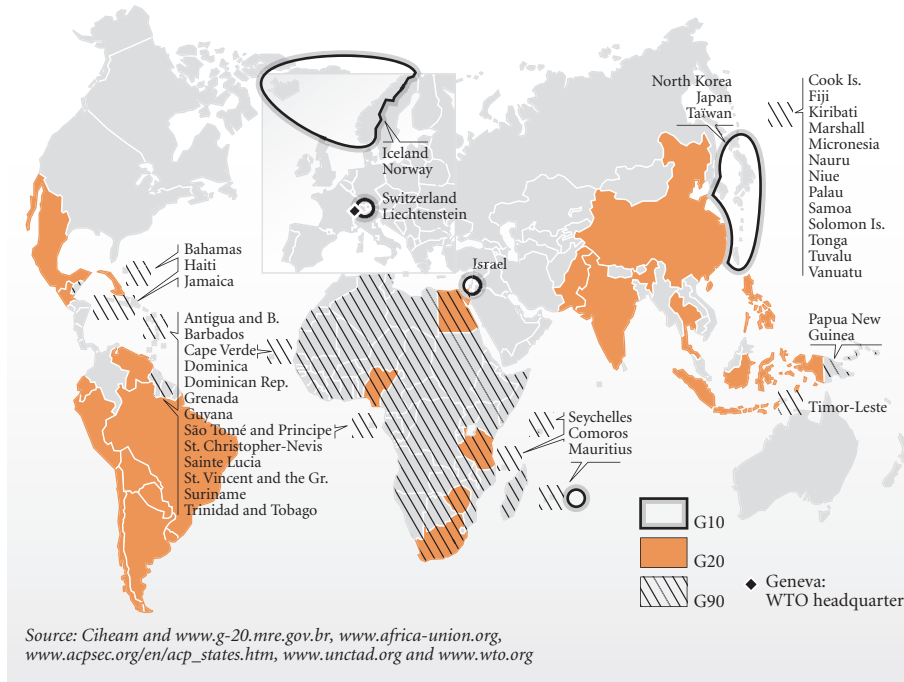
Map 1 - Political and trade agreements



- | | |
|--|-----------------------|
| Euro-Med (EU/MPC association agreements) | Agadir Agreement |
| ENP (action plans, PA) | WTO (membership) |
| Arab League | WTO (observer status) |
| MPC/US bilateral agreements | |

Source: Ciheam.

Pressure groups in the WTO



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Consequences and prospects for the Mediterranean economies

In view of the population developments to be anticipated over the next 10 or 15 years and their consequences in terms of massive and permanent unemployment affecting young people, the economic transition of the SEMCs poses major challenges. On the domestic scene, these countries will have to find a new growth model to follow the redistributive model which prevailed from the years of independence to the mid 1980s. That model must be based on productivity growth and accompanied by a new social contract that can bring the entire population the prospect of better living conditions. And externally, these countries will have to improve their integration into world trade by decompartmentalising regional trade and diversifying their trading partners.

In this dawning 21st century the economic situation of the SEMCs seems uncertain. Given the particularly difficult geopolitical situation with persistent serious regional conflicts, one cannot yet speak of any substantial economic takeoff, despite the fact that the rise in raw materials prices has boosted growth in the past few years. There are some signs of recovery, but there is still concern over the social and human costs of adjustment.

How is the economic improvement since 2003 to be interpreted?

Growth has been sustained in the SEMCs since 2003. Per capita GDP has been growing at a rate of over 4% (the aggregate average for all the countries), a performance which the region has not registered since 1970 after the first oil crisis. This buoyant growth ends a long period of sluggish economic activity – per capita GDP rose by only 1% on average in the period from 1990 to 2002 – during which there was no sign of any convergence with the countries on the northern shores of the Mediterranean. However, these overall trends must not mask profound differences amongst the individual countries. Many different shocks have affected each of them – recurrent climate shocks (in Morocco), internal and external conflicts with regional repercussions (in Algeria, Lebanon, Jordan, Israel and Syria), and financial crisis (in Turkey). Tunisia stands out with a stable and relatively high growth rate, which over the long-term has brought the country's per capita income close to that of the European countries.

This regional trend is taking place in the context of very high world growth buoyed up by the high performance of the countries in East Asia following the crisis in the late 1990s, and in particular the performance of China, and of India for barely a decade. The macroeconomic imbalances in the SEMCs have been resorbed on the whole since the mid 1990s; inflation in Turkey was brought down below the 10% mark in 2004. The balances on current account became positive (on average) at the turn of the century, a fact which reflects excessive savings in general (except in Turkey and Tunisia), which in turn points to sluggish production in the economies of the region.

The causes of this improvement are largely external, as was the case in the 1975-1985 period, with the exception of Turkey and Israel. The rise in hydrocarbons prices is resulting in a rise in revenue in the net exporting countries (Algeria, Libya and, to a lesser extent, Egypt and Syria) and then in the other countries in the region due to the double effect of the increase in capital transfers (FDI) and in transfers by emigrants, coming

mainly from the Gulf countries. The region is thus returning to import growth mainly due to the price of energy, a factor on which the societies of Mediterranean countries have no influence. But whereas the growth which followed the two oil crises in 1973 and 1980 (and which was suddenly interrupted by the countershock in 1986) was further accelerated by massive public debts causing profound macroeconomic imbalances (which were then resorbed by structural adjustment plans), the current period seems to be more “virtuous”. Having learnt from the rigorous adjustment policies they have had to implement, the authorities are now maintaining macroeconomic balance and only resort very cautiously to foreign debt. Some of the oil-producing countries in the region, in particular Algeria, are even engaging in prepayment of their foreign debts.

This renewed growth is reducing unemployment rates, which until now have been the highest of all developing regions. It is young urban graduates who are hardest hit by this unemployment, which carries a high risk of destabilisation, and the authorities have been endeavouring to reduce this risk for the last three years through public investment programmes such as the scheme implemented in Algeria. Pressure to emigrate is still strong in all of the Arab Mediterranean countries. Young workers have seen no substantial improvement in their prospects of progressing in society, since the growth has been generating a relatively limited number of jobs in the formal sector, not to speak of the administration, as was the case until the mid 1980s. To this have been added considerable migratory flows from sub-Saharan Africa since 2004; these migrants are bound for Europe and are generally stranded in the countries in the north of the continent, where some find very low-paid jobs without status. The countries on the southern shores to which they emigrate have thus also become transit and host countries for thousands of young sub-Saharanans.

Given the emigration trend in their own populations and excessive savings, the SEMCs are on the whole exporters of production inputs. Since labour and capital are unable to join forces dynamically on the domestic scene they seek their fortune and security elsewhere, reflecting the fact that the new indigenous growth that has been registered over the past few years is still unable to generate employment.

With the prospect of continuing high energy prices and the rather favourable economic situation this entails, these countries have to choose between two alternatives: will these external financial resources that have been stimulating growth since 2003 provide a basis for modifying internal regulation systems in depth in order to stimulate domestic production? Or will there be growth without development, socially imbalanced growth that is based on redistribution rather than on production?

Historical heritage and globalisation

After the macroeconomic adjustments made with the support of the international financial institutions, the growth modes in these countries failed to recover due to deep-rooted internal constraints, and the various forms of strategic revenue (oil, geostrategy) from which they have been “benefiting” have been a major contributing factor in the perpetuation of these bottlenecks. More broadly and over the longer term, these countries have been unable to start to bring their per capita incomes into line with those of the northern Mediterranean countries. The pace of activity still depends to a large extent on external resources: growth is not self-sustained.

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The challenge of creating employment for young people will be all the more crucial by 2020. In the current population transition, hordes of young workers, many of them urban graduates, are already pouring on to the market and will continue to do so for the next 15 years. In the present situation, despite the economic upswing, the social systems and production structures are unable to absorb this influx of young workers, who are less and less protected by family solidarity and remain mainly in informal subsistence activities at home or abroad (“suitcase” trading).

Yet the bottleneck is not due to lack of financial resources, since these countries export part of their savings. It is due to the general lack of dynamism of States which have no autonomous development strategies and to the fact that the social systems are inaccessible to new actors (young entrepreneurs setting up their own firms). Sheltered by both internal and external protection measures (difficulty for new firms to enter the market, customs barriers), firms fail to innovate, confining their operations to traditional activities. This lack of dynamism on the part of firms which are not open to new activities (reluctant even to imitate, let alone innovate) perpetuates the low demand for foreign financing.

So the question that arises is less that of how to re-energise the financial sector than one of how to stimulate entrepreneurship: while the growing pressure of unemployment is resulting in a profusion of small and very small subsistence firms with a strong informal component and very low productivity, medium-sized and large enterprises are focusing on rapid-return activities and are investing very little in the sector. The level of technological and managerial know-how accumulated is low, as is investment level, particularly long-term investment. It is virtually impossible to launch non-traditional economic activities by expanding existing firms or setting up new businesses. There is little diversification of the entrepreneurial fabric, and inter-company relations involving complementary activities are underdeveloped (there is very little co-contracting or sub-contracting). Production in each individual firm is episodic, and this is an obstacle to many medium-sized and large-scale investment projects, both local and foreign. To this is added the low level of expenditure on research and development (R&D), which limits technological absorption capacities.

The reasons for this curb on growth are to be sought in the confidence area – static confidence amongst agents and between agents and public institutions, dynamic confidence of agents in the future. Confidence is low in both senses of the term throughout the region with regard to transaction security, willingness to be taxed, credibility of the justice system, investment in the future, risk-taking (on the part of businesses but also of households, whose investment in education does not pay off).

Essentially, the curb on growth in these countries is due in the last analysis neither to lack of resources, in particular financial resources, nor to macroeconomic imbalances, which have been brought under control on the whole, nor – which is even more surprising – to particularly ineffective public governance compared to the other developing countries with equivalent revenues. The causes go deeper than that: they are a combination of the resistance of the public and private elites, their practice of “capturing” the State, which eliminates any consideration of the long-term and precludes the entry of any new players, the weight of tradition, which is hindering the modernisation of both industrial and

gender relations, very limited confidence amongst actors, which increases transaction costs, and, finally, the status of knowledge, which is inhibiting creativity and restricting learning. In short, the modus operandi of these economies is labouring under a dual handicap: it lacks competitive drive, and it lacks a co-operative mentality.

Although the very low level of foreign corporate financing is the most visible symptom of this lack of dynamism in SEMC production systems, it is not the cause. It is due to corporate reluctance to incur debts and to take risks. By the same token, the low level of foreign direct investments is due to the reluctance of local firms to open their capital to foreign investors. In these circumstances, given the sluggish corporate demand for resources, there is no incentive for the financial sector to modernise.

The opening of SEMC economies to foreign trade has not changed the way they operate. The economic component of the Euro-Mediterranean partnership (creation of a free trade area between the EU and each of these countries as well as amongst these countries) is intended to speed up changes in production structures and institutions by providing a political basis and financial support. Tunisia is the only country to date which has taken the opportunity to take a number of steps to modernise its economy at its own pace. Morocco is following suit, but with difficulty. The other SEMCs still have a long way to go and have only just started to open up; they lack a development strategy which could coordinate and mobilise the interests of the various actors involved. Here again, Tunisia is the only country which since its independence seems to have a certain amount of vision.

Barring slight differences from one country to another, the reform movement is proving to be slow. With political leaders ill-inclined to take any steps, commitments to reform often prove to be for rhetorical effect.

All in all, the political economy underlying the modus operandi of wealth creation is locked by the elites of the private and public sectors, who collude to maintain a status quo of which they are the primary beneficiaries. Given the en masse arrival of young workers on the labour markets and the waning redistribution capacities of the State, these countries are faced with the need to formulate a new social contract. Social necessity and the need to speed up growth modes concur, but will the systems have the political resources for meeting these challenges?

New internal trends and swing to a multcentred world

The arrival of new powerful actors on the now globalised economic arena is drastically changing the international environment. China has become “the workshop of the world” for low-tech and medium-tech products but also a major investor in energy, the other raw materials and certain specific sectors. India follows close behind with its own special features. Brazil is embarking on new economic alliances with South Africa and India...

As regards manufacturing, economic takeoff through the gradual development of unskilled-labour-intensive sectors towards activities with growing value added and involving more and more capital and skilled labour is in real jeopardy in the countries which have not seized this opportunity. This is the case with the Arab Mediterranean countries,

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only a few of which (Turkey, Tunisia, Morocco) have to some extent taken advantage of the system of asymmetrical trade preferences granted by Europe in the mid 1970s. New analyses have been produced on the region, those of the UNDP being particularly remarkable due to the way they have been drawn up (by Arab experts) and their depth. They are severe in their assessment of the causes of the inhibition of the development of these societies: the lack of democracy, women's bridled status, and the difficulty in acquiring of knowledge.

Yet profound dynamics are underway, created in the main by the effects of one of the most rapid population transitions ever observed. The sudden drop in fertility rates has reduced the size of families, enabling women to take part in economic and social life to a greater extent while modifying the relationship with paternal authority. While general access to education, despite the latter's shortcomings in terms of quality, is running counter to the submission which is a trait common to all of these societies, the success of the Arab television channels demonstrates that the educated middle classes are aspiring to critical information. The myth of Arab unity has waned considerably although still a cultural reference, while the Arabic language has actually been unified thanks to the television channels which broadcast news, films and songs, so that in addition to the dialects which are still spoken a modernised form of classical Arabic is now understood throughout the linguistic area.

The demand for autonomy and for the participation of civil society has been emerging in Arab societies since the mid 1990s. It is apparent in a far-reaching associative movement in Morocco in reaction to the shortcomings of the State in the social field and in a religious movement in which the individual is given recognition and economic success and personal growth are advocated. Response is particularly strong in societies which have been affected by the islamisation movement for some time, particularly in Egypt, and is aimed at the well-off, who are bridled by bureaucracy and authoritarianism. But it leaves social demands unanswered and evades political issues, shying away from the question of the State and its authoritarian governance of society.

Europe has not as yet used the framework it has been setting up in the region since 1995 to advantage. The Euro-Mediterranean partnership, which has only had a marginal effect on the internal reform trends in the various countries, is suffering from the very limited political and economic involvement of Europeans. In the absence of a common foreign policy, the ambiguities in the foundations of this partnership (a security objective, economic means) are reflected in its management, which has been assigned to the ministries of foreign affairs, whereas the bulk of the progress that has been made, albeit limited, has been in the economic field.

At the same time, the emergence of new powers in Asia and also in Latin America has changed the face of the world well beyond the economic field. We have moved from a "developed centre/developing periphery" pattern to a vision of a world that is less and less polarised towards a developed North that dictates the rules of the game. The countries in the North do of course endeavour to integrate these new players into the old framework of international relations whenever the latter are in a position to demand a place in the new configuration of the world: the post-colonial era is over. The causes of these upheavals owe little to the SEMCs. It is due to the explosion of oil revenue in the

Persian Gulf countries, Algeria, Libya and, to a lesser extent, Egypt and Syria and in particular to growing world energy challenges that the Mediterranean countries are gaining significance. Traditional links, particularly links between colonial powers and former colonies, are gradually weakening. New trade routes are opening between countries in the South, new cross-investments are establishing links amongst Arab countries, but also between those countries and countries in Asia, the Americas and Africa. These changes will affect all Mediterranean countries to degrees as yet undetermined. Whereas until now they have been focusing on Europe and the United States, they will, at the very least, look to new horizons.

The development and place of agriculture in the Mediterranean economy

In this context, agriculture remains a strategic issue within the economic trends in the Mediterranean region. Examination of the major socio-economic indicators, a survey of agricultural trade in the Mediterranean and a debate on the prospects of trade liberalisation will provide a basis for assessing the challenges involved.

Panorama of the major agro-economic indicators

Decline and growth of the agricultural labour force

The Mediterranean Basin had a total population of approximately 455 million in 2005, one-third of whom were still living in rural areas. It is interesting to examine the trends in the working farm population³ in this general context of population expansion in the Mediterranean, since agriculture is still a major job provider in the region.

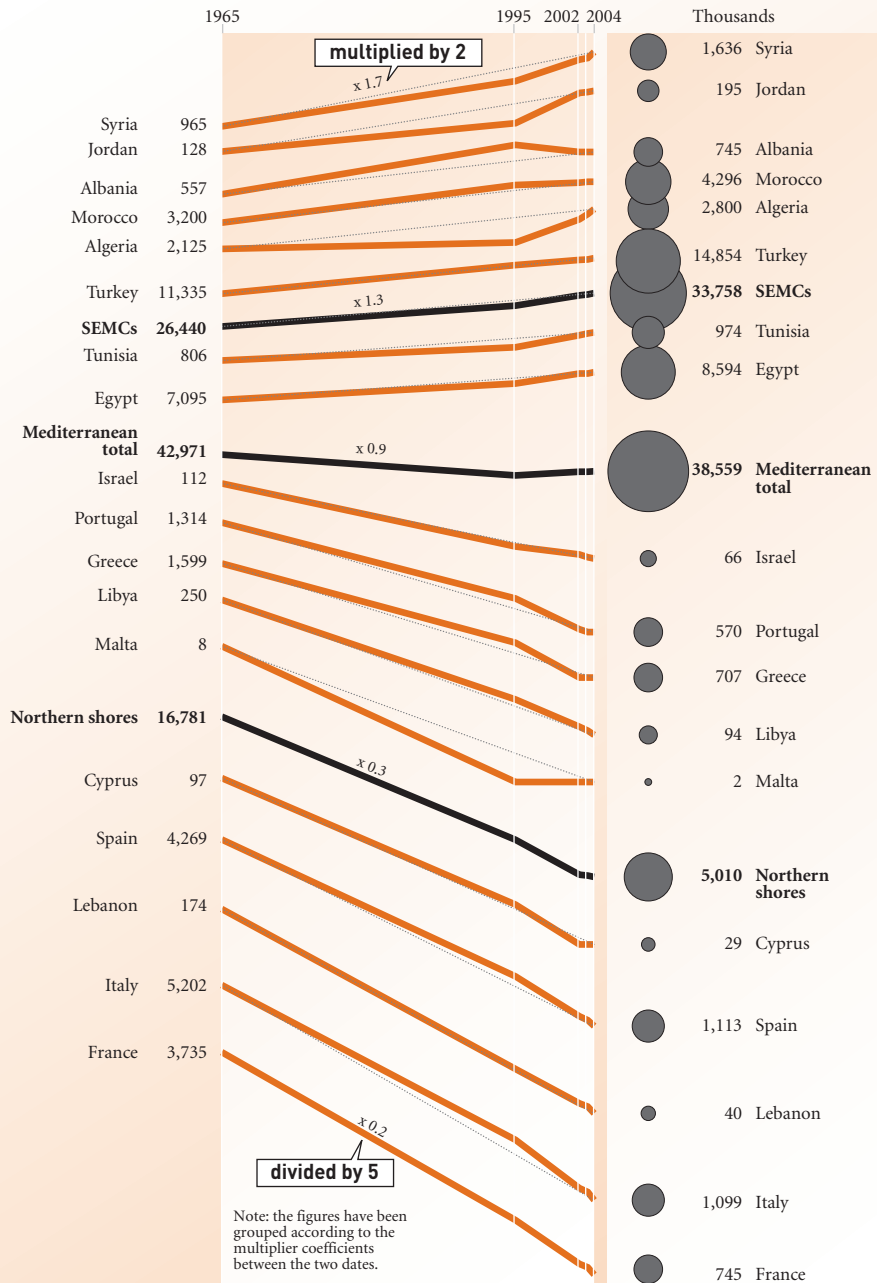
A labour force of 102 million was registered in 1965, and 43 million of those workers were in the agricultural sector, i.e. 42% of the labour force or one-sixth of the total Mediterranean population, which was 260 million at that time. In the same year two-thirds of the 40 million workers registered on the southern shores were working in agriculture. A working farm population of 17 million was registered in the northern Mediterranean countries the same year, and the figure for the SEMCs was just over 26 million. In the space of four decades the trends on the two shores of the Mediterranean Basin diverged considerably. By 2004, the working farm population had dropped to 5 million in the North, whereas the SEMCs still had an agricultural labour force of 33.6 million (i.e. approximately 7 million more than in 1965), and 80% of the working farm population in the Mediterranean were located in the SEMCs. In fact the figures in some States were still fairly impressive – in Turkey and Morocco, for example, the share of agricultural workers in the total labour force was 43% and 33% respectively. With a working farm population of almost 39 million in the Mediterranean region in 2004, almost one-twelfth of the total population and one-fifth of the total labour force were working in agriculture (Charts 10 and 11; Map 2).

Two facts must be borne in mind at the regional level:

³ - It should be noted that Albania has been included in these calculations for the countries in the northern Mediterranean and that Libya has been added for the figures concerning the SEMCs.

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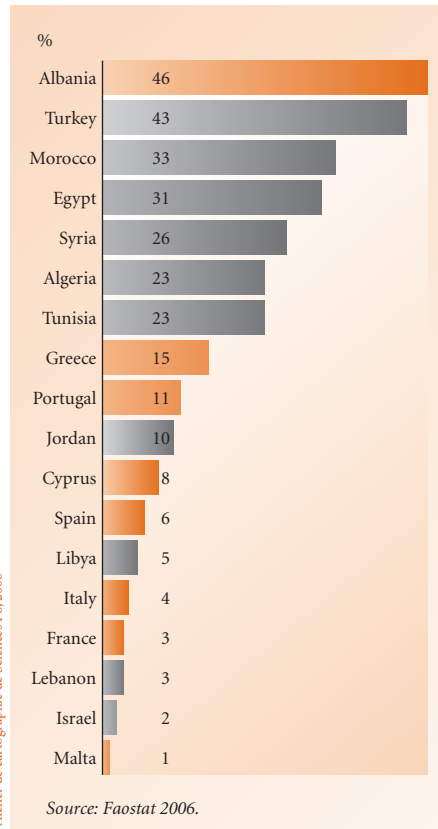
Chart 10 - Working farm population trends in the Mediterranean region, 1965-2004



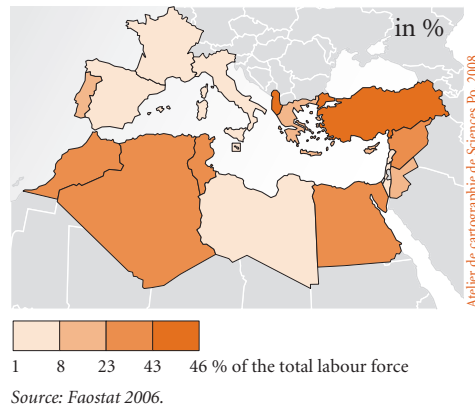
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Source: Faostat 2006.

Chart 11 - Share of working farm population in total labour force, 2004



Map 2 - Share of working farm population in total labour force, 2004



➤ The working farm population on the northern shores has been decreasing sharply since 1965 (except in Albania); in France and Italy, for example, the numbers have decreased by 80%. This is partly to be explained by the public policies that have prevailed since the 1960s, and in particular the common agricultural policy, which has increased productivity, whilst expanding industrialisation and then the labour market shift to the tertiary sector meant that the farm population could be “discharged” to those sectors.

➤ The reverse has been the case on the southern shores, where the working farm population has increased by 7.2 million since 1965, although this figure is relative when one relates it to overall population growth in the period (+ 160 million people on the southern shores between 1965 and 2005).

In three of the SEMCs – Israel, Lebanon and Libya – the working farm population decreased in the period from 1965 to 2004 as the result of the intensification of production in Israel, lack of interest in the agricultural sector in Lebanon, and economic reconversion to a rent-seeking economy in Libya. Two States currently account for 70% of the total agricultural labour force in the SEMCs: Turkey (with a working farm population of 14.8 million) and Egypt (8.6 million), where agricultural realities are actually very different.

These trends on the southern shores are by no means insignificant: on the one hand, the decline in relative value of the working farm population is reducing the political weight of a population which, until now, has not always been well represented in the power

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structures; and on the other hand, the increase in absolute value of the number of agricultural workers in a context where land reserves are limited often results in the reduction of the size of farms, which in turn has both social and economic consequences (erosion of incomes and reduced investment capacity), not to mention that the duality of the agricultural landscape is intensifying: increasing numbers of microfundia practising subsistence farming are cohabiting with large-scale farm enterprises, which are more competitive and are geared to both domestic and foreign markets.

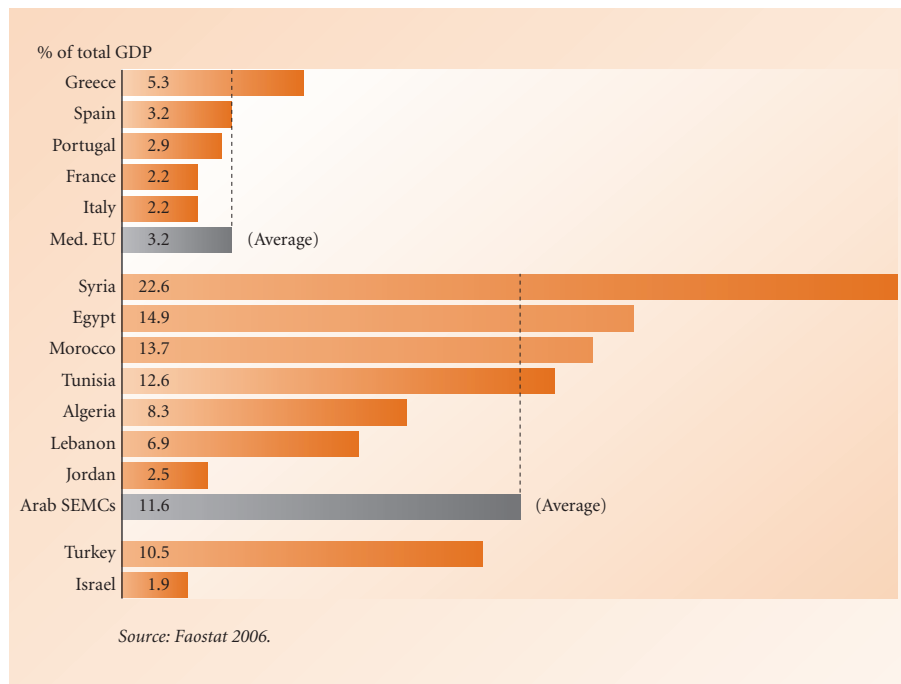
And finally, agricultural productivity varies within the Mediterranean region. The per capita agricultural value added in the Mediterranean countries of the EU is almost 10 times higher than in the SEMCs (approximately \$18 000 and \$1 950 respectively). This gap between the two zones widened over the 1990-2003 period with different trends in production and also in the number of persons working in agriculture. The differences between the European Mediterranean countries and the SEMCs are less marked when it comes to productivity per hectare, considering the relative scarcity of land and the development of irrigated crops in the latter countries. In 2003, the value added per hectare under crop was \$1 450 in the European Mediterranean and \$1 080 in the SEMCs. These values are rising in both zones due to intensification and the decrease in acreage under crop. Wide fluctuations are often observed in the SEMCs, however, due to changes in weather.

The core of the national economies

Agriculture remains an important sector for the SEMC economies with an average contribution of 12% to total GDP in 2005 (compared to 15% in 1990). Some economies are still very dependent on agricultural performance; this is the case in Egypt (15%), Morocco (14%) and, in particular, Syria (23%). The good results achieved by the SEMCs in terms of growth in the gross agricultural product (GAP) over the period from 1990 to 2003 should also be mentioned; Morocco achieved an increase of 6.5%, for example, Syria 6% and Tunisia 5.5%. In the north of the region the agricultural sector accounts for only 3% on average of the GDP of the EU Member States, Albania being the only country where the health of its economy is still closely related to the health of its agricultural sector (one-quarter of its GDP is due to agricultural performance). The agricultural productivity gap in the Mediterranean remains a reality, which again reveals the technical and economic gulf between North and South (Chart 12).

However strategic it may be for the national economies, the agricultural sector in the SEMCs has a dual structure. Alongside the limited number of efficient agro-food industries which have been drawn into the globalisation process there are innumerable very small family farms scattered over the rural areas. In the southern Mediterranean, large-scale, highly capital-intensive enterprises, which use modern production inputs on fertile land and are prepared for the liberalisation of trade, operate alongside a vast number of small holdings, many of which practice subsistence farming, in rural areas, with no access to land ownership and producing mainly for their own consumption. These small farms are unable to compete and are extremely vulnerable when agricultural markets open up. They are also losing access to the urban market in coastal areas, where supplies are coming increasingly from the outside world.

Chart 12 - Agriculture in GDP formation in the Mediterranean region, 1990-2005



What is the situation regarding the agro-food industries (AFIs) in the SEMCs? At the end of the 1990s there were almost 670 000 people working in the agro-food industries in the SEMCs compared to about 1.2 million in the Mediterranean countries of the EU. These industries, which are located essentially in Turkey, Egypt, Morocco and Israel, lack logistical and technical organisation and are subject to a restrictive legal and commercial framework (resulting in low investment levels). They are slow to modernise, and the natural handicaps in the region (climate, drought) make them even less competitive. Some AFIs focus on export crops, but the bigger firms in Turkey, Algeria and Egypt specialise mainly in products for the domestic market. Major national industrial groups are appearing on the scene, however, such as Poulina in Tunisia, Cévitel in Algeria, Tnuva in Israel, and Sabancı in Turkey; they are also very active outside the agro-food sector. The Moroccan AFIs are developing and are still the leading manufacturing sector in the country, and Turkey can now boast a fairly well-structured AFI fabric.

Progress has been made in the past few years: there were 159 agro-food subsidiaries of foreign multinationals in the SEMCs in 2002 compared to 24 in 1988. These multinationals are often American firms which want to get a foothold in the Mediterranean, such as Sara Lee Corp., CocaCola & Co., Procter and Gamble and PepsiCo. Other groups such as Nestlé (Switzerland), Unilever (Netherlands) and, in particular, Danone (France) have also invested in the SEMCs with a view to developing agro-food subsidiaries there. However, in the period from 1987 to 2006 only 1.1% of the total

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mergers and takeovers operated throughout the world by the 100 leading multinationals in the agro-food industry concerned the SEMCs (and 0.6% concerned Turkey alone) – compared to the 20% involving the Mediterranean countries of the EU.⁴

“Mediterranean” agricultural products

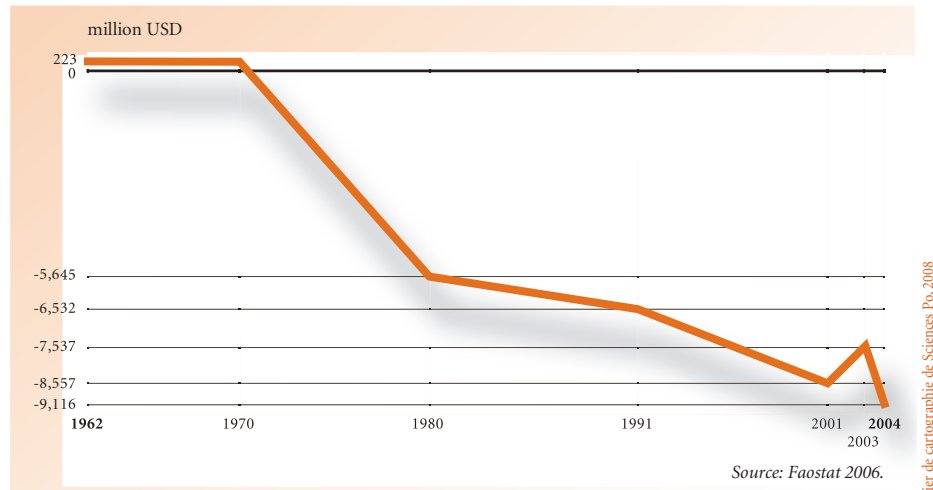
This overview of agricultural production in the Mediterranean region is not intended to be exhaustive; it aims mainly to underline the significance of the region in the 2003-2005 period for the ranges of products in which it has specialised. First of all, the Mediterranean Basin accounts for approximately 16% of world fruit production and 13% of world vegetable production. This position has been weakening, however, in the last few years due to the development of production in South American and Asian countries and in particular to the rapid growth in China. In the early 1970s the Mediterranean region covered 26% of world fruit production, and by 1990 it was accounting for 16% of world vegetable production. The main fruit and vegetable-producing countries in the region are France, Italy, Spain, Turkey and Egypt. Production is clearly focused in the Mediterranean in the case of certain commodities – the region accounts for 85% of world hazelnut output, for instance, 80% of figs, 36% of dates, 52% of apricots, 46% of grapes, 34% of peaches and nectarines, 55% of pulses and 31% of tomatoes; and the olive oil produced in the Mediterranean – the flagship product of the zone – amounts to 99% of world output, the main producers being Italy, Spain, and Greece in particular, but also Tunisia, Turkey and Portugal). This monopoly could meet with competition, however, from the olive plantations recently established in Australia, the United States and even China. And finally, wheat is the principal cereal grown in the region, 16% of total world output being produced there (predominantly in France); the SEMCs (mainly Turkey and Egypt) account for 7% of this output. Cereals are by far the leading agricultural commodities produced in the Mediterranean Basin, accounting for half of the total acreage under crop. Taking all cereals together, the Mediterranean share of world output is estimated at 8%.

Overview of agricultural trade*Agricultural trade and food dependence*

Agricultural trade performance in the North and South of the Mediterranean showed opposing trends over the period from 1963 to 2003. When we compile the data per country we note that the share of the EU-25 in world agricultural imports remained stable (between 35% and 40%) but that its share in exports increased considerably (45% in 2003 compared to 22% in the early 1960s). France plays a major role in this trend, since it is still the world’s second-largest agricultural exporter. Italy and Portugal, on the other hand, have not achieved positive agricultural trade balances in the past few years.

Compared to the EU, the SEMCs have shown the opposite trend, moving from the status of net exporting region in the 1960s to that of net importing zone from the 1970s onwards. In 1963, they accounted for around 4% of world agricultural exports, but by 2003 the figure had dropped to 2%, and their imports increased from 3% to 4% of the

⁴ - These data on the AFIs in the SEMCs have been drawn from the AgroData databank, which is managed in the IAMM-Ciheim by Prof. Selma Tozanli.

Chart 13 - Trends in SEMC agricultural trade balances

world total. The agricultural trade balances of the Arab SEMCs have deteriorated considerably. The situation in these countries has been one of chronic food dependence since the 1970s, and some countries (Algeria, Egypt) now seem to have serious structural deficits. By 2004, the SEMCs showed a negative trade balance of approximately \$9 million in their agricultural trade with the rest of the world (Chart 13).

Turkey is the only country with a favourable agricultural trade situation and would in fact seem to be the only agricultural power in the region: the general trend has been that Ankara contributes half of the SEMCs' agricultural exports and absorbs 22% of their total agricultural imports (see Annex 6).

The share of agricultural commodities in trade in the North is approximately 12% for the total exports and 9% for the total imports of the EU Mediterranean countries, with a peak in Greece (22% of exports). The situation in the SEMCs is extremely mixed: one-quarter of total imports in Egypt and Algeria are agricultural commodities, whereas the share for Lebanon, Jordan and Syria is estimated at 17%-18%; in five countries – Turkey and Morocco and in particular Syria, Jordan and Lebanon (see Annex 7) – agricultural commodities account for over 10% of exports.

And finally, although the EU is still the SEMCs' main trading partner, these countries are opening up more and more to world trade: in 2004 they obtained 72% of their supplies outside the European market, and 48% of their exports went to the rest of the world. Turkey is focusing even more on extra-European trade (82% of its agricultural imports and 50% of its agricultural exports concern the rest of the world). The EU thus is not the only power exporting to the southern Mediterranean: the United States (5% of SEMC exports and almost 17% of SEMC imports), Argentina, Brazil and Australia are important trading partners, particularly in the case of cereal products. On the other hand, this is again a field where SEMCs trade very little with one another: inter-SEMC trade accounts for about 8% of their agricultural exports in 2004 and 5.5% of their imports.

ANALYSIS of agriculture and the agro-food situation in the Mediterranean region*Asymmetry in Euro-Mediterranean agricultural trade*

Agricultural trade between the EU and the SEMCs in 2004 was asymmetrical, as had been the case for several years; it was balanced only in appearance and geographically polarised.

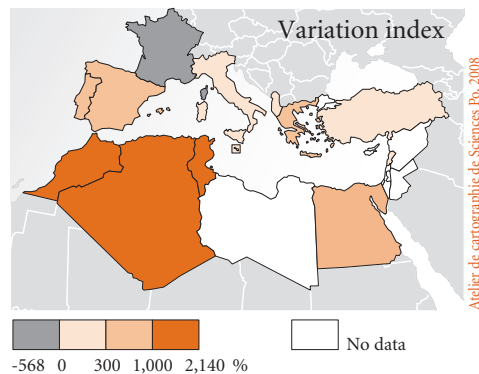
- The asymmetry is obvious: only 2% of the EU's agricultural imports and exports concern the SEMCs, whereas the latter account for 52% of EU agricultural exports and 28% of agricultural imports. There is thus a marked difference between the EU and the SEMCs in terms of agricultural trade intensity.
- The apparent equilibrium is due to the fact that the Euro-Mediterranean agricultural trade balance shows a slight surplus of \$0.6 billion for the SEMCs. This positive balance is only due to the commercial weight of Turkey, which alone accounts for 46% of SEMC agricultural exports to the EU. Without Turkey, there is a trade deficit with the EU of \$1.5 billion, and even of almost \$1.8 billion when calculated for the Arab SEMCs alone. Tunisia and Morocco sometimes manage to balance their trade with the EU, unlike Algeria, which weighs very heavily in the overall deficit of the Arab SEMCs (see Annex 8).
- As regards geographical patterns in trade, agricultural trade is heavily polarised towards several EU countries and SEMCs. Within the EU, five countries account for over 70% of agricultural exports to the SEMCs: France is the leading agricultural exporter (30%), followed by the Netherlands (14%), Germany (12%), Spain (9%) and Italy (6%). We find the same situation when it comes to EU imports from SEMCs, although the figures for the respective countries differ: Italy (19%), Germany (17%), France (15%), Spain (13%), and the Netherlands (10%). On the SEMC side, Turkey, Israel, Morocco and Tunisia are the main agricultural exporters to the EU (46%, 15%, 22% and 12% respectively). And as regards imports, Algeria, Turkey and Egypt are the EU's main trading partners (25%, 14% and 13% respectively). Further analysis reveals a focus of trading between certain countries in the two zones: France imports mainly from Morocco (48% of its imports from the SEMCs), and Germany imports mainly from Turkey (79%). This is also the case to a lesser extent with EU exports to the SEMCs: 40% of France's SEMC exports go to Algeria.

The types of agricultural commodities and agri-foodstuffs traded between the EU and the SEMCs reflects the agricultural specialties of the two zones to a large extent. The commodities which the EU exports to the SEMCs include mainly cereals (16%), milk products (15%) and sugar (8%) but also a wide range of products, particularly processed goods. SEMC exports to the EU are much more specialised, on the other hand: over half of them (54%) are fruit and vegetables, both fresh and processed, 10% are seafood products and 10% olive oil.

Cereals – a very strategic issue in the Mediterranean region

The cereal needs of the Mediterranean Basin have been increasing for several years, an increase stimulated by both human and animal demand, which has doubled in the region as a whole since the 1960s and in some cases has even grown by 400% (Egypt) or 500% (Algeria). Production in the region has lacked the dynamism necessary to keep

**Map 3 - Net cereals imports
in the Mediterranean region, 1963-2003**



Source: Faostat 2006.

weight of the Mediterranean region in world cereals trade is steadily increasing: in the period from 1986-1990 the zone attracted 18% of world cereals imports, but by 1996-2000 the figure had risen to 21% (see Annex 9).

The SEMCs receive 12% of world cereals imports, whereas they currently account for only 4% of the world population. Since the beginning of the 1960s, net cereal imports have multiplied by a factor of 21 in Algeria, 20 in Morocco, 13 in Tunisia and 4 in Egypt. Projections indicate that these imports are liable to continue to grow in the years that lie ahead in order to satisfy both human and animal demand. The Mediterranean cereals deficit could thus grow further in the medium term, a situation which would be to the advantage of the major exporting powers such as France, the United States, Canada and Australia – or even Ukraine and Kazakhstan in the near future (Map 3).

Risks and opportunities of the liberalisation process

Agriculture within the Euro-Mediterranean partnership

Ever since the Euro-Mediterranean partnership (EMP) was launched in 1995, agriculture has always been regarded as a sensitive sector in the trade negotiations between the EU and the SEMCs. There have been three distinct phases, however, which show that progress has in fact been made.

From 1995 to 2002, agriculture was not included on the co-operation agenda due to disagreements. It was too sensitive an issue and was deliberately played down, whereas it was a central question in the World Trade Organisation (WTO) and in multilateral international negotiations at the time. While the ground was prepared for industrial free trade, the liberalisation of agricultural trade between Europe and the Mediterranean was left in abeyance. The reasons for this were complex but the analysis is common knowledge.

In the North, EU producers were afraid of having to face stiffer competition if Community preference were abolished. In the South exporters were pressing for wider access

pace with this growth in needs, however, with the result that the countries in the region are becoming increasingly dependent on cereal imports. France dominates the production market, accounting for one-third of the cereals produced in the Mediterranean region, and is followed by Turkey, Spain, Italy and Egypt. The geostrategic dimension of cereals production is due to the fact that all of the Mediterranean countries except for France are net cereal importers. In 2003, the Mediterranean Basin accounted for almost 22% of world imports, a figure that must be compared with the significance of the region in population terms (7% of the world population). This

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to the EU market. Since the SEMCs were major importers of staples such as cereals, sugar and milk from the EU, because of their low performance in food production they were reluctant to expose their farming to foreign competition. The Euro-Mediterranean trade “conflict” was furthermore due in part to the higher risk of competition between North and South over products produced in both zones (olive oil, fruit and vegetables) if trade were liberalised.

Despite these hold-ups, a start was made on opening markets at the first Euro-Mediterranean ministerial conference on agriculture, which was held in Venice on 27 November 2003 under Italian chairmanship. The main recommendations concerned strengthening rural development, promoting the quality of agricultural commodities and launching concrete action in the organic farming sector. The debate also focused on the speed of the liberalisation process and the methods to be employed. Furthermore, the decision-makers felt that agriculture could only be handled on a case-by-case basis, depending on the sensitivity of the particular product on the EU markets and on the export competitiveness of the country in question (differential approach). This was also in line with the thinking behind the European Neighbourhood Policy (ENP), which was formulated at the same time.

In 2005, agriculture has been included in the timetable for reforming and relaunching the EMP. The EU officially announced its decision to open agricultural negotiations with the SEMCS in a communication issued on 15 November 2005, stipulating that negotiations were to start in 2006 with a view to gradually liberalising trade in both fresh and processed agricultural and fishery products. Since 2006, a committee of experts has been in charge of monitoring the issue in the European Commission and implementing a “Roadmap for Euro-Mediterranean Agriculture”. This roadmap has various strategic focuses – reciprocal liberalisation (the effort must be shared by the two shores), a gradual, progressive approach, asymmetry in terms of schedule (the EU thereby accepting a slower pace of opening on the part of the SEMCs) and the establishment of a country-by-country list of the most sensitive products not to be included in the liberalisation process. It also stresses the challenges in rural development, efforts to promote quality products, the development of typically Mediterranean products, measures to boost private investment in the agricultural sector and action to improve access to export markets.

Bilateral negotiations are underway between the EU and the SEMCs. They are progressing rapidly with Jordan and Israel, more recently with Egypt, and at a much slower pace with Morocco and Tunisia. Algeria, on the other hand, seems to be wary of the process and is playing for time. As far as Lebanon and Syria are concerned, nothing has really been done with regard to liberalising agricultural trade in view of the current political circumstances. It is obvious that the round of negotiations will be longer than planned, particularly since the Commission is stepping up its food safety requirements at the same time. As the customs tariffs are gradually dismantled non-tariff barriers will be set up, as it were, which will be particularly demanding with regard to quality and product safety. Very few southern Mediterranean producers will be in a position to meet these criteria concerning technical and health standards.

The liberalisation of Euro-Mediterranean trade – concern and hope

The establishment of the Euro-Mediterranean Free Trade Area (EMFTA) within the Euro-Mediterranean Partnership by 2010 is a subject of animated debate. Several impact studies that have recently been conducted actually raise the question of the Area's socio-economic sustainability. As regards the EU as a whole, the effects would probably be limited, given the SEMCs' insignificant share in the Union's foreign agricultural trade. On the contrary, the opening of markets could boost European exports to the southern shores of the Mediterranean, where there is a considerable and growing need for the staples which Europe markets very effectively (cereals, milk and meat). On the other hand, southern Europe would be affected by agricultural liberalisation that is too sudden: producers in the traditional sectors (fruit and vegetables) in Spain, the south of France, Italy and Greece, could be seriously affected by the opening up of trade and would probably be set to oppose the policy if Community protectionism is removed with no provision for transitional support measures.

Taken as a whole, the impact would be negative for the SEMCs. Their comparative advantages are concentrated in the fruit and vegetables sector, which is the sector that Europe is mainly interested in protecting. Opening up would have several effects on agricultural trade: there would be a decrease in cereals (and other arable crop) output and in meat and milk production and an increase in the production of fruit and vegetables (in all of the SEMCs), olive oil (in Tunisia) and sugar (in Morocco and Egypt), and the agro-food industries would also develop (as the result of wider access to the European market). On the other hand, models suggest slightly positive effects for the consumer due to opportunities for buying food products at lower prices.

This liberalisation and opening to international markets would make both urban and rural households in the SEMCs more vulnerable to price fluctuations, with serious consequences for the poorest families. Although the drop in prices might boost domestic consumption, it would probably destabilise food crops producers and small farmers. The consequences of liberalisation would go beyond the purely commercial sphere and would affect peasant societies both socio-economically and politically, since they are ill-prepared for the opening up of markets; only a minority of farm businesses in those societies – those that are capitalised, organised, mechanised, input-intensive and geared to export production – would benefit. Further impoverishment of rural and farming populations (women being the first victims) would have a whole series of effects, beginning with an explosion in unemployment and rural-urban migration or mass emigration. These prospects also signal greater pressure on the environment in areas already made vulnerable by the depletion of water and land resources. Even in the event of agricultural liberalisation, full account must be taken of the SEMCs' limited export potential due to growing domestic demand and the diminishing availability of land and water (except in Turkey).

Three major issues

We have already seen how the SEMCs adopt disparate approaches to negotiations in the WTO context, unlike the the EU countries, due both to the lack of South-South political relations and to different trading positions. The SEMCs are faced with a dilemma

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as regards the opening of agricultural trade. On the one hand, they want better conditions of access to European markets for Mediterranean products (fruit and vegetables) and for their agri-foodstuffs, for which they enjoy a comparative advantage, yet at the same time they fear that multilateral liberalisation will allow third countries to capture their market share in that the trade preference margin will be reduced. On the other hand, they call for special treatment and safeguards for trade in cereals, meat and milk products – sectors in which they are not competitive. Since they are generally net importers of these commodities, they also fear that the reduction of EU subsidies will push prices up and thus increase their food bill, which is already high.

The heterogeneity of SEMC interests is reflected in the way they are divided amongst the various groups that have been formed for the WTO negotiations. Egypt is the only country in the southern and eastern Mediterranean that belongs to the powerful G20, in which Brazil and India play a fundamental role, alongside developing countries which have agricultural export capacities and are thus interested in broader liberalisation. Israel is a member of the G10, the most conservative group in terms of agricultural protectionism. Turkey has joined the G33, the group of “friends of special products”, for which they call for differentiated treatment in developing countries and a special safeguard mechanism, although they adopt a very offensive stance on the aids enjoyed by rich countries. Morocco and Tunisia belong to the G90, the group of countries that are united by the problem of preference erosion, since they all enjoy preferential access to the markets of the rich countries and in particular to that of the EU, on which they depend to a large extent. These countries want these preferences to be maintained as long as the agricultural aids affecting their products are maintained in developed countries.

The second consequential issue for the future of Mediterranean agriculture is the development of the CAP in Europe. This question is very closely connected with the Mediterranean zone of the EU in view of the considerable impact of certain reforms (on the CMOs for wine and fruit and vegetables, for instance) or of the structural consequences of the reform of the financing systems. The prospect of the liberalisation of Euro Mediterranean agricultural trade also places the future of the CAP in a configuration of strategic proximity to the Mediterranean. It will no doubt be difficult to ignore this subject in the preparations for the post-2013 CAP, which will inevitably be complex and decisive. If the Euro-Mediterranean project remains on the political agenda, thought will have to be devoted to the nature of this area and the features that will bind it together in a context of stiffer international competition. The question of agriculture and food is indeed a compelling issue.

The third global issue is the emerging question of biofuels; it will be examined from the economic and commercial angles. The development and promotion of biofuels are global phenomena, which undeniably have certain advantages. However, the policy in the Mediterranean region is not to over-enthruse. Mediterranean agriculture will be unable to feed people and fill car tanks at the same time – a fact that is perhaps more true of this region than anywhere else – for the population is growing too rapidly, agricultural land is scarce, and the natural conditions are unsuitable and tend to be unfavourable. The fear that the Mediterranean region will be the perfect illustration of the close connection between growth in agricultural prices and the development of bio-

fuels is perfectly justified. For more and more cereals, sugar, oil seeds and vegetable oils are being used to produce ethanol or biodiesel, and this is pushing prices up on the market. Yet these are commodities which the Mediterranean countries, so dependent on cereal imports, import massively. By opting for biofuels, the United States, Brazil and even the EU are seeking to change the energy equation, but what they are mainly changing are the prices of raw materials such as cereals, and this in turn is indirectly increasing their domination of trade in relation to the SEMCs. The biofuels debate will thus most certainly have to be clarified within the Euro-Mediterranean area if care is taken to make it a region of solidarity.

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Annexes

Annex 1 - Unemployment rate in the Mediterranean region (2000-2005): adults and young people

Pays	Adult unemployment (% of 15-65 year age group)		Youth unemployment in the Mediterranean in 2005	
	2000	2005	Adultes (15-65 ans)	Under-25s
Spain	11.1%	9.2%	9.2%	19.7%
France	9.1%	9.9%	9.9%	23.5%
Greece	11.3%	9.8%	9.8%	26.0%
Italy	10.1%	7.7%	7.7%	24.0%
Portugal	4.0%	7.6%	7.6%	16.0%
Algeria	28.9%	15.3%	15.3%	31.0%
Egypt	9.0%	11.2%	1.2%	34.1%
Israel	8.9%	9.2%	9.2%	17.8%
Jordan	13.7%	15.5%	15.5%	31.1%
Lebanon		8.2%	8.2%	20.9%
Morocco	13.6%	11.0%	11.0%	15.7%
Syria	10.3%	8.1%	10.3%	18.3%
Tunisia	16.0%	14.6%	8.0%	14.6%
Turkey	6.5%	10.3%	14.6%	30.7%

Source: Eurostat, EMS 2007.

Annex 2 - Per capita GDP in purchasing power parity terms, 1990-2004

	GDP 2004		Per capita GDP in PPP terms (\$)			
	Per capita in PPP terms (\$)	World ranking	1990	1995	2000	2004
Albania	5,070	124	n.a.	n.a.	n.a.	5,070
Cyprus	22,230	n.a.	12,434	14,502	17,107	22,230
Spain	24,750	33	15,915	16,934	19,967	24,750
France	29,460	20	22,110	22,893	25,318	29,460
Greece	22,230	41	13,996	14,163	16,714	22,230
Italy	28,020	28	21,812	23,073	24,936	28,020
Malta	18,590	nc	10,711	14,167	17,862	18,590
Portugal	19,240	49	13,483	14,360	17,346	19,240
Algeria	6,320	105	5,458	5,027	5,417	6,320
Egypt	4,200	134	2,922	3,025	3,534	4,200
Israel	23,770	37	15,857	18,477	20,615	23,770
Jordan	4,770	128	3,857	4,056	3,907	4,770
Lebanon	5,550	117	2,177	4,101	4,200	5,550
Morocco	4,250	131	3,363	3,214	3,470	4,250
Syria	3,500	139	2,651	3,162	3,332	3,500
Tunisia	7,430	94	4,541	5,083	6,251	7,430
Turkey	7,720	89	5,265	5,601	6,447	7,720
	Trends in per capita GDP in average PPP in the Mediterranean					
			1990	1995	2000	2004
Mediterranean			9,785	10,740	12,276	13,947
European Mediterranean			17,463	18,285	20,856	23,503
SEMCs			5,121	5,750	6,353	7,649
EU-25			17,116	17,328	21,131	25,015

Source: World Bank, WDI 2006.

Annexe 3 - FDI flows in the Mediterranean region, 1995-2005 (US\$ million)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total 1995-2005	Estimates 2006
Algeria	5	4	260	501	507	438	1,196	1,065	634	882	1,081	6,573	1,400
Egypt	596	637	887	1,065	2,919	1,235	510	647	237	2,157	5,376	16,266	6,100
Jordan	13	16	361	310	158	787	100	56	436	651	1,532	4,420	2,500
Lebanon			150	200	250	298	249	257	2,860	1,899	507	8,736	4,300
Morocco	335	357	1,188	417	1,376	423	2,808	428	2,429	1,070	507	13,764	2,500
Syria	100	100	80	82	263	270	205	225	180	275	507	2,280	700
Tunisia	378	378	365	668	368	779	486	821	584	639	782	6,248	2,800
Arab SEMCs	1,427	1,492	3,291	3,243	5,841	4,230	5,554	3,499	7,360	7,573	14,777	58,287	20,300
Israel	1,337	1,382	1,628	1,760	2,889	4,392	3,044	1,648	3,745	1,619	5,587	29,031	13,200
Turkey	885	1,454	805	940	783	982	3,266	1,037	1,752	2,837	9,681	24,422	17,100
SEMC total	3,649	4,328	5,724	5,943	9,513	9,604	11,864	6,184	12,857	12,029	30,045	111,740	50,600

Source: UNCTAD, WIR 2006.

Annex 4 - Share of the EU-25 in SEMC trade, 2000-2005

	EU-25 share of SEMC imports (%)						
	2000	2001	2002	2003	2004	2005	Average 2000-2005
Algeria	58.7	61	56.8	58.9	54.8	55.3	57.6
Egypt	35.7	31.1	28.5	27.8	26.6	22.9	28.8
Jordan	35.7	28.9	29.9	26.5	23.6	24.1	28.1
Lebanon	45.7	43.7	45.3	44.5	40		43.8
Morocco	58.7	54.9	57.5	59.8	56.1	52.8	56.6
Syria	32.9	36.8	29.9	20.4	16.1	12.3	24.7
Tunisia	71.3	71.5	71.1	73.6	69.8	69	71.1
Israel	43.9	42.6	41.7	42.1	41	38.5	41.6
Turkey	50v3	45.8	47.5	48.2	46.6	42.2	46.8

	EU-25 share of SEMC exports (%)						
	2000	2001	2002	2003	2004	2005	Average 2000-2005
	63.2	64.7	64.5	59.3	54	55.6	60.0
	40.5	32.3	28.5	34	34.8	33.7	34.0
	5.8	4.1	28.6	3.4	3.2	3.1	4.5
	22.9	22.9	7.1	11.4	10.5		16.9
	75.3	72.9	17	76.3	74.4	73.7	74.4
	68.3	70	73.8	61.1	53.9	44.5	60.0
	80.2	80.2	79	80.3	83.3	80	80.5
	29	28	26.3	28.1	27.8	28.6	28.0
	54.3	53.8	53.9	55	54.5	52.4	54.0

Source: Eurostat, EMS 2007.

Annex 5 - Overview of the MEDA programme, 1995-2005

MEDA Programme (1995-2005) € millions	Commitments	Payments	Ratio C: P
Algeria	437	144	32.9%
Palestinian Territories	541	480	88.7%
Egypt	1,150	650	56.5%
Jordan	516	393	76.2%
Lebanon	283	132	46.6%
Morocco	1,472	783	53.2%
Syria	259	64	24.7%
Tunisia	875	568	64.9%
Bilateral co-operation total	5,533	3,214	58.1%
Regional co-operation	1,355	829	61.2%
SEMC TOTAL	6,888	4,043	58.7%

Source: European Court of Auditors 2006.

Annex 6 - Status of SEMC agricultural trade in 2004 (US\$ million)

	Importations	Exportations	Balance
Algeria	4,050	55	- 3,995
Morocco	2,058	964	- 1,094
Tunisia	1,181	974	- 207
Egypt	3,014	1,314	- 1,700
Lebanon	1,346	252	- 1,094
Syria	1,193	983	- 210
Jordan	1,379	563	- 816
Israel	2,425	1,430	- 995
Turkey	4,659	5,958	1,309
SEMCs	21,305	12,503	- 8,802

Source: Faostat 2006.

Annex 7 - Share of agricultural exports and imports in total trade, 2002-2004

	% Agric. exports/ total exports	% Agric. imports/ total imports
France	10.5	7.6
Spain	13.4	7.8
Italy	6.9	9.0
Greece	22.0	11.0
Portugal	6.6	10.5
European Mediterranean	11.9	9.2
Egypt	16.3	25.3
Algeria	0.2	23.9
Morocco	10.4	12.4
Tunisia	7.5	9.6
Syria	16.4	18.2
Jordan	14.5	17.2
Lebanon	15.7	17.0
Arab SEMCs	11.6	17.7
Israel	3.6	5.5
Turkey	9.7	5.5
SEMCs	10.5	15.0

Source: Faostat 2006.

Annex 8 - Status of SEMC agricultural trade, 2004

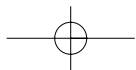
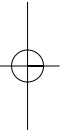
Country		Imports	Exports	Agricultural trade balance
Arab SEMCS (Algeria, Egypt, Jordan, Lebanon, Morocco, Syria and Tunisia)	Volume in million \$	14,221	5,105	- 9,116
	EU-25 share	4,358	2,584	- 1,774
	EU%	31%	50%	
	% of rest of world	69%	50%	
SEMCs (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Syria, Tunisia and Turkey)	Volume in million \$	21,305	12,503	- 8,802
	EU-25 share	5,908	6,560	652
	EU%	28%	52%	
	% of rest of world	72%	48%	
Turkey	Volume in million \$	4,659	5,968	1,309
	EU-25 share	846	2,998	2,152
	EU%	18%	50%	
	% of rest of world	82%	50%	
% Turkey/ SEMCs	With the world	22%	48%	
	With the EU-25	14%	46%	

Source: Faostat 2006.

Annex 9 - Cereals imports in the Mediterranean region

Cereals imports in the Mediterranean (million tonnes MT)			
	1986-1990	1996-2000	2003
World	221.97	252.78	268.67
Mediterranean	39.34	53.66	58.6
European Mediterranean	14.02	21.41	26.35
SEMCs	25.32	32.25	32.25
Cereals imports in the Mediterranean (share of world volume)			
	1986-1990	1996-2000	2003
Mediterranean	17.7%	21.2%	21.8%
European Mediterranean	6.3%	8.4%	9.8%
SEMCs	11.4%	12.8%	12.0%

Source: Faostat 2006.



CHAPTER 3

NATURAL RESOURCES*

The wealth of natural resources and widely varying landscapes of the Mediterranean Basin make it an outstanding ecoregion. Yet with human and industrial development this environmental heritage is gradually deteriorating. Despite almost 30 years of international efforts to protect this unique ecosystem, it remains fragile and is continuing to decline as the result of growing pressure on the environment. The impact of climate change, the risks for biodiversity in the zone, soil erosion and the pollutant emissions caused by energy consumption are now threatening the sustainability of the Mediterranean region.

In an area where soil and water resources are deemed to be scarce – at least as far as the southern shores are concerned –, the situation regarding the land reserves needed for agricultural production is liable to be critical by 2020. With the advent of major climate changes the time has come to bring up the forecasts that are shared increasingly by the scientific community on Mediterranean climate trends, whose effects on these resources, and in particular on water, can be absolutely decisive in the future. In this context, the energy question also becomes crucial, both in the Mediterranean region and elsewhere, and one which is bound to affect the agro-food sector.

Climate disruption in the Mediterranean region

The Mediterranean Basin is situated in a transition zone between two very different climate systems, so that perturbation of the global meteorological system can cause radical changes in the characteristics of its climate (Gualdi et Navarra, 2005). This is what the trends in temperature and rainfall and the increase in extreme events seem to indicate.

Significant changes in temperatures

It is now an acknowledged fact that so-called greenhouse gases (GHG) – methane, nitrogen dioxide, chlorofluorocarbon, sulphur hexafluoride and, in particular, carbon dioxide – are enriching the atmosphere to the point where it is reflecting even more infrared rays to the ground, thus causing manifest warming.

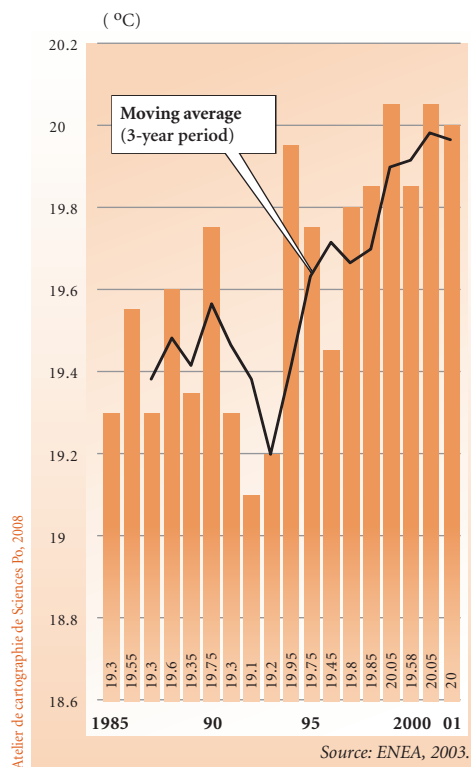
In the specific case of the Mediterranean Basin, thermal changes are being intensified by variations in the temperature of the ocean surface, and the considerable and prolonged

*- This chapter has been based on documents prepared by Nicola Lamaddalena (Ciheam-MAI Bari) and Roberta Giove (Ciheam-MAI Bari).

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warming of water bodies can in turn affect the climate, particularly in coastal regions. The variation in the temperature of water bodies is a good indicator of climate trends. When one examines the trends in the average temperature of the water of the Mediterranean, one observes that it is clearly tending to rise – a rise of almost 1° was recorded in the 1990s alone (Chart 1).

Chart 1 - Trends in mean annual surface temperature of the Mediterranean Sea, 1985-2002



When one compares the temperatures recorded in the 1990-2003 period with those recorded between 1950 and 1980 (Giuliaci, 2004), one finds that the average temperature increased not only in practically all Mediterranean countries but also during all seasons:

- a rise in temperature of about 0.4°C-0.6°C was recorded over the winter season, except in the Balkans and Greece, where there was a slight decrease;
- temperatures rose by about 0.4°C-0.8°C during the spring season, except in the Balkans, where they dropped;
- a rise in temperature was observed (0.6°C-1.2°C) during the summer season, with higher values in Italy and Spain and lower values in Greece and north of the Alps;
- and during the autumn season, increases of up to 1°C were recorded in Algeria, Libya, Egypt and the south of Italy, whereas in Spain and in the Balkans the temperature was dropping.

Supposing that the concentration of CO₂ doubles by 2060, the temperature of the Mediterranean could rise by 5°C. The

Intergovernmental Panel on Climate Change (IPCC) anticipates that temperatures will rise throughout the Basin (Giannakopoulos *et al.*, 2005). The greatest rise in temperature is expected in the countries farthest south, in the Balkans, in Spain and in the north of Italy, with variations of 4°C-5°C in the summer season and of 2°C in the winter season.

The following seasonal changes are thus forecast:

- a rise of approximately 2°C throughout the Basin during the winter period, except in the south of Turkey;

- a rise in temperature everywhere during the spring season, except in the south of Italy;
- rises in temperature of up to 4°C-5°C during the summer season, particularly in Spain, the north of Italy, the Balkans and Algeria;
- and a rise of 2°C in all countries during the autumn period.

Growth in GHG emissions expected in the Mediterranean region

Glasshouse gases are one of the main causes of climate disruption; their volume increased by 15% throughout the world between 1990 and 2005. This increase also concerns the Mediterranean Basin (Benoit et Comeau, 2005),¹ where annual GHG emissions are evaluated at 5.4 tonnes per capita, whereas the world average is only 4 tonnes. The north of the Mediterranean region is responsible for 70% of total Mediterranean CO₂ emissions, which amount to 1 900 million tonnes (i.e. 8% of world emissions). One inhabitant of the Mediterranean emits just over half of the CO₂ emitted by an inhabitant of the European Union (EU), however, and almost 4 times less than an American. If the trend continues, the volume could have reached the 3300 million tonnes mark by 2025. A veritable explosion in GHG emissions is predicted in some Mediterranean countries - mainly Malta (+ 300%), Turkey (+ 262%), Lebanon (+ 138%), Algeria and Tunisia (+ 135%). It should be noted that all of the Mediterranean countries in the EU and some of the countries on the southern shores (Algeria, Egypt, Israel, Jordan, Morocco and Tunisia) have ratified the Kyoto Protocol.

Evolving rainfall system

It is extremely important to identify variations in the rainfall system: inadequate rainfall causes water stress and is also responsible for the desertification process, whereas prolonged heavy rainfall causes floods and landslides. Average annual rainfall is decreasing throughout the Mediterranean Basin (Giuliacchi, 2004), although the decreases are more marked in the north of Spain, in Greece and, to a lesser extent, in the north of Italy as well as on the French Mediterranean coast. Seasonal analysis shows more interesting results, on the other hand:

Climate trends in the Mediterranean region

Spring	Summer	Autumn	Winter
Rainfall is dropping in practically all countries with more marked decreases in the north of Italy, in Greece and in Spain.	Rainfall is dropping in the north of Italy and in Spain.	Heavy rain in Italy and the Balkans; sharp drops in rainfall in Algeria, Tunisia and Spain.	Rainfall is dropping in Italy and Greece and on the Algerian and Tunisian coasts. Slight increases in rainfall on the Egyptian and Libyan coasts.

¹ - The figures quoted on the subject have been drawn from Benoit et Comeau (2005) and the Mediterranean Energy Observatory (MEO).

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The forecast for the period up to 2060 is increasingly limited rainfall in the south and more abundant rainfall in the north. The summers will probably be drier for all of the countries in the region, on the other hand. More specifically, the following trends may be observed (Giannakopoulos *et al.*, 2005):

- a drop in rainfall throughout the Basin during the winter period, and in particular in Morocco and Algeria, where rainfall could decrease by 40% to 50%;
- in the spring, a situation similar to the current situation;
- in summer, a drop in rainfall in all of the countries in the Mediterranean Basin, with decreases of up to 60% (Cyprus being the only country where rainfall could increase by 40%);
- in autumn, a stable situation compared to the situation at the beginning of the 21st century.

Trends in the snow cover and agricultural adaptation

In some Mediterranean countries – in particular Lebanon, Turkey, Morocco and Algeria – the precipitation system involves rainfall and snowfall: part of the winter rainfall is stocked at altitude in the form of snow before being released when temperatures rise again in the spring and summer. Snowmelt thus plays an essential role in regulating discharge. As global warming progresses, the discharge in winter will be greater, when demand is low; on the other hand, in April, May and June, when the demand for irrigation water is at its height, the remaining snow pack will be insufficient for augmenting discharge. A survey conducted in Lebanon by the Beirut College of Engineering and the HydroScience Group in Montpellier (Combined Research Unit of the French National Research Agency - CNRS) has provided a basis for evaluating this phenomenon more accurately: According to the survey, the dates on which low-flow levels are reached will be brought forward by 20 days if the temperature increases by 2° and by over one month in the case of a 4° increase. These changes in river processes will entail changes in flood patterns. In Lebanon, the coastal zones may be the scene of rain-fed floods in February and March and of snow-melt floods after the khamsin sandstorms (wind from the Arabian Peninsula) in May and June. If temperatures rise by 4°, there will be an increase in winter floods of 30% or more. More rapid melting of the snow cover would have limited effects on agriculture, provided that crops can be planted and harvested earlier, which is possible by means of variety selection. However, this trend also requires that new storage capacities be built in order to offset the prolongation of the period of water shortage.

Increased meteorological perturbation in the Mediterranean region

Progressive global warming, caused mainly by greenhouse gases, is leading to an increase in extreme climatic phenomena in many regions of the world. Due to their intensity and duration, meteorological events of this nature can be an important risk for man and the environment. Marked summer droughts, prolonged heat waves, regular flooding and major changes in precipitation volume are already frequent occurrences in the Mediterranean region, but they are liable to intensify. Indeed some scientists state that the hot dry climate of the Mediterranean riparian countries could move up to the north of the European continent in the course of the 21st century (Seneviratne, 2006).

According to the forecasts for the mid 21st century (Giannakopoulos *et al.*, 2005), situations of extreme drought will become even more acute, particularly on the northern shores of the western Mediterranean (in Portugal, Spain, France, Italy and the Balkans) but also in Turkey. The number of dry days in these countries (i.e. with daily rainfall below 0.5 mm) could increase by at least three weeks per year, whereas minimal variations are forecast for the south of the Basin. The number of hot days (with temperatures above 30°C) is liable to increase in Spain, Morocco, Algeria, the centre of Italy, the Balkans and central Turkey.

The obvious connection between climate change and agriculture

Several biological phenomena seem to be connected with the acceleration of global warming, which has been underway for about 30 years. Wheat harvest dates have come forward by 20 days since 1980. Maize planting dates have moved forward by 3 to 4 weeks. Crop cycles have become shorter for all cereals, and similar trends have been observed in the case of perennial crops (tree farming and wine-growing). Fruit trees are flowering earlier, irrespective of species and region. In the case of apricots, for example, the blossom time seems to have moved forward by 10 to 20 days on average over the last 20 years in the south-east of France. But at the same time temperatures are varying more widely, and this exposes the buds to higher risk of spring frost.

Vines are the species most sensitive to climate warming, and here again the flowering time is becoming progressively earlier. Grapes are also ripening earlier. In France, grapes are now beginning to ripen in July, a hotter month than August, and the sugar content is thus increasing with the result that the alcohol content in wines is also rising. This trend is positive in principle, since it is no longer necessary to chaptalise wines, but it can also involve loss of typicality, particularly in the case of RDO wines, which by definition are associated with specific regions.

Source: adapted from an interview with Bernard Seguin, INRA (National Institute of Agronomy Research), "L'agriculture face au changement climatique", Paysans, May-June 2007.

Soil, a much-coveted resource

Varied soils used very unevenly

The territories bordering on the Mediterranean are regions of tremendous biological diversity and also have a wide variety of soils with varying suitability for agricultural production. These soils are being threatened by human activities, particularly in the south and east of the Basin.

There are several factors which contribute to soil diversity. One of the first distinguishing factors is the nature of the bedrock, the parent material of surface soil. Dolomites and limestones are the main bedrocks of the soils of the Middle East, for example, and of those in the south of the Mediterranean region. Soils can also originate from the accumulation of elements that are imported by wind or water. The wind from the Sahara Desert thus contributes to the massive input of exogenous materials, sometimes over very great distances. Further differentiating factors are climate, vegetation and anthropic activities. Beyond that, soil depth, a decisive factor for agriculture, is directly related to climate: in the arid zones of the Mediterranean region, the combination of high

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temperatures and low humidity does not facilitate soil formation, and this is a contributing factor in the forming of skeletal soils, which are often unsuitable for agriculture.

The World Reference Base for Soil Resources (WRB), which was developed by the FAO (1998), the International Soil Reference and Information Centre (ISRIC) and the International Society of Soil Science (ISSS), classifies soil types in the following main groups: histosols, lithosols, anthrosols, vertisols, fluvisols, gleysols, solonchaks, solonetz, andosols, kastanozems, phaeozems, umbrisols, gypsic yermosols, calcisols, luvisols, cambisols, arenosols, and regosols. Cambisols, which have high calcium carbonate content and are quick-drying, are the most prevalent soil type in the zone (accounting for 29% of soils in France, 37% in Italy, 40% in Spain, and 20% Turkey). They are followed by luvisols, which are found mainly in Greece (45%) and Albania (38%), poor-quality lithosols (27% of soils in Greece, 23% in Israel, 29% in Algeria) and yermosols (30% of soils in Algeria and Egypt, 44% in Libya and 26% in Syria).

This land covers approximately 840 million ha, but only 28% is used for crops (cereals and trees) and pastures, whereas 8% is covered by woodland and forests. The remaining 64% is either dedicated to other (urban and industrial) uses or consists of desert zones. Only 47% of the 243 million ha of agricultural area available in the Mediterranean region (63% of which are located on the southern shores) are deemed to be arable land. Approximately 76 million ha of the total 117 million ha of cropland are under annual crops: cereals (50 million ha), oil crops (6.2 million ha), horticultural crops (over 5 million ha) and vegetables (3.7 million ha). Some 18 million ha are under permanent crops (half under fruit trees and half under olive trees). The main fruit trees are citrus (grown on over 1 million ha) followed by vine, peach trees and apple trees. The main producers are Italy, Spain, France, Turkey and Egypt.

There is also a major difference in land resources between the two shores of the Mediterranean, which, according to a study conducted by the Mediterranean Observatory ISMEA-IAMB in 2004 (ISMEA-IAMB, 2004), can be measured by two indicators: per capita land resources and arable land per farmer. In the European Mediterranean countries the average area of arable land available per capita is approximately 0.40 ha, whereas 11.4 ha are available per farmer; the respective values for all other countries are 0.25 ha and 1.9 ha. Measured by these criteria, Egypt is the most disadvantaged country with the smallest acreage per farmer and practically the smallest per capita area (0.05 ha/caput). This obviously entails a certain degree of food dependency and means that it is difficult for farmers to invest.

Land resources under growing threat

The development of arable acreage varies from one country to another. Although it has increased in some (particularly in Egypt), it is decreasing in most countries. The trend is expressed in rates of increase/decrease, but it must be borne in mind that where Malta's acreage has shrunk by 3.1%, for example, this concerns barely 400 ha per year, whereas Portugal's 2% decrease means a loss of 61,000 ha. Urbanisation is the main cause of this decrease in arable land, which is often good-quality land, since settlements have always developed around the best soils. According to the ISMEA-IAMB study, approximately 150,000 ha of primary land were converted to urban zones in the period from

Table 1 - Land use in the Mediterranean region, 2003

Country	Total area ⁽¹⁾ (1 000 ha)	Agricultural area ⁽²⁾ (1 000 ha)	Per capita agricultural area (ha/caput)	Arable land ⁽³⁾ (% of the agricultural area)	Irrigated land ⁽⁴⁾ (%)
France	55,010	29,690	0.49	62.1%	13.3%
Greece	12,890	8,431	0.77	32%	37.9%
Italy	29,411	15,074	0.26	52.8%	25.7%
Portugal	9,150	3,748	0.37	42.4%	28.1%
Spain	49,921	30,185	0.73	45.5%	20.2%
Cyprus	924	144	0.18	69.4%	28.6%
Malta	32	11	0.03	90.9%	18.2%
Albania	2,740	1,121	0.35	51.6%	50.5%
Northern Mediterranean	157,338	87,283	0.40	56%	25%
Algeria	238,174	39,956	1.24	18.9%	6.9%
Egypt	995,451	3,424	0.05	85.3%	99.9%
Jordan	8,824	1,142	0.20	25.8%	18.8%
Israel	2,171	570	0.09	60%	45.3%
Lebanon	1,023	329	0.09	51.7%	33.2%
Libya	175,954	15,450	2.73	11.7%	21.9%
Morocco	44,630	30,376	0.98	27.9%	15.4%
Palestinian	602	345	-	22.9%	7.7%
Syria	18,378	13,759	0.76	33.4%	24.6%
Tunisia	15,536	9,784	0.98	28.5%	8.0%
Turkey	76,963	39,180	0.54	59.6%	20.0%
Southern Mediterranean	681,800	154,315	0.70	39%	27%
Total Mediterranean	841,878	242,719	0.6	47%	28%

Source: our calculations based on Faostat 2006.

(1) Total area less the area of the inland waters

(2) Sum of the area of arable land, land under permanent crops and permanent grassland and pastures

(3) TLand under temporary crops (acres harvested twice being counted only once), permanent grassland for cutting or grazing, market gardens or vegetable gardens, temporary fallow land (less than five years).

(4) The data on irrigated area refer to acreage that has been developed with a view to watering crops.

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1978 to 1998. The city of Barcelona expanded by over 15 000 ha in the peripheral zone between 1982 and 1989. In Egypt, the Ministry of the Environment has estimated that in the period from 1960 to 1990 urban development claimed agricultural land at a rate of approximately 10,000 ha per year.

Tourism is partly to blame for this artificial development of arable land. The industry has grown tremendously in the Mediterranean, given the region's many historical sites of great value, the length of its coasts and its favourable climate. In 2005, almost 300 million people visited the region, which has been the world's leading tourist destination since the 1990s, accounting for almost one-third of international tourist flows. There is no sign of land resources becoming stabilised in the years that lie ahead, whereas the population is steadily increasing and tourism is liable to continue to develop.

It is, of course, possible to cultivate land that has not yet been used, but this requires investment-intensive land reclamation schemes such as those developed in Egypt and Turkey, where the mediocre quality of land necessitates a great deal of development work if it is to be usable for agricultural purposes. Despite these difficulties, Egypt nevertheless improved 2.65 million feddans (1 feddan = 0.42 ha) between 1952 and 1997 (Ayeb, 2001). However, despite these possibilities of developing new zones, arable land resources (crops, fruit trees or vine) will continue to diminish under anthropic pressure.

And in addition to this downward trend in the quantity of land available, soil quality could also continue to deteriorate. The soils of the Mediterranean region form a very fragile ecosystem, which can be rendered sterile by the combination of a number of factors, a process which can be measured in terms of limited biodiversity: whereas in good conditions 1 gramme of soil can contain up to 600 million bacteria belonging to between 15,000 and 20,000 different species, in desert soil these values drop to 1 million bacteria and 5,000-8,000 species. This decrease in the presence of micro-organisms obviously makes plant assimilation very improbable.

Human-induced soil degradation is a phenomenon common to all regions of the world. The International Soil Reference and Information Center (ISRIC) has conducted a UNDP-funded Global Assessment of Human Induced Soil Degradation (GLASOD) (Oldeman *et al.*, 1991) showing that approximately 11.5 billion ha of vegetation zones are degraded, 17% by erosion, and that degradation is imminent on 1 out of 6 hectares. In the Mediterranean region wind and rain erosion (edaphic conditions) is another important factor here. The episodes of sudden rainfall characteristic of the rainfall system and the strong winds in the region damage the soil, which is often shallow, particularly when the crop system leaves areas unplanted for much of the year.

It is the land on the eastern and southern shores that is most exposed to these degradation hazards. The extension of cropland is generally to the detriment of woodland and rangelands, and this decrease in plant cover allows the edaphic factors to have adverse effects. The development of the sandy steppeland in North Africa has exposed these areas directly to these erosion factors. By contrast, in the northern Mediterranean, any agricultural land that is deemed to be marginal is abandoned, and this limits soil deterioration, although the return to spontaneous vegetation in these areas can lead to fires, which destroy the soil. Cropland degradation in the North is connected more with the expansion of parcels, the simplification of crop systems and the decrease in pastureland.

And finally, the increasing concentrations of salts are a crucial problem. There are two factors causing this rise in salinity: the intensive use of fertilisers, and irrigation. Irrigation can have a direct effect, when the water has itself a high salt content (groundwater subject to marine intrusion, for example) or, more indirectly, when drainage is inexistent or defective and irrigation water thus stagnates and dissolves the mineral salts. Salinisation can also be an effect of the growing retention of surface water on the continent and the constant re-utilisation of that water in agriculture, which inevitably results in the accumulation of salts in the endorheic drainage system (this phenomenon is known as anthropic salinisation) (Lahmar et Ruellan, 2007). This phenomenon is becoming acute in some countries, particularly in Egypt and Jordan and in Tunisia, where 30% of the irrigated land has been affected.

Blue gold?

Badly distributed water resources

The Mediterranean region will be particularly vulnerable in a world panorama where “water stress” is intensifying. Water has indeed become a crisis factor. Half of the “water-poor” world population (i.e. with less than 1000 m³ per capita per annum) is concentrated in the region. The Blue Plan estimates that a potential 165 million people will be concerned by 2025, 63 million of whom will suffer water shortage (less than 500 m³ per capita per annum) (Benoit et Comeau, 2006), and that almost 30 million Mediterraneans, i.e. approximately 7% of the total population in the region, will not have access to drinking water. Rural populations, which are in many cases for, are often the first to be exposed to the problem.

It is mainly the southern shores which are concerned; 75% of water resources are situated in the north of Europe (Latin Europe and the Balkans), 13% in the Near East (including 10% in Turkey alone), and only 10% in the southern-shore countries. With only 3% of the Earth’s fresh water resources but 7% of the world population, the Mediterranean Basin is thus an arid region where water has become the new gold that must be preserved or captured... Annual rainfall in the Mediterranean region is around 130 km³ per year, but only six countries – Morocco, Algeria, Italy, Spain and, in particular, Turkey and France – have higher rainfall.

The volume of this average annual precipitation must be compared to the total area of each country in order to better understand exposure to water stress. Thus, although Egypt and Albania receive approximately the same volume of annual rainfall, when one considers the total area of these countries (the ratio is then expressed in millimetres), the comparison no longer holds, since the ratio for Albania is 30 times higher than the ratio for Egypt. On the basis of this calculation, initial examination of the water situation in the Mediterranean Basin reveals that the situation is critical for the countries on the southern shores (Chart 2).

This imbalance is even more flagrant when one evaluates per capita water resources; the value is highest in Albania, France, Portugal, Greece and Italy, although there may be local shortages. The data published by Population Action International (PAI), which were obtained on the basis of an average population trend projection the, highlight the

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marked disparity between North and South. In the period from 1995 to 2025, available water resources should remain constant in the northern countries, whereas they will decrease by 40% in the southern Mediterranean and by 38% in the east of the region. They may even increase in Italy, Spain, Greece and Portugal – where the population is expected to decrease – barring any climate changes (Chart 3).

Chart 2 - Annual average area-related precipitation in the Mediterranean countries, 2003

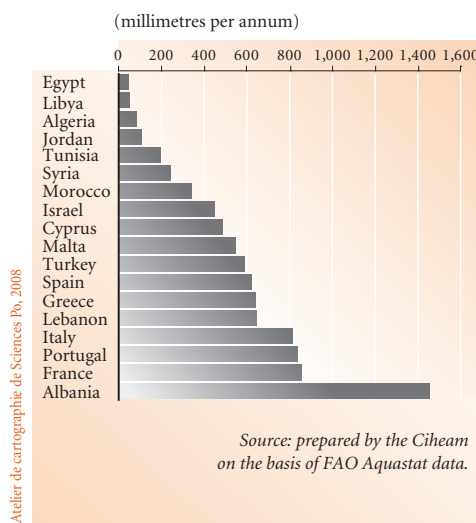
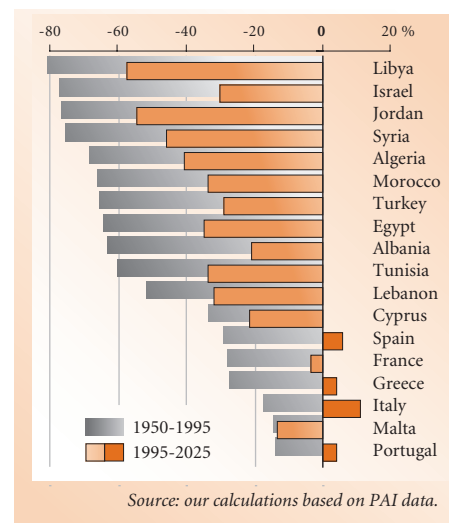


Chart 3 - Variation in per capita water resources, 1950-2025



Long-standing access threatened

The Mediterraneans have been using their water resources for a long time, despite scarcity and access difficulties. A distinction must be made between available resources and exploitable resources, which, unlike the former, can always be accessed by water engineering techniques. In Egypt, there is very little difference between these two types of resource, since the development of Lake Nasser is providing the means for mobilising practically all of the water supplied by the Nile, contrary to the situation in France, Turkey or Spain, where there are wide differentials, the reasons being technical (mainly topographic), environmental (environmental standards preventing excessive abstraction), or geopolitical (existence of downstream countries which do not allow excessive siphoning, as in the case of Turkey).

Although hydraulic engineering techniques were first used in the region more than 2000 years ago and were rapidly developed in the Arabian world, it was not until the 1950s that water supply management became an important policy issue. In view of population pressures, States have endeavoured to build more and more dams, pumping facilities and water supply infrastructures, thus managing to cover their populations' drinking water needs as well as industrial and agricultural water demand with varying degrees of efficiency. Since 1970, water abstraction² in the region as a whole has

increased by 45%. But while increases have been moderate in the European countries, where intensive farming has reached its limit, and in certain countries in the South (Cyprus, Malta, Israel and Egypt) where demand for water is subject to technical and political constraints, it has more than doubled in all of the other countries (ISMEA-IAMB, 2004). Since rain-fed agriculture is less productive and, in particular, less reliable, most of the water abstracted is used for agricultural purposes in countries in the south and east of the Basin, where irrigation helps to augment food supply to provide for booming populations. The agricultural sector accounts for 85% and 80% of total water consumption in these countries respectively. In the period from 1981 to 2001, the countries that were most active in expanding the area of irrigated land were Syria (124%), Algeria (114%), Jordan and Libya (109% each) (ISMEA-IAMB, 2004).

Despite the commitment and efforts made to achieve more efficient use of water in the irrigation sector, the sector is still very uneconomical: only 45% of the water abstracted for irrigation on average actually reaches the plants (Hamdy *et al.*, 2001). According to the FAO data on the year 2000, in certain countries in the South, such as Jordan, Algeria and Morocco, less than half of the water allocated to agriculture is actually used. This wastage is due to the high evaporation rate of stored water and considerable losses in the water supply networks, but also to the continuing use of traditional irrigation methods which are often extremely “water-greedy”. Attention should be drawn in this connection to the high levels of water consumption in agriculture: whereas one person needs 20 to 50 litres of water per day (by way of comparison, an American consumes 600 litres a day and a European approximately 150 litres), almost 3,500 litres of water are needed in order to produce enough food and meet the daily minimum requirement of 3000 calories. It thus takes approximately 70 times as much water to produce food for one person than it does to cover that person’s domestic needs (UNDP, 2006). Environmental problems associated with some major dams also raise questions about the sustainability of the development of large-scale hydraulic engineering. The Aswan Dam for example may have enabled Egypt to reduce its food bill, increase farm incomes and mitigate the social crisis, but it reduces the downstream flow rate, causing pathogens to flourish and fish stocks to fall, and it furthermore traps the alluvia carried down from Ethiopia, making agriculture more dependent on fertilisers.

Measures to upgrade the dilapidated irrigation systems, to rebuild the networks and to promote small and medium-scale hydraulic engineering works are an absolute priority. Thought must also be devoted to agricultural policy and to choosing economic crops at a time when drinking water needs are rising steeply as the result of the population explosion. Although access to safe water has progressed in most southern Mediterranean countries in the past few years, there are still disparities between urban and rural areas, and tremendous progress is needed if the living conditions of the populations in the region are to be improved. Some States such as Tunisia, Algeria, Turkey and Jordan, have appreciably improved access to the sanitation systems so that 85% to 95% of the population is now covered. Other countries such as Morocco and Egypt are still severely handicapped: in 2004 about one-quarter of their respective populations still had no

2 - Abstraction includes the losses that can occur in the course of distribution and therefore differs from consumption, which denotes the quantity of water which actually arrives at the final destination. Where there is significant loss, consumption level is sometimes much lower than abstraction level; the opposite can be the case where there is a significant quantity of unconventional water.

access to an efficient facility (UNDP, 2006). Investment in water treatment and water supply infrastructures is thus urgently needed on the southern and eastern shores of the Mediterranean, with the essential aid of international cooperation.

Signs of growing water stress

Increasing water abstraction in a region with the general disadvantage of low rainfall is obviously putting pressure on the natural water resources. This pressure can be measured by a “water exploitation index” expressed as a percentage and defined as the ratio between the volume of water abstracted from renewable natural water resources and the average volume of renewable natural water resources:

$$I = \frac{V \text{ abstr.}}{V \text{ avail.}} (\%)$$

If the index is below 25%, water exploitation can be considered negligible. Between 25% and 50%, exploitation is still acceptable. Between 50% and 75%, it is high, and if the index is above 75% water resources are overexploited. The index is relatively high for all of the coastal regions of the Mediterranean countries, particularly those in the south and east. The FAO has identified four groups, as has the Blue Plan (but the members of each group can vary) (chart 4).

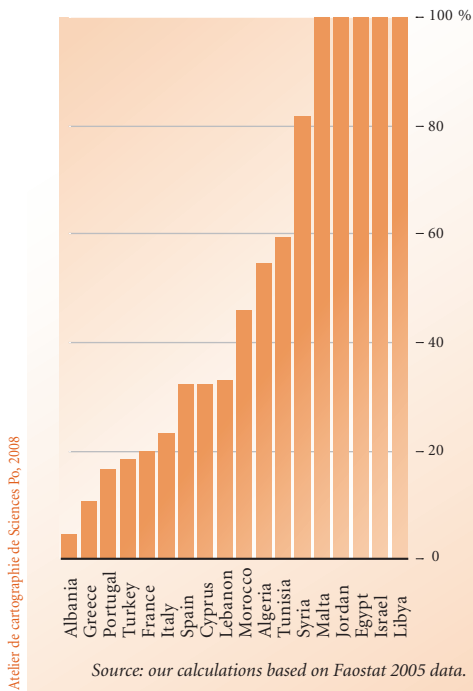
As regards river basins, the situation in the Mesopotamia region around the Tigris and Euphrates rivers is a matter for serious concern. According to the WWF, these two rivers form the third most exposed basin in terms of vulnerability to water quality degradation due to the large number of major dams which have been built, are planned or are under construction in the region. While this overexploitation affects surface water, its impact on groundwater resources is even greater, with disastrous and even irreversible effects on water quality. The exploitation of groundwater has increased considerably over the last decade as the result of population pressure and increasing irrigation water requirements. Indeed some countries go as far as abstracting large volumes from deep aquifers, some of which are non-renewable (Algeria, Egypt, Libya and Tunisia). In areas with shoreline aquifers overpumping sometimes causes marine intrusion resulting in deterioration of the quality of the water, which becomes brackish and thus unsuitable for domestic consumption but also for agriculture, since the soil can even become sterile. The situation is already alarming in many coastal zones, particularly in Greece, Israel, Italy, Cyprus, Malta, Spain, Tunisia and Turkey.

A further sign of water stress is the fact that half of the Mediterranean wetlands have disappeared, a development which obviously affects the ecosystems and biodiversity. According to UNEP data, the Mesopotamian wetlands have been particularly hard hit, since the construction of a large number of dykes and dams on the Tigris and Euphrates has reduced wetland area by 90%.

When scarcity exacerbates rivalry

Many States are virtually totally dependent on water resources from neighbouring countries. This is the case with Egypt, Syria, Israel and Portugal, which draw a large proportion of their resources from groundwater sources or sources outside their territories (Table 2).

Chart 4 - Water exploitation index, 2003



In a context of water stress, this cross-border aspect can be a cause of contention. This rivalry is most evident in the Near East and sometimes even verges on violence around the Jordan basin. Back in the early 1950s, the Israelis established a supply policy in an attempt to respond to symbolic necessity (development of the land of their ancestors), to meet geopolitical requirements (occupation of the territory) and to satisfy economic needs (creation of wealth), the cornerstone of that policy being the construction of the National Water Carrier, which carries water from Lake Tiberias (the Sea of Galilee) to the Negev Desert. Since this lake is fed by Lebanese and Syrian rivers (the Hasbani and the Baniyas), and since the River Jordan receives part of its waters from Jordan further downstream (the River Yarmouk), the Israeli stance until now has been to prevent excessive abstraction by other countries, by methods including military means (capture of the Golan Heights in 1967, occupation of South Lebanon until 2000, threats against

Lebanon and its plan to draw water from the Hasbani-Wazzani system) in September 2002. The Six-Day War in 1967 enabled Israel to augment its water resources,

Table 2 - Dependency index

Country	Dependency index (%)	Country	Dependency index (%)
Albania	35	Lebanon	- 9
Algeria	4	Libya	0
Cyprus	0	Malta	0
Egypt	97	Morocco	0
France	12	Portugal	45
Palestinian	18	Syria	73
Greece	22	Spain	0
Israel	55	Tunisia	9
Italy	5	Turkey	
Jordan	23	-	-

Dependency index: ratio between the supply of external resources and the total volume of water available at the national level.

particularly by taking control of the West Bank aquifers. The water allocation regime which the Israelis have imposed on the Palestinians is particularly unfavourable: since 1967, certain measures (quotas, control of drilling, penalty pricing) have been preventing the Palestinians from using the water of the aquifers to which they stake a claim. Israel is thus benefiting tremendously from the groundwater which flows towards its territory thanks to the topography of the region. All in all, two-thirds of the water used by Israel consists of foreign resources, a factor which tends to weaken the country's position, despite the military deterrence strategies it can exert on its neighbours. Some, even in Israel, no longer hesitate to question a model of development where agriculture, which draws 65% of water resources, now accounts for only 2.5% of value added and of total employment.

The basin of the Nile, which, with a total length of 6700 km, is the longest river in the world, is also the scene of tension over water management policy. The only country concerned here is Egypt, which is situated downstream and has often suffered both floods and periods of drought. In order to ensure that the land would be irrigated throughout the year and to contain excessive flood waters, a reservoir dam was built at Aswan in 1902; its height was subsequently raised twice, in 1912 and in 1933, since its storage capacity (a maximum of 5 billion m³) was too limited to allow perennial irrigation throughout the Egyptian Nile area. The construction project, which was implemented in 1952 just after the Egyptian Revolution led by the Free Officers, was the core issue in a geopolitical morass at the time (threats by France and England to intervene in 1956 were directly connected with the Egyptians' intention to nationalise the Suez Canal in order to finance work on the dam), but it did of course have socio-economic objectives. The aim was to develop (land and water) resources in order to cope with an unfavourable socioeconomic context: the country's essentially rural population – some 20 million at the time – was suffering from both land shortage (arable land being concentrated in the hands of a few) and the lack of perennial irrigation. With a population growth rate of 3%, the Egyptian planners could only conjecture that living conditions in Egypt would deteriorate unless a land policy (based on redistribution) and a water control policy were implemented.

Egypt made water supply management the focus of its development policy, sometimes to the detriment of its neighbours, in particular Ethiopia, which provides 86% of Nile discharge, whereas it only abstracts 0.3% at the present time. Addis Ababa is now seeking to circumvent this constraint in order to meet the needs of the population of 17 million people. The fall of Mengistu in 1991 and the end of the war in Eritrea in 2000 enabled leaders in the country to turn their attention to development projects, which could entail a drop in Nile discharge of 4 to 8 billion m³. Similarly in Sudan, whose relationship with Egypt has been conflictual despite the water-sharing agreements signed in 1959, the construction of the Merowe Dam, which has been underway since 2003, is liable to reduce discharge downstream. Other upstream countries such as Tanzania or in Uganda, which contribute much less to Nile discharge, also have water catchment projects. Against this background, Egypt has two alternatives: it can either bring its military deterrent capacity to bear or embark on a water economy policy which will allow it to allocate part of the river to projects outside the Nile Valley, in the Sinai Peninsula and in the Libyan desert. In the latter case, regional cooperation through development could be achieved in concertation with the countries of the Nile Basin would be an

essential approach. Given Egypt's participation in the Nile Basin Initiative, which was launched in 1999 and aims to achieve common management of the Basin's water resources, it would seem that Egypt and its Nile neighbours have chosen the second option for the time being. Although the success of this initiative is not yet assured, it could become an example of concerted use of water resources at a time when there is talk of possible water wars.

In the Tigris and Euphrates Basins the time for concertation does not yet seem to have come. Historically, it was more the downstream countries, Syria and Iraq, which developed these two rivers mainly with a view to protecting themselves against recurrent flooding. Having built 22 dams for providing hydroelectric power and irrigation water for more than 1.7 million ha, Turkey, which is seeking to become a major agricultural and industrial power and to develop the rebellious region in South-East Anatolia, is reducing the downstream discharge of these rivers, thereby provoking protests from Syria and Iraq. In the discussions held at the diplomatic level the parties talk at cross-purposes: Turkey asserts its right on the basis of a geographical fact – the Tigris and Euphrates are formed essentially in Turkey, which provides 98% and 45% of the rivers' discharge respectively –, whereas Damascus and Baghdad emphasise historical precedence. This disagreement, like those over the other river basins mentioned above, underlines how difficult it is to develop international law on water which can resolve conflicts. Despite the inadequacies of the law, inter-State co-operation will be all the more imperative in a context of unfavourable climate trends. From this point of view, the Nile Basin Initiative deserves particularly strong support. And as for the river basins where there is real tension, solutions are not impossible. By continuing to opt for a less "water-greedy" strategy, Israel can reduce water stress in the Jordan Basin (Blan 2006). In particular, the reduction of abstraction for the agricultural sector, which accounts for less than 3% of both GDP and total employment, could allow the Palestinians to use West Bank groundwater to a greater extent – a prospect which is imperative in the context of population growth in the Palestinian Territories, which will probably have a population of 6 million people by 2025.

Forest land, a threatened heritage

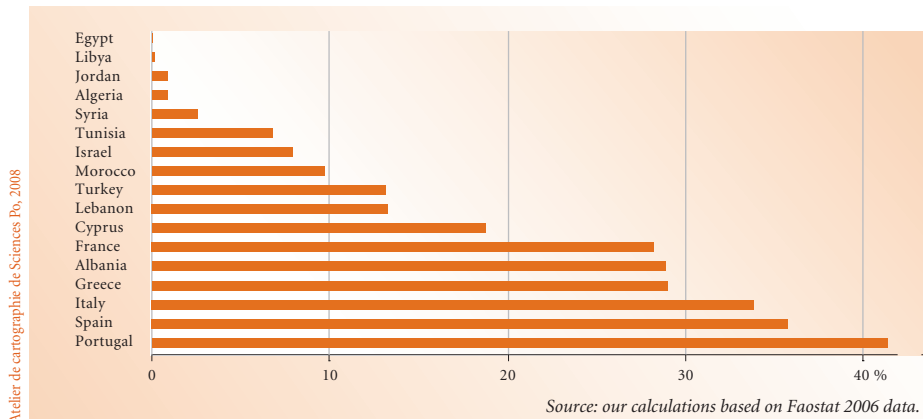
The Mediterranean forests are an excellent example of biodiversity. They are the habitat of some 290 tree and shrub species, 200 of which are mainly or exclusively connected with this geographical area (Blue Plan and FAO). Sixty of these species, i.e. almost 30%, are rare and under threat. Each type of forest is also a habitat for flora and fauna whose population depends mainly on humidity conditions, soil and sunlight. The largest forest rangers are situated in the North of the Mediterranean Basin, where water resources are most abundant (Chart 5).

Forests are subject to all sorts of attacks: while acid rain is affecting the north of Europe, deforestation is advancing in the Mediterranean region. It has various causes: urbanisation, agricultural development, intensive logging, etc. The factors are not always anthropic: although forest fires are to be explained to a large extent by the period of drought typical of Mediterranean summers, these fires are often the result of arson – irresponsible acts or property speculation. Some Mediterranean countries suffer heavy losses through these fires, whether they are of criminal origin or not: Spain and Italy

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lost 200,000 ha and 100,000 ha in the course of the 1990s, for instance, whilst Greece lost 200,000 ha in the summer of 2007 alone. A total of almost 600,000 ha are reported to burn in the Mediterranean each year.

Chart 5 - Share of forest and other wooded land in total area, 2006



The intensity of this deforestation could vary from one shore of the Basin to another in the future. In the North, rural decline phenomena are liable to be accentuated and to provide supplementary areas for spontaneous or non-spontaneous reforestation - with fast-growing conifers, for example, Aleppo pine and Scots pine. Does biodiversity stand to benefit? The species that are more scattered along the coasts could disappear as the result of mass tourism (coastal Spain, Balearic Islands, the Riviera, Sicily and Crete). Although forestland progressed between 1990 and 2000, it is mainly in the south and east of the Mediterranean Basin that biodiversity is most vulnerable in view of the overexploitation of natural environments by man and his animals. Reduction could continue at a rate of 2% to 4% per year, depending on the country, over the next thirty years, and certain rarer species could become extinct. These rates do not allow for any marked episodes of drought, which would seem to be on the cards in the climate change context and would be liable to harms forests in the south and east. The fauna and flora associated with these forests would of course be liable to continue to dwindle, but over and above the threat of biodiversity collapse, this progressive loss of wooded lands in the southern and eastern Mediterranean region poses problems for the other resources, since forests are, inter alia, water cycle regulators and one of the factors preventing soil erosion.

In view of all of the hazards threatening forest ranges, there have been various moves to try to change the course of events. The idea of cooperation in the forestry field dates back to 1911 with the creation of *Silva Mediterranea*, a forum for consensus-building. This committee, which operates within the FAO, now aims to promote the concerted and sustainable management of forest areas. A Mediterranean Forest Action Programme was implemented in 1993 providing a reference framework for all of the national forestry planning schemes of the countries in the region. At a meeting in Rome in 2002 the members of the *Silva Mediterranea* committee made action to safeguard forest biodiversity a

central priority along with that of the sector's contribution to sustainable development. This was in line with the plan of action devised by the UN Forum on Forests.

Energy: a new deal

Energy is a crucial production input. But while agriculture and industries – in particular those connected with farming – need energy, agricultural activities can also supply it. The ability of the countries in the region to maintain a fairly calorie-intensive model of agriculture depends on the rise in fossil energy costs; at the same time, that model can stimulate the replacement of fossil-fuel energies by renewable resources including those produced by agriculture (Chart 6).

Who produces? Who consumes?

Fossil energy (natural gas, coal and oil) is distributed very unevenly throughout the world, and the Mediterranean region is no exception when it comes to this sporadic distribution of deposits. Whereas there are extremely abundant deposits in the Arabian Peninsula, those situated on the fringe, i.e. in Egypt and Syria, are much more limited. Two countries in the west of the Mediterranean Basin, Algeria and Libya, supply the most oil, the volume they consume being much lower than output.

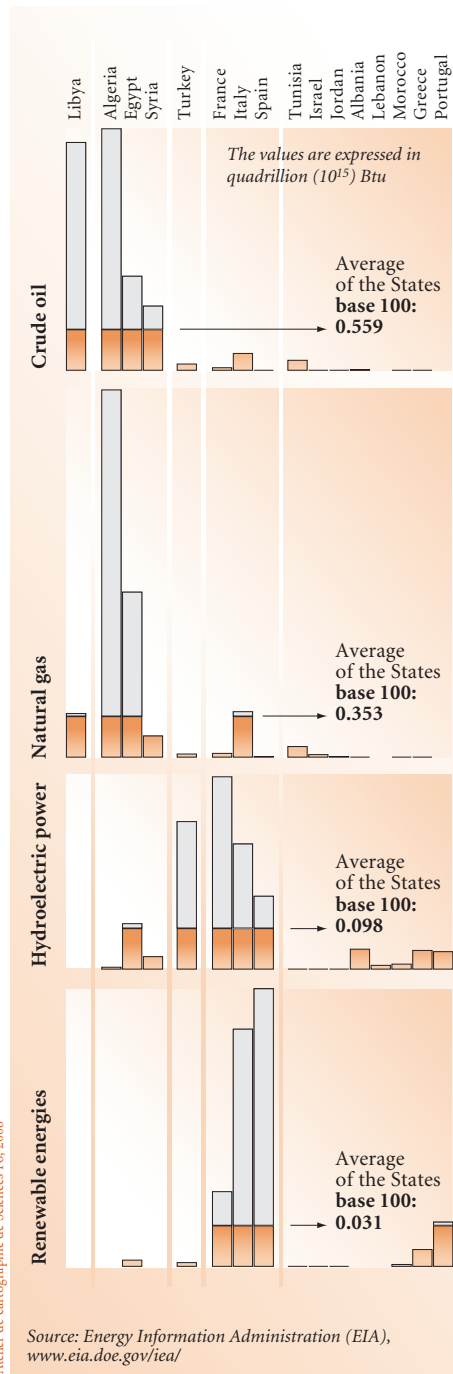
Natural gas is being regarded more and more as a panacea, since it is much less pollutant than oil and has the further advantage of high energy yield. Few of the Mediterranean countries can boast substantial output, however. Here again, Algeria is the leading producer in the region, followed by Egypt, Italy and Libya. Production in the other countries is marginal (France, Tunisia) or virtually inexistent (Morocco, Spain, etc).

The northern shores of the Mediterranean contain more coal, the main deposits being in Turkey, Spain, France and Greece. And it is the countries with heavy rainfall and topography conducive to water catchment which produce hydroelectric power, France, Turkey, Italy and Spain obviously being the main producers in view of their rainfall and the size and configuration of their territories (major mountain ranges). With its Aswan Dam, which receives in particular abundant volumes of water from Ethiopia, Egypt is the leading producer of hydroelectric power on the southern shores.

Some countries have developed nuclear energy using uranium fission in order to overcome their energy poverty. In the Mediterranean Basin, France is the only country that made a bet on this form of energy when it came to rethinking energy policy after the oil crises in the 1970s, and by 2004 it was producing 16% of world nuclear energy. While extending nuclear energy is clearly a solution for the Mediterranean region that brings advantages, there are nevertheless several obstacles. In particular, the fact that it is highly capital-intensive means that countries with limited financial capacities have fewer possibilities for developing it.

So-called clean resources, better known as renewable energies (solar and wind energy, biomass, geothermics), although still marginal, are now supplying a growing share of energy in countries less endowed with fossil resources. This is already the case in the countries in the North, Spain being in the lead, followed by Italy and France. Promoting

Chart 6 - Energy production, 2005



renewable energies in the Mediterranean is a crucial challenge and one that is highly relevant to the region given its considerable potential in terms of sunlight. The development of photovoltaic solar energy could be a promising avenue if the economic costs of installation were reduced. And biomass is just as important a resource.

In the final analysis, when one considers all forms of energy production in the Mediterranean Basin, Algeria emerges as the leading producer due to its wealth of fossil energies, while France, having opted for nuclear energy, comes second. Whereas energy production is dictated in part by natural contingencies, consumption in the various countries is related to a large extent to their economic dynamism but also to their populations. France, Italy and Spain thus rank highest as consumer countries. The northern shores absorb the largest quantities of energy, irrespective of energy type – as regards both natural gas (Italy and France consuming the largest volumes) and the other fossil energies (oil and coal).

Electric power, which is a secondary form of energy that is produced by transforming another form of (fossil or renewable) energy, is the predominant form of energy consumed, consumption having increased at a rate of 4.5% per year in the period from 1990 to 2004; it is used widely in the agricultural production process, particularly in crop irrigation. Thus, if it is obtained from fossil energies, a rise in the prices of these energies can result in a considerable rise in costs for the agricultural sector. This is the case in particular for the southern-shore countries, which are obliged to resort to irrigation. Algeria and Libya, which produce large volumes of oil, are the only countries that can ease this constraint.

Disturbing prospects

In the 2006 edition of the World Energy Outlook, the International Energy Agency (IEA) states that consumption of fossil fuels will remain predominant until 2030 and that oil, natural gas and coal will continue to be the main sources of energy until then, irrespective of scenario. According to some experts,³ world oil output is set to peak around 2010-2050, whereas others predict the peak around 2025-2035. Jean Laherrère (ASPO) reckons that world natural gas output will peak around 2030. The onset of these peaks around 2030 would penalise both countries exporting gas and oil and importing countries. Since world coal reserves are notably greater, particularly in the United States, Russia and China, Jean Laherrère predicts a peak in world output around 2050. But the use of coal presupposes that its pollutant property be reduced. New technologies that have been developed in the past few years (gasification and combined cycle, "clean coal"⁴ and fluidised-bed combustion), are already considerably reducing pollution and acid rain problems, and could be rendered more efficient in the years that lie ahead. The prospect of these peaks obliges policymakers to act now to direct the course of energy policy in Mediterranean countries to a maximum, particularly since climate degradation makes it imperative to reduce the use of fossil fuels and develop alternative forms of energy.

The limits have been reached

The sustainability of resources and thus of the Mediterranean area as a whole is one of the region's crucial challenges. The diversity and fragility of its environment require that the principles and objectives of sustainable development for the region be implemented in order to counteract the main trends:

- Over the last 30 years there has been growing evidence of climate change, with significant and unpredictable variations in temperature, an increasing number of extreme weather events and a drop in average annual rainfall, which makes it imperative to step up water supply and management measures ranging from supply policy to water economy strategies. If things are simply allowed to take their course in the future, climate change in the Mediterranean region could affect the southern and eastern shores in particular.
- Biodiversity is continuing to diminish, and the threats now facing the Mediterranean ecosystem are unfortunately commensurate with its wealth. The region is becoming an at-risk ecoregion, made vulnerable by desertification, deforestation and the loss of certain animal and plant species.
- Mediterranean land is suffering in particular: while galloping urbanisation is encroaching on farmland (particularly in the South), land reserves are being degraded as the result of mismanaged intensification. Even if public policies succeed in protecting endangered land resources, the margins for manoeuvre in terms of food supplies are to be found more in exploiting existing resources more efficiently rather than in increasing production acreage.

3 - ASPO (Association for the Study of Peak Oil)

4 - A so-called "CCS" (carbon capture and storage) technology has been developed for coal, consisting of capturing the CO₂ emitted during the production of energy and transporting it to sites where it can be stocked (for example, in deep rock layers, depleted oil fields, impermeable geological layers, etc.)

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- Water, the focus of this environmental tension, is now more than ever a matter for concern. As it becomes increasingly scarce in the south and east of the Basin it is increasingly coveted in a region already known for its water shortages and its propensity to make the blue gold a strategic issue in inter-State and intra-regional relations. Water is now an object of competition between sectors, the major part of water resources being allocated to agriculture in the Mediterranean region. At the same time, access to clean water for the population remains a problem, and measures to improve basic infrastructures are imperative.
- Energy remains a fundamental issue amongst the many different challenges in the environment field. The post-oil era has already begun and it inevitably has implications for agriculture and food production. While it is difficult to predict the extent of the consequences, it is already conceivable that production costs will rise and that consumers and producers will thus be penalised. On the other hand, this rise in prices may lead to more focus on geographical proximity as a means of limiting transport costs, which would benefit farmers. Despite the imminence of production peaks, there is little sign of any change of course in the energy field at the present time. Efforts have been made, however, to diversify energy resources: the use of renewable energies such as biofuels is often cited as an avenue for the future in a region characterised by extensive agricultural activities. We shall come back to this subject later.

This overview confirms the growing consequence of the environmental variable in the geopolitical analysis of the region. Certain terms are appearing (such as 'ecological refugee', 'environmental diplomacy', or 'sustainable development') which illustrate that the environment and international political action are closely and irreversibly linked. This correlation undoubtedly calls for strengthened cooperation amongst the Mediterranean States in responding to the growing ecological challenges in the region, an imperative that is becoming all the more crucial as environmental tension, whether global, regional or local, exacerbates or creates new inequalities within the Mediterranean zone and within its societies.

Since the Mediterranean region, one of the richest ecoregions and natural zones in the world, is in jeopardy, it must become the world laboratory for lasting and sustainable development. This challenge will inevitably involve a change in attitude and practices on the part of all of the players involved in the region, and more specifically in the role and practices of farmers. For, given the environmental issues at stake, the challenge they face is indeed tremendous: they must produce more, they must produce more efficiently, and they must produce without polluting.

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CHAPTER 4

SCIENCE, TECHNOLOGY AND INNOVATION*

Innovation lies at the heart of technological revolutions. In the 18th century, British inventors enabled their country to meet the massive increase in demand for food products and manufactured goods: sowing in rows, hybrid vigour, the adaptation of crop rotation systems etc. were some of the discoveries that facilitated soaring agricultural yields and, consequently, set in motion industrial development.

Since the work of Joseph Schumpeter, a distinction has been made between invention and innovation – innovation being the large-scale implementation of a new process. According to Schumpeter, innovation can above all be explained by the thirst for profit; however, we can surmise that this alone is not enough. Innovation can only occur in a favourable environment, which is characterised by the predominance of education, the protection of inventions and a certain degree of investment security.

As it is clear that innovation drives rapid economic development, there is a need to analyse the environment for and prevalence of innovation in the Mediterranean, at least so far as concerns the agricultural and agro-food sectors under consideration here. More than ever, knowledge is at the heart of manufacturing processes - to the point that we talk of a “knowledge-based economy” (KBE). New information technologies and the advent of biotechnologies require a strong knowledge component. Agriculture and agro-food are necessarily connected to biotechnologies, but, as we shall see, they are also affected by information technologies; these innovation fields are well and truly at the heart of the new agricultural and agro-food revolution that is currently in progress.

However, although biotechnologies and information technologies may be taken to be a sign of progress, they may also, by virtue of their extremely unequal distribution across the Mediterranean region, be exacerbating differences in levels of development between countries and between the shores of the Mediterranean – and this in the context of the globalization of trade, which is in itself already an accelerator of change. Consequently, examining innovation in the Mediterranean region means looking not only at the region’s capacity to participate in the world economy, but also at its ability to develop harmoniously.

* - This chapter is compiled on the basis of documents written by Abdelhamid Bencharif (Ciheam-MAI Montpellier).

In this chapter we will therefore analyse the knowledge-based economy in the Mediterranean and evaluate the state of education, which is clearly a factor in the diffusion of technology. We will also analyse two key sectors – new information technologies and biotechnologies – that are at the heart of the changes in production and trade the agricultural and agro-food sectors are currently experiencing, and will assess the risks and the opportunities that they present.

Innovation and changes in agro-food systems

Technological advances and development of food systems

Knowledge and innovation have played a decisive role in the transition from an agricultural economy based on self-consumption to the agro-industrial economy of today. The new developments in this sector are the remarkable growth in intangible capital and the rapid spread of new technologies, which have created a “knowledge-based economy” characterised by an acceleration of the process of innovation and technological change, following a period of stability during which the mass production methods pioneered by Henry Ford prevailed.

In western countries, “the great transformation”¹ was fuelled by numerous advances in a variety of scientific disciplines that made it possible to improve outputs and work productivity, in agriculture as well as in upstream and downstream industries.

The “triple decline” of agriculture within global economies – a phenomenon that is now well documented – is characterised in particular by the proportional increase in intermediate uses in agricultural production.² This is in fact a symptom of the intensification and modernisation of agriculture, which is increasingly dependent on other sectors of the economy. In the West, agriculture has since the 1950s become genuinely industrialised, as a result of the application of modern manufacturing techniques and the development of intermediate uses in industry, the level of which has now exceeded the level of value added. There has been a remarkable increase in the productivity of agricultural labour: although agricultural labourers are relatively fewer in number, they are managing to feed a growing non-agricultural population and release surpluses for export.

In parallel to the decline in agriculture in the North, we are seeing growth in manufacturing industries and supermarkets, which are growing bigger and bigger and play a major role in sector regulation. Scientific advances and innumerable technological innovations have led to the development of a plethora of new products. As a result of such innovations, which have been achieved at the organisational level as much as in regard to methods of actual products and information exchange, in particular through supply chain models based on Supply Chain Management (SCM), it has been possible to slash the cost of food, improve quality and meet public demand.

1 - The expression coined by the economist Karl Polanyi and subsequently taken up by other writers, such as Fernand Braudel's *La grande chambardement des campagnes* or Gilles Allaire's *La grande transformation de l'agriculture*.

2 - According to Louis Malassis, the relative decline of agriculture is characterised by the fall in the share of the agricultural sector in the global economy, in the agro-food economy (the agricultural and food industry sectors) and agricultural production (the share of agriculture, measured by its added value contribution, in agricultural production declines, whilst the share of intermediary consumers rises).

In southern and eastern Mediterranean countries (SEMCs), rapid urbanisation has led to a geographical division of labour, with commercialisation, processing and foreign trade in agro-food products increasing to the detriment of self-consumption. The agro-food sectors are increasingly reliant for their efficiency on the modernisation not only of agriculture, but also of industry and of the distribution sector. However, these changes have not always been accompanied by the necessary transformation of organisational structures, which remain more or less traditional, outdated even. The food industry and distribution networks remain fragmentary and disjointed, and in most countries logistics are still at an embryonic stage.

The limitations of the scientific and technological environment and inadequate command of management and administration techniques increases the vulnerability of these sectors and compromises their profitability and competitiveness. For many products, the prolongation of the agro-food supply chain has resulted in quantity, quality and price imbalances between the various sectors (agriculture, processing, distribution). Despite the progress made in some SEMCs, with regard to some products,³ there have not been the improvements in agricultural productivity, especially in downstream sectors, that are needed firstly in order to meet the big increase in demand for food, and secondly in order to be competitive – an imperative imposed by the recent opening up of the markets.

Although they share the same Mediterranean climatic conditions, the structures, functioning and performances of the agricultural and agro-food systems in the North and the South remain very different. The value added per agricultural worker is 9.2 times greater in European Mediterranean countries than in SEMCs (US \$18000 compared to \$1952). This gap widened between 1990 and 2003 as a result of differences in the rates at which yields increased as well as of different trends in the number of agricultural workers, which is in acute decline in the North but rising in SEMCs. With the advent of new technologies and the ambition that European countries set themselves in the framework of the Lisbon Strategy to use such technologies to “become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth”, there is a risk that the North-South divide will grow larger still in future.

The 1990s marked the beginning of a new era, as acceleration of the globalisation process and the development of new technologies led to the emergence of a new “knowledge-based economy” in which innovation became the fundamental driver of growth in the productivity of economic entities and the development of countries. Two widespread and rapidly evolving new technological fields – information and communication technologies (ICTs) and biotechnologies – are thought to be significant enough that they are expected to bring about changes that could dramatically affect economies. ICTs are already playing an important role in the generation of productivity gains in developed countries and are considered to be “systemic technologies” or “network technologies”, as they are a real catalyst for economic growth thanks to the “boosting effect” they have on other sectors of the economy as a result of the improvements they enable in the circulation of information. In future, ICTs will bring about major changes in access to information, as well as restructuring of economies and management techniques.

³ - By way of an example: market gardening in Algeria and Morocco; milk in Tunisia; dried cereals and industrial tomatoes in Turkey etc.

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However, regions excluded from the information networks will be at increased risk of marginalisation. Biotechnologies are also looking promising, although it is still too early to tell whether molecular biology and transformations of the genome will have as great an impact as ICTs are having.

Science and technology have always been at the heart of economic development and especially of changes in the agro-food system, but the transformation currently being seen, described as the “intangible investment and knowledge revolution” is characterised by several new features:

- Acceleration of the innovation process, with product life-cycles growing ever shorter and the sales proportion of new products growing ever larger;
- Strong synergies between the new technologies and their convergence with other innovations;
- Formulation of the knowledge economy and its integration into public policy (World Bank, UNDP, EU) including at company management level;
- Emergence of new organisational structures with networks and hubs located at territorial level;
- Greater importance attached to “life-long learning”, with an ability to learn becoming more important than the level of knowledge, especially at university level.

The exchange of expertise and sharing of knowledge and intangible capital in general now seems to be an essential factor in economic systems, more important even than material resources. At the beginning of the 21st century, they are recognised as the main source of wealth creation, both at company and country level. In a context of liberalisation within a globalised economy, the competitive advantage of a country is more than ever determined by its innovation capacity. It is therefore appropriate to consider strategies for fostering innovation in the countries of the Mediterranean, in particular southern Mediterranean countries. Several studies have shown that the “cognitive divide” between the countries on the northern and southern shores of the Mediterranean is widening, although the knowledge economy does offer some opportunities to stimulate growth and close the economic gap.

Until now, the economies of SEMCs have been playing catch-up, in so far as their growth is based on imitation – that is to say on the gradual adoption of technological or organisational advances that have for the most part been initiated in developed countries. In the new context, these countries must first “get up to standard” so that they can reach the “technological frontier” set by developed countries, then improve their own innovation capacities in order to be able to withstand the competition and continue growing. Making the transition from growth based on imitation to a system of “continual innovation” will require:

- Higher levels of education and specific skills promoting adaptability, mobility and flexibility;

- Development of research and innovation;
- Information access systems;
- Complex coordination provisions and procedures.

The positioning of SEMCs in the knowledge economy

The knowledge-based economy (KBE) “encompasses all the knowledge generated and mobilised in the various fields of economic activity that concern technology, organisation, management, markets etc. It corresponds to a new mode of development that relies not so much on increasing the quantity of knowledge generated as on transforming the economic organisation of that knowledge. It is characterised by an accelerated pace of innovation, an increasingly collective approach to knowledge generation and a massive increase in the dissemination of information thanks to ICTs” (General Planning Commissariat, 2002). Unfortunately, the knowledge-based economy fails to integrate traditional expertise, notably agricultural expertise, acquired over time, which really does constitute a capital, often brought about by a degree of acculturation (colonisation, increasing remuneration of labour, invalidation of agricultural activity in societies etc). This phenomenon undermines a source of comparative advantage at a time when quality hallmarks are becoming the means of resistance against the production zones capable of providing more competitive “mass products”: the unique qualities of many cheeses come from expertise acquired over generations; if it is the land that is the distinguishing factor, it is the work of the farmers that determines the end quality of the products. These traditional skills are real growth and development factors, yet seem to escape the various methods of quantification used by the knowledge-based economy, which is currently trying to find an objective way of grasping this.

The World Bank has proposed a new benchmarking tool (KAM: *Knowledge Assessment Methodology*) for calculating scores that determine a country’s readiness for using knowledge and innovation for its development.⁴ KAM is structured around the four pillars of the knowledge economy, which cover 80 structural and qualitative variables, making it possible to measure countries’ performances (Table 1). The “basic scorecard” is the basis for the establishment of the Knowledge Index (KI) and Knowledge Economy Index (KEI) scores on the basis of 14 variables: 12 knowledge variables relating to the four pillars of the knowledge economy and two performance variables.

The Knowledge Index (KI) measures a country’s ability to generate, adopt and diffuse knowledge. It represents the simple average of the main indicators relating to the first three pillars of a knowledge society: education and human resources, the innovation system and ICT. The Knowledge Economy Index (KEI) integrates the fourth pillar in order to provide information about whether the environment is conducive for the effective use of knowledge for economic development. It is calculated on the basis of the average of the normalised performance scores on all four pillars of the knowledge economy. These indexes are valuable benchmarking tools and can be applied to “the whole world” (i.e. the 128 countries in the KAM database), a large or small group of countries or

4 - These scores can be determined from the database and benchmarking of the Institute of the World Bank which gathers information on 128 countries. (<http://web.worldbank.org/>)

Table 1 - Chart for Assessment of a Knowledge-Based Economy, based on the World Bank's Knowledge Assessment Methodology

	Description	12 key variables
1. Human Capital, education and human resources	Educated and qualified population able to create, share and use knowledge effectively	Adult literacy rate Secondary enrolment Tertiary enrolment
2. Research & Development and innovation system	Existence of an effective innovation system, making it possible to make use of the entire wealth of knowledge, adapt it to local needs and create new technologies	Researchers in R&D Patent applications granted by the US Patent and Trademark Office Scientific and technical journal articles
3. Information and Communication Technologies (ICTs)	To facilitate the creation, dissemination and effective use of information	Telephones per 1,000 people Computers per 1,000 people Internet users per 10,000 people
4. Economic and institutional regimes	Existence of economic policies and institutions facilitating the effective use of existing knowledge and the emergence of entrepreneurial capacity	Tariff and non-tariff barriers Intellectual property rights Regulatory quality

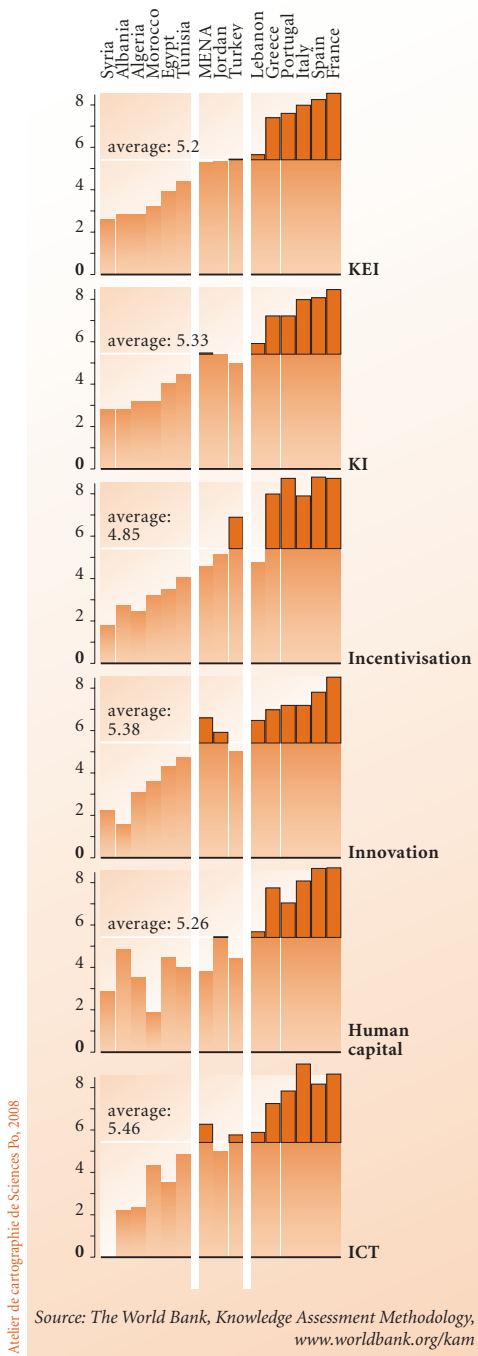
Source: The World Bank, Knowledge Assessment Methodology.

a region. Chart 1, compiled using data from the KAM database, reveals the sizeable disparities between the countries of the Mediterranean. Whilst Syria's and Algeria's performances are hampered by a real lack of incentive, Albania has a good score for education and human resources but falls short in the provision of an innovation system. In contrast, northern Mediterranean countries are accumulating the elements conducive to a knowledge-based economy.

Other studies have more or less confirmed this assessment. A study carried out by the Mediterranean Institute (Reiffers and Aubert, 2002) divides 77 countries into five classes, with Class 1 containing the worst performing and Class 5 the best performing countries. The countries of the Middle East and North Africa (MENA) region fall into Classes 2 and 3. In order to better appreciate the tremendous heterogeneity between countries, four groups of countries were identified:

- Group 1: countries with low population levels that are endowed with natural resources and that are not adequately exploiting the potential of the knowledge economy. The two non-Mediterranean Arab countries, Saudi Arabia and Kuwait, are in this group.
- Group 2: countries that have made appreciable advances in terms of their institutional framework and have good scores for secondary education, but that need to sub-

Chart 1 - The Knowledge-based Economy in Mediterranean countries, 2003



stantially increase their student numbers in engineering sciences and develop research and development. Turkey, Jordan, Tunisia and Algeria fall into this group.

- > Group 3: countries that are in a similar situation to those in Group 2 in terms of education and institutional frameworks, but that are having difficulty ensuring universal schooling. Development of the information society is satisfactory, however. Two countries are in this group: Egypt and Morocco.
- > Group 4: countries that have none of the characteristics that make it possible to envisage them becoming knowledge-based economies. This applies in particular to Syria, which does not even meet the institutional framework conditions.

The UNDP reports draw fairly harsh conclusions about the state of knowledge in the Arab world, in particular *Building a knowledge society*, which “examines the status of Arab knowledge today in terms of demand, production and dissemination, and concludes that all three are ineffectual notwithstanding the abundance of Arab human capital” (Foreword by Rima Khalaf Hunaidi, UNDP, 2003b). It shows that the thirst for knowledge is being stifled by defective political, social and economic structures that penalise education, research, media and culture in general. Lastly, UNDP’s evaluation of higher education in Arab States reveals that “despite decades of investment, students remain poorly prepared for a competitive global marketplace”.

In conclusion, the region is clearly underdeveloped from the point of view of the knowledge-based economy compared to where it should be, given the relative wealth of the countries concerned (with the exception of Jordan). As underdevelopment in any of the four components of

the knowledge economy finds similar expression, the specific effects of any single component are not significant; it is through the integration of all the components in a well-organised system that the knowledge-based economy will be able to play a decisive role.

Education and research systems in the agricultural and agro-food sector

Although human capital is not the be all and end all, the case of Albania being quite telling, the performance of education and research systems is a determining factor in the appropriation of new technologies. Although our field of investigation is restricted to the agricultural and agro-food sectors, evaluation of the system of education/training and research/innovation as a whole will help us to understand the educational base on which higher education and research rest. Moreover, a great many training courses and research projects carried out outside dedicated “food and agriculture” education and research institutions contribute to agricultural and agro-food development.

The education system

Countries in the region have made considerable efforts with regard to education at all levels and have made substantial progress, as is demonstrated by the level of public spending on education and the rise in literacy rates (Table 2).

SEMCs have been spending a very high proportion of GDP on education. This level of spending, in the order of 5.7% on average, is far higher than in the other three developing regions (2.4% in South Asia, 2.8% in East Asia and 3.3% in Latin America). However, education systems continue to be characterised by a series of shortcomings and distortions:

- The averages conceal disparities between the different regions of a country, within single regions, and between urban and rural areas, which in some cases can be considerable.
- The productivity of the education system is poor, due to considerable losses at all levels and high numbers of students repeating years.
- Teacher training is often inadequate.
- Qualifications do not provide the skills needed in the world of work, in particular by private enterprises.

Generally, in the absence of an education strategy, “the overall coherence of the system has been impaired by the prevalence of sectoral logic: a lack of gateways between the education, professional training and higher education sectors, poor complementarity of the various sectors, poor links between the education system and the national socio-economic and cultural environment and global scientific and technological developments” (Algerian Government, 2005). Most countries have undertaken intensive analysis of their education systems, using the results as the basis for extremely ambitious reform projects. Morocco makes an interesting example.

Table 2 - Public spending on education and literacy in selected Mediterranean countries

Index (HDI)	HDI country ranking	Public spending as % of GDP		Adult literacy rate (% of over 15 year olds)	
		1990	2000-2002	1990	2003
Advanced human development					
0.938	16. France	5.3	5.6	-	-
0.934	18. Italy	3.1	4.7	97.7	-
0.928	21. Spain	4.2	4.5	96.3	-
0.912	24. Greece	2.4	4.0	94.9	91.0
0.904	27. Portugal	4.0	5.8	87.2	-
Intermediate human development					
0,780	72. Albania	5.9	-	77.0	98.7
0,753	89. Tunisia	6.0	6.4	59.1	74.3
0,753	90. Jordan	8.1	-	81.5	89.9
0,750	94. Turkey	2.2	3.7	59.1	74.3
0,722	103. Algeria	5.3	-	62.9	69.8
0,721	106. Syria	4.0	-	64.8	82.9
0,659	119. Egypt	3.9	-	47.1	55.6
0,631	124. Morocco	5.3	6.5	38.7	50.7

Source: UNDP, World Human Development Report, 2005.

Higher education and academic research on food and agriculture

National agricultural research capacities in the Mediterranean are extremely heterogeneous. France alone has half the region's total public research capacity. In the North, Italy and Spain have significant resources. In the South, only Egypt's capacity is good, thanks in particular to more than two decades of substantial assistance from America. In the East, Turkey has a respectable capacity level, having benefited from several World Bank loans. In Libya, a strong international curriculum attracts researchers despite the low proportion of the budget allocated to public research.

It is no longer in dispute that the performance of national agricultural sectors is closely connected to the level of agricultural research development. Egypt, which has greatly improved its results over the past twenty years, is a good example of the cause and effect relationship. In the Maghreb on the other hand, productivity gains remain slight, despite significant aid. The education and research provisions of Mediterranean countries vary appreciably, depending on whether they have adopted:

Morocco: a new strategic vision for the education system

In the early 1980s, the Moroccan education system entered a long period of crisis, the most obvious symptoms of which were school dropout rates, the relapse into illiteracy of those outside the education system, decline in civic values and critical thinking, unemployment among university graduates, poor levels of basic skills (reading, writing, arithmetic, languages, communication). Despite, or perhaps because, of a series of ill thought-out and often unachieved reforms, the system became a cumbersome unprofitable machine incapable of properly preparing graduates to be able to respond to the changes and demands of the modern economy and that resulted in a multiple-speed education, with performances growing progressively worse the further one got from the big cities.

In 1999, a national charter launched an ambitious project to reform the education system that would receive consistent support at the highest State level. Education was declared to be the primary national priority after territorial integrity. To date, considerable efforts have been made, but the results achieved still fall short of the goals that were set. There has been indisputable, quantifiable progress with regard to achieving widespread school attendance, and work has started on pedagogical factors and management techniques. There is still a long way to go. Problems with dropout rates, quality, course content, teaching methods, teacher training and the values taught by the school have yet to be resolved.

Source: RDH50 (2006).

- the French model of *Grandes Écoles* teaching agricultural sciences and research institutions that are usually dependent on the Ministry of Agriculture (Tunisia, Morocco etc);
- the Anglo-Saxon model of university departments of agriculture that include research staff and that constitute a system integrated into universities (Algeria);
- the Anglo-Saxon model, supplemented in the Middle East by agricultural research institutions that are dependent on the Ministries of either Agriculture or Hydraulics (Egypt);
- the Anglo-Saxon approach with more or less fragmented research institutions (Turkey, Albania and the former Yugoslavia).

Over the past two decades there have been a number of works devoted to analysis of activities providing scientific support for the development of the agro-food sector in Mediterranean countries (Ciheam, 1988; Ciheam, 1999; INESG, 1989; INA, 2005; Ministry of Education, 2006). The analysis shows that the difficulties and shortcomings encountered by education and agricultural research systems are often the same:

- *Magnitude of demand* for scientific and technical support.
- *Inadequate education*: generally, national education capacities do not respond directly to these new requirements, either in quantitative terms or with regard to subject matter and quality of teaching.
- *Isolation of skills*: although there may be considerable skills and expertise (researchers, experts, developers etc) in some fields, this potential is not always mobilised and organised around the real requirements of the economic agents who are in greatest need. People with expertise are generally isolated, dispersed among various institutions.

- *Poor recognition of the researcher's function:* although researchers are few in number, every country has a core of people, sometimes of outstanding quality, who resist often very attractive offers by foreign universities, in particular North American universities, or big international organisations (World Bank, European Union etc.) to undertake work that has more to do with education than research. These researchers are in systems that remunerate them relatively poorly in comparison to the private sector. The financial resources they have available are uncertain and generally inadequate. Often isolated from the international scientific community, such researchers still work little with colleagues from neighbouring countries, as regional research projects are rare.
- *Segregation of the academic and professional worlds:* the lack of significant links between companies, institutions and universities gradually alienates any prospect of partnership between these entities and compromises the chances of developing the synergies that are vital for economic development.

This list is not exhaustive. These shortcomings translate into a loss of resources and skills and thus into a loss of effectiveness. They can be attributed to the lack of the “critical mass” that is vital for the emergence of local research and expertise groups that are truly effective and able to respond to the expressed requirements. In SEMCs, it is essentially public institutions that carry out scientific research. Despite considerable fiscal efforts, SEMCs lag significantly behind developed countries on account of the shortcomings highlighted above, as well as of administrative procedures that are often restrictive, difficulty in accessing scientific information, and low levels of R&D spending (US\$6 per inhabitant in the Arab region compared to \$953 in the United States of America in 2002). Thus, despite growing State support, R&D spending is estimated to be approximately 0.7% of GDP in Morocco and Tunisia in 2001, and 0.35% in Algeria in 2004 (OST, 2005).

The extent to which Maghreb countries are lagging behind on research can be measured by looking at their share of the world's scientific publications, which, based on their 1.15% share of the world's population, should be six times greater than at present. However, this figure has grown significantly, rising from 0.11% to 0.18% between 1993 and 2001. Morocco's share of scientific publications showed the biggest growth over this period: in 2001 it was responsible for half of the scientific publications produced by the Maghreb as a whole.

Analysis by discipline reveals significant disparities. In particular, the proportion of scientific publications in fundamental biology was low,⁵ at less than 0.1% in 2001, whereas it in maths it exceeded 0.4%.

ICTs: an aid to convergence or widening the gap?

The progression of human capital facilitates the acquisition of information and communication technologies (ICTs). ICTs concern the innovations in storing, processing and transferring information achieved through digital and new telecommunications technologies. The ICT sector includes all the equipment and technologies used in com-

⁵ - See specialisation index below.

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puter science, telecommunications and electronics; it can play an important role in disseminating knowledge and information, as well as in economic growth. Initially, the contribution of ICTs to overall productivity growth seemed to be due to rapid technological advances in the production sector itself. Since the mid to late 1990s however, the growth in productivity seems increasingly to be attributable to their increased use in other sectors. The economic impact of ICTs is closely associated with the breadth of their use in economies. That is in part because these are networking technologies; thus, the more users there are (individuals or businesses), the greater the network's beneficial effects.

The impact of ICTs extends to many domains, ways of life and economic and social structures. A growing proportion of the GDPs of developed economies comes from activities relating to the manufacture and use of these new technologies, which explains the emergence of new concepts such as "the information society", "knowledge societies", "new economy" or "digital economy". On the other hand, delays in acquiring ICTs can result in growing marginalization, a "digital divide". However, ICTs do offer some potential for countries to be able to catch up.

ICTs in Mediterranean countries

The Mediterranean region is lagging behind other regions of the world in ICT. In the North, "the European, and particularly French, lag in the manufacture and diffusion of ICTs is highly disadvantageous" (Cette and Artus, 2004). The importance of ICTs for productivity growth is one of the main reasons for the difference in growth seen in Europe and the United States over the last decade.

In order to overcome this lag, the Lisbon European Council, which met in March 2000, set the goal of making Europe "the most competitive and dynamic knowledge-based economy in the world" by the end of the decade. ICTs have a particularly important contribution to make to the Lisbon Strategy on account of their dual influence: not only are they an extremely important sector in their own right, they are also vital for improving productivity and service quality in all sectors. Although still behind other competitors in the North, northern Mediterranean countries are gradually establishing knowledge-based economies (KBE). The expansion of the KBE to the South through the establishment of the Euro-Mediterranean Information Society (EUMEDIS) programme in February 1999 and the involvement of the SEMCs in the European Survey of Information Society (ESIS) project reflect a desire to integrate the partner countries of the Mediterranean Free Trade Area (MEFTA).

A study by FEMISE (Ben Youssef and M'henni, 2003) set out to understand the role that ICTs could play in helping SEMCs to catch up economically. Two types of digital divide were identified. The first concerns telephone equipment – although we are seeing a process of convergence between the two shores of the Mediterranean as less developed countries are increasingly using new generations of technologies that are better adapted to their needs ("follower advantage"). In particular, we are seeing strong take-up of mobile telephones in SEMCs, although this is at the expense of landline telephones. The second concerns the Internet and its related uses. Poor take-up of landline telephones has contributed to considerable delay in the diffusion of computers,

with the effect of creating a digital divide. This is an essential factor that could represent a serious handicap in the establishment of a “knowledge society”.

Today, inequalities between the best and worst equipped countries, including among SEMCs, are increasing. From the point of view of the diffusion of ICTs, the Mediterranean Free Trade Area (MEFTA) is becoming quite heterogeneous. If companies take this into account when deciding where to locate their businesses this could have important implications for the allocation of manufacturing resources and eventually for the divergence of macro-economic performances. At current growth rates “the technology gap” cannot be closed, even in the long term – but just a one point difference in long term growth in favour of SEMCs compared to the European Union could cut in two the time it takes to close the gap, although it will still take a long time. If economic prosperity is a key factor in the digital divide, voluntary public policies and the acceleration of telecommunications market reforms could also play a vital role.

The Digital Access Index (DAI) allows digital access to be evaluated and comparisons to be made between countries. Although the North-South divide is sizeable, there are also significant variations between SEMCs. In particular, some experts (Touati, 2007) identify various aspects of the divide between Arab countries and the rest of the world: besides wealth and human capital, one has to add in weak R&D, poorly adapted infrastructure, the sometimes burdensome constraints on service providers, the propensity of some States to control information flows, the low number of sites in Arabic, the burdensome restrictions on women, who are the most excluded from these technologies, etc. Although technology parks are being developed in the Maghreb and in Libya (the El Ghazala Park in Tunisia, Casablanca Park, Sidi Abdellah Cyberpark in Algeria, Berytec in Beyrouth), ICTs are still tending to have only a limited impact on the economies of some emerging countries. As Nadia Chettab (2004) emphasises, “held captive by development policy, incapable of promoting their integration into international industrial and scientific networks, Maghreb countries seem to see ICTs as a fad rather than adopting them as a determining factor offering extremely attractive development opportunities such as e-learning and e-business”. Taking Algeria as an example, Chettab emphasises that “ICT applications have not influenced Algerian industry, they have served for entertainment rather than becoming a method for economic catch up in the country’s development strategy”. She then offers a conclusion that could be applied to most of the countries of the South, “the symbiosis ICT/economy has therefore failed, because adopting ICTs without integrating them into the strategies and culture of a country’s businesses almost always ends in failure. ICTs only have a purpose when they are accompanied by an economic development strategy that presupposes the structural and social changes needed for their adoption [...]. Because in the globalised economy of the 21st century, the economy is led by technology, which disrupts the social issues to which policies are adapted.”

Use of ICTs cannot be reduced to a straightforward problem of access or diffusion, as there is also the matter of having the skills needed to be able to use them. Some writers on the subject make a distinction in this regard between “inequalities in access to ICTs (‘technical access’) and inequalities in terms of knowledge and technical skill, needed to make use of ICTs (‘social access’)” (Farajallah et al., 2004). Farajallah et al go further, defining two types of divide:

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- a primary divide between countries that are not at the same stage of diffusion: i.e. the gap between the countries of the North where the diffusion of ICTs is at a more advanced stage than in the countries of the South.
- a secondary divide between individuals within a country. This applies in all countries, but receives far greater attention and interest in developed countries.

For SEMCs, and particularly the Maghreb countries, the current issues are essentially the installation of equipment and access to ICTs. The secondary divide has not yet become a priority. Yet in most of the countries of the South, there are marked inequalities in education levels and income distribution that are real obstacles to the genuine appropriation and effective use of ICTs. Without doubt, any prospective consideration of the impact of ICTs should include, over and above potential technological divides, factors that could either promote or slow the effective integration of these new technologies. Analysis seem necessary at two levels:

- at the macro-economic level: this means examining the nature of public policies that might be implemented, especially by means of the four pillars of the knowledge-based economy, as well as North-South cooperation policies;
- at the level of areas and the behaviour of actors: the organisation of such actors could make it possible to improve ICT skills. In return, the ICT network created may increase the advantages of physical proximity and generate productivity gains (Cesaretti, Green et Hammoudi, 2006).

The use of ICTs in the agricultural and agro-food sectors

In the agricultural and agro-food sectors, the key question is whether ICTs will exacerbate the food and economic divides and cause increasing marginalisation of the countries of the South, or will on the contrary allow these countries to close the gap a little. This is closely related to the question of how the use of ICTs will impact on the competitiveness of the agro-food sectors.

ICTs and rural and agricultural development

According to FAO (Richardson, 1997) and ILO (2000), the latest innovations that are already established in developed countries seem to be out of reach for 70-80% of the populations of developing countries, who are still reliant on traditional technologies. The technological constraints faced by most farmers in the countries of the South are more mundane, and generally concern the use of conventional inputs. However, it can be anticipated that the development of the infrastructures relating to the new technologies – which has been relatively rapid in some countries in the South – and the drop in prices in the sector will mean that these technologies will come to be used more and more by big farms in such countries.

The rapid development of the Internet in the countries of the South remains an essentially urban phenomenon. In 1997, an FAO study observing that “most rural communities are not yet in a position to be able to take advantage of the services enjoyed by their town-dwelling neighbours [...], recommends the adoption of an integrated

Information technology and agriculture: the future is here

Futuristic information technology breakthroughs have already found their way to farms in developed countries. Most applications relate to “precision agriculture”. Digital maps generated by Global Positioning System (GPS) satellites, yield data gathered by “yield monitors” fitted to combine harvesters and soil samples are collated to provide a detailed soil profile and thus optimise the use of agricultural chemicals. Sensors attached to plants are used to regulate, via automated control systems, the flow of irrigation or gas concentrations. These new technologies offer just as many opportunities for change in the agricultural sectors of developing countries.

Source: *Agriculture and Technology, 1999* et www.fao.org/new/2000/000104-e.htm.

approach to develop projects and Internet services that rural communities and farmers’ organisations can participate in” (Richardson, 1997). Seven years on, several international organisations, and in particular FAO, recognise that the “digital divide in the rural environment” remains a “real lacuna that the international community has not yet tackled coherently”.

In an attempt to rise to this challenge, FAO proposed the *Strategic Framework for Bridging the Rural Digital Divide* (FAO, 2004). The approach it recommends allows the rural population and farmers to strengthen relationships, engage in dialogue and exchange information with decision-makers, planners, researchers etc., who sometimes live far away from the rural communities. Projects are organised on the basis of the needs of rural populations and grass-roots agricultural organisations, with their active involvement. As an outstanding, flexible system for communication and information dissemination, the Internet can be integrated into a vast range of projects with objectives such as local participation, training, education or research. Applications of the Internet for agricultural and rural development can be categorised into five broad types: farmers’ knowledge of information about markets; information networks adapted to the context of rural regions; teaching and research; development and small and medium-sized enterprises; and media networks.

ICTs and the strategies of agro-food companies

Over recent years, the rapid development of information technologies and the globalisation of markets have transformed the manufacturing and distribution processes for agro-food products, which by their very nature have specific requirements: nutritional quality and food safety, preservation, tracability.... We are seeing a new paradigm in industrial production, characterised by greater importance being accorded to quality, customers, and structural and organisational change in businesses.

It is above all in the countries of the North that ICTs have resulted in real change, technological as much as organisational, with the move from a discontinuous to a continuous process of conception-production-distribution. Manufacturing and distribution companies are using new activity coordination technologies based on increasingly sophisticated software, enabling improved productivity in the agro-food sector. Such modern management techniques are still poorly developed in the countries of the southern Mediterranean: the changes that businesses in these countries need to make in order

How the Internet helped Lebanese farmers

A project in the Republic of Lebanon carried out in the framework of cooperation with the European Union that began in 2004 aims to give farmers access to information about prices and markets. Lack of transparency in the operations of exporters and brokers on the wholesale markets prevented farmers from knowing exact prices. Also, they were not selling at the best time, and thus dramatically reducing their income. The establishment of an online price monitoring system within the chambers of commerce, industry and agriculture has made it possible to improve price monitoring and consequently to disseminate market information to fruit and vegetable producers.

to adapt and become effective present a considerable challenge because they involve a significant cultural shift and a departure from customary practices.

Innovation and product development

The strong demand for quality products at low prices is speeding up the product innovation process, with product life cycles growing shorter and shorter and the sales proportion of new products growing larger and larger. New product characteristics or functions that distinguish products from those of competitors confer a competitive advantage on the business that is putting that product on the market. This approach requires a very good understanding of the whole of the manufacture-marketing-sale process. "Product development", an approach that has become established in recent years, attempts to organise the entire process in such a way as to allow a business to maintain the "technological advantage" over its competitors. Product development relies on a variety of approaches and modern technologies, such as "simultaneous engineering", which uses a multidisciplinary team to tackle product conception using a systematic approach based on the three fundamental principles of understanding customers' needs, taking a decompartmentalised approach to management of the company's internal knowledge, and having the internal technological capability to be able to assimilate external knowledge. Simultaneous engineering requires that a group of agents from conception, manufacturing and marketing services pool their knowledge and expertise. It differs markedly from the traditional sequential development process, in which the company's various services operate in compartmentalised pyramid-shaped structures, often with very limited opportunities for knowledge exchange. The use of simultaneous engineering in a product development strategy also enables considerable time savings, with the additional efforts invested during conception being largely clawed back during the subsequent stages of a product's development.

New coordination technologies

Coordination operations are growing increasingly complex, due to the higher number of participants involved in the value chain and the strong interdependence of the various functions. Integrating all these operations (conception-manufacture-commercialisation) in order to facilitate faster decision-making is one of the main challenges. Several software technologies attempt to support these operations (Vinals, 2006). Four big application families can be identified: Customer Relationship Management (CRM); Supply Chain Management (SCM); Enterprise Resource Planning (ERP); and Product Life cycle Management (PLM).

These practices are sophisticated examples of the use of ICTs in the agro-food sector and must meet a number of requirements in order to allow managers to have all the information available, in real time, in order to promote informed and rapid decision-making. Command of these processes is becoming an extremely important competitive advantage.

Of these new highly technical coordination technologies, Supply Chain Management perhaps warrants the most detailed attention. As logistics becomes “dematerialised”, it has become necessary to manage increasingly complex information systems in order to meet the needs of customers, ensure the traceability of goods or manage stock. Thanks to new technologies, industrial enterprises are working on the basis of orders and not of predictions. To achieve this, an increasingly sophisticated supply chain is established that incorporates all the actors in the sector (suppliers, wholesalers, manufacturers, managers, retailers, delivery services etc.). It has become essential to optimise each phase of the supply chain (conception, planning, supply, manufacturing, distribution and customer services) in one overall approach, by moving from a batch logic to a flow logic, minimising delays and reducing both distribution time and the time it takes to make information available, in order to speed up decision-making, by handling and synchronising the three flows in the value chain: physical, informational and financial flows.

Contrary to the received wisdom, standardisation is no longer at odds with product personalisation: together, all these new technologies facilitate differentiation. Consequently, it is increasingly the customer that sets in motion the production chain. The modern business is gradually becoming a nebulous assortment of partners and sub-contractors gravitating around an assembler; that is why one talks about “assembled”, “granular”, “extended” or “fragmented” businesses. By keeping all the actors in an agro-food chain in touch with one another, information systems replace vertical integration; logistics now involves moving about computerised information as much as it does transporting actual merchandise.

How ICTs have revolutionised transport methods

These are some of the logistical operations made possible by ICTs:

- Traceability: it is now possible, thanks to bar codes in particular, to follow a product step by step (“tracking”) and to have a retrospective account of a product’s movements (“tracing”).
- Warehouse management can be computerised and handling operations automated (“warehouse management” and “fleet management”). This goes hand in hand with monitoring of staff on vehicle fleets using GPS and digital radio, and checks on working/rest time, speed etc. (“staff management”).
- Computerisation should help to improve control of the last mile to the end client, which could reduce congestion in town centres (“last mile issue”).
- Control operations (customs, police) and various formalities can be speeded up and simplified.

Source: PREDIT 2002.

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Management and supply chain optimisation methods have improved greatly over recent years and have allowed businesses to improve their performances in an ever more competitive environment. New applications are being developed, specifically “adaptive supply chain networks”, that will replace current supply chains. These networks have the capacity to react in real time to changes in their environments, facilitating almost instantaneous decisions. The use of “radio frequency identification” (RFID) will undoubtedly speed up the circulation of information and facilitate coordination, prediction and decision. Using intelligent RFID labels, products can be tracked from one end of the chain to the other without any intervention. Adaptive supply chain networks will be able to carry out a host of other functions and will undoubtedly eliminate current management tasks such as placing orders and sending bills.

Tech for food: using the new technologies for food and agriculture in the countries of the South

In industrialised countries, new technologies are at the heart of the agricultural sector and are already meeting the ever-growing need for economic and environmental performance. But... could we not use these formidable instruments for growth to give the initial push to those who need it most? Let's take things further... would failing to attempt the experiment be in keeping with the Millennium development goals? With our duties as citizens? Why should less advantaged countries not also benefit from these powerful tools in order to practise sustainable agriculture to feed the human race? Whether to resolve emergency food situations or assure a reliable long-term food supply in disadvantaged regions... new technologies can prove highly effective.

What do we mean by “new technologies at the service of agriculture and food production in Southern countries”? “Tech for food” solutions are all technical means for combating hunger. They are derived from advanced technologies adapted to the agricultural and agribusiness domains: satellite imagery, Internet, wireless communications, portable physical and chemical tests... and others yet to be invented or explored. Aid in land and natural resources management, in the prevention of natural risks, training, information, commercial exchanges: new technologies offer a great many levers for agricultural development and food production, as long as we are able to master their advantages and weaknesses.

Source: *Tech for food: what for?*, www.techforfood.com/pourquoi.php

Biotechnologies in food and agriculture

The source of deep-rooted fears and unbridled dreams, biotechnologies are increasingly at the heart of the agro-food and agriculture experience, and we cannot ignore this domain in our analysis of the Mediterranean. Here too, it seems that there is a clear divide between the North and South of the Mediterranean Basin.

Food and agriculture biotechnologies in Mediterranean countries

Biotechnologies need countries to have strong and highly integrated systems of fundamental and applied research, and for industry know-how to be closely linked with university research and education systems. Like most developing countries, southern

Mediterranean countries do not meet these requirements. This risks widening the scientific, technological and economic gap between the southern and northern Mediterranean countries. SEMCs that do not have the capacities to be able to master these new technologies will be forced to buy them on the global market, which is increasingly concentrated and controlled by a few multinational corporations, who protect their innovations through licenses and patents, the prohibitive cost of which constitutes an additional barrier to their acquisition.

Posed in that way, the question of the development of biotechnologies in SEMCs becomes a part of the debate about the “transfer of technologies” and the problem of the “North-South digital divide”. However, most SEMCs, and particularly the Maghreb countries in the 1980s, have shown an interest in the application of biotechnologies in the food and agriculture sector as a way of tackling their agro-food deficits and increasing food supply in order to meet the needs of growing populations. In 1983, Tunisia created the National Centre of Biotechnology, whilst research work is coordinated by a national biotechnology commission. In Algeria, the High Commission for Research in 1998 recommended five major priority directions for research in this domain: biotechnologies in the agro-food industries; the improvement and growth of agricultural production; the production of pharmaceutical substances; immunology and molecular biology; and the use of biotechnology to create value for agriculture and industrial waste. Since then, research activities looking at biotechnologies have been spread between five public institutions. In Morocco, the number of laboratories involved in the use of tissue cultures in agronomic research rose from 1 to 15 (10 public and 5 private) between 1975 and 1990.

Despite some progress, biotechnology research in the countries of the South is lagging far behind – not only behind the countries in the North, but also behind research in other disciplines. Laboratory research is poorly transitioned into implementation by industry. The regional workshop on biotechnologies in the countries of the Middle East and North Africa (IDRC, 2004) identified three categories of major obstacles: 1) a lack of material and human capacity – infrastructure, human resources, management capacity, legal staff and regulatory procedures relating to biosecurity and property rights; 2) insufficient awareness among socio-economic actors of what is at stake in the development of technologies; 3) the lack of policy clearly indicating priorities and involving farmers and consumers, particularly in respect of genetically modified organisms (GMOs).

Moreover, analysis by the Observatory of Science and Technologies (OST, 2005) shows that the Maghreb countries are particularly under-specialised in the life sciences, in particular fundamental biology (index 0.32), which obviously further impedes the development of biotechnologies.

Three levels are usually distinguished when assessing the level of development of biotechnology-based agronomic research: improvement and multiplication processes using tissue culture and their enhancement; the use of biotechnology processes for plant improvement and varietal control, and the development of agricultural genetic engineering. Generally, SEMCs have command of first-level processes, although this is often restricted to laboratories or is pre-industrialised to varying degrees (Morocco, Jordan). So far as the two other levels are concerned, in particular the use of genetic engineering, we note for example that the acreage devoted to genetically modified or biotech crops in

Table 3 - Specialisation Index* for the Maghreb for eight disciplines

	1993	1996	1999	2001	Evolution 2001/1996 in %
Fundamental biology	0.42	0.40	0.37	0.32	- 20
Medical research	1.08	0.98	0.84	0.77	- 22
Applied biology - ecology	1.10	0.99	0.84	0.85	- 14
Chemistry	1.21	1.53	1.53	1.49	- 3
Physics	0.99	1.17	1.34	1.39	+ 19
Earth and space sciences	0.98	0.96	1.02	1.09	+ 13
Engineering sciences	0.92	0.86	1.11	1.21	+ 40
Mathematics	1.82	1.98	2.50	2.94	+ 49

* The specialisation index of a country for a particular discipline describes the relationship between its world share of scientific publications in that discipline and its world share of publications in all disciplines combined. We say there is specialisation when this figure is greater than 1, or under-specialisation when it is less than 1 (OST, 2005).

Mediterranean countries is relatively low compared to other regions of the world, as can be seen in Table 4.

In 2005, the 21 countries that were cultivating around 90 millions hectares of biotech crops included 11 developing countries, three northern Mediterranean countries but not a single southern or eastern Mediterranean country.

The opportunities and the hazards

The advances made in this domain are reflected at various levels of the agro-food chain and are of considerable potential, but they also raise many issues. Modern agricultural biotechnologies encompass a range of technologies that are used to take apart and manipulate the genetic structures of organisms used in agriculture. They include an entire gamut of technologies, notably genomics and computational biology, molecular marker-assisted selection, micropropagation, tissue cultures, cloning, artificial insemination, the transfer of embryos and genetic engineering or genetic modification (FAO, 2006).

For crop production, genetic engineering enables the production of species resistant to insects, fungi, viruses and bacteria, and less sensitive to herbicides and insecticides. Improved fixation of nitrogen or of trace elements facilitates an improvement in yields and growth in production. The nutritional value, taste or appearance of products can also be "programmed" into their genetic capital. So far as animal husbandry is concerned, the development of new growth hormones, work on intestinal flora, feeding methods and the development of new medications will make it possible to improve conversion rates and modify fat and protein levels in meat, eggs and milk. Lastly, the introduction of biotechnologies in the food industry will make it possible to improve the quality of foods (taste, texture, shape...) and reduce manufacturing costs (especially as a result of the use of more effective and more resistant enzymes). New ingred-

Table 4 - Global acreage of biotech crops in 2005

Ranking	Country	Acreage Millions ha	Ranking	Country	Acreage Millions ha
1	USA	49.8	12	Romania	0.1
2	Argentina	17.1	13	Philippines	0.1
3	Brasil	9.4	14	<i>Spain</i>	0.1
4	Canada	5.8	15	Colombia	< 0.1
5	China	3.3	16	Iran	< 0.1
6	Paraguay	1.8	17	Honduras	< 0.1
7	India	1.3	18	<i>Portugal</i>	< 0.1
8	South Africa	0.5	19	Germany	< 0.1
9	Uruguay	0.3	20	<i>France</i>	< 0.1
10	Australia	0.3	21	Czech Republic	< 0.1
11	Mexico	0.1			

Source: James (2005).

ients (amino acids, vitamins, flavourings...) will be produced at low cost. An increased range of techniques will be used in order to allow food production to progress. Yet the use of biotechnologies in food and agriculture, particularly genetic engineering, have become the focus of “a global war of rhetoric”, that may limit their expansion.

Supporters of biotechnologies pin great hopes on the introduction of these techniques, which they see as the best way of responding to the reduced availability of foods. According to biotechnology proponents, prohibiting the use of biotechnologies or discounting the potential benefits of biotechnologies for the management of serious public health problems, nutrition, poverty and the environment would be unethical. However, others have expressed doubts about the benefits of biotechnologies and the accuracy of scientific knowledge on the subject and are concerned about the potential hazards, emphasising that the regulations that have been put in place have relied more on political options than on scientific principles. They also express concern that biotechnologies may accentuate economic and social imbalances in developing countries.

GMOs could be useful for combating adverse agro-climatic conditions...

Genetic engineering research is currently being carried out with the aim of discovering GMOs able to decontaminate soil polluted by agriculture or industry. In central Asia, anti-pollution GMOs could herald the agricultural rehabilitation of some areas. Meanwhile, a team of Indian researchers has successfully transferred genes for salinity tolerance from mangrove tree species to annual crops. Lastly, research is currently being conducted into the possibility of reducing plants' water needs. At a time when it is increasingly difficult around the world to create irrigated perimeters, it is perhaps no great shock that sorghum or cactus genes should be transferred to rice. Of course, research into GMOs resistant to aridity does not exonerate countries from practising more economical irrigation, in

particular by recycling the water used, maintaining pipes, choosing crops sensibly – given what we know about Jordan’s water problems, would it be feasible to grow bananas there?

The example of ways of combating aridity illustrates that GMOs are certainly not the only answer, but are one of many in the basket of solutions that the planet must use to overcome the world food problem. More research is needed into crop plants in hot regions, because these plants are relatively neglected by private-sector research. Hence the call by UNDP in its 2001 Human Development Report for publically funded research into GMOs. The cultivation of GMOs in Third World countries must also be controlled by the countries affected, because, as the UNDP report also says, “the environmental risks of biotechnology are often specific to individual ecosystems and need to be assessed case by case”. For that purpose, several countries, including Argentina and Egypt, have established scientific commissions to assess the harmfulness of GMOs. Lastly, everything possible must be done to ensure that GMOs are not more expensive, because otherwise only the richest farmers will buy them, which may worsen inequalities.

Source: Blanc (2001).

... but a need to review patentability

GMOs raise the broader question of the patentability of living things. Patents provide a temporary monopoly over an invention and remuneration for the effort of research. By incentivising research, patents in fact facilitate the domination of a few powerful multinationals that concentrate their research capacities and seek to appropriate genetic resources. This raises three fundamental issues surrounding the future of food and agricultural systems:

- The issue of the *loss of genetic diversity*: genetic erosion, which is not new, is exacerbated by the concentration of research funding on a few species.
- The issue of the *future of integrated and systems approaches to agricultural production*: because the “molecularisation” of living things reinforces reductionist approaches and systems approaches are not valued by the market.
- The issue of the *dependence of farmers*: their ability to reproduce seeds on their farms is under threat and they are no longer able to lead innovation.

If we do not want to question invention protection in the life sciences, we will need to develop – perhaps in Europe? – an alternative to patents, which as currently defined are able to block other innovations. A model based on the pooling of research and genetic resources would make it possible to overcome the traditional confrontation between public and private. There would also need to be strict limitations on the scope of patents, based on strict criteria of industrial application. In the case of DNA sequences, for example, the sequences themselves would be placed in the public domain and the use of patents would be restricted to applications of the sequences. “Pooling” of this kind would of course presuppose organisational and institutional innovations on the model of the Genoplante programme.

Source: Hervieu and Joly (2003).

Pursuing the march of progress together

Following the technological revolution of the 1950s and 1960s, which allowed agriculture to become industrialised to some degree, the advent of information technologies, biotechnologies and now nanotechnologies are now causing considerable changes in the agricultural and the agricultural commodity processing sector.

Nanotechnologies have arrived

Nanosciences and nanotechnologies (NST) can be defined as the totality of research into and processes for the manufacture and manipulation of structures, provisions and material systems at the scale of the nanometre. Nanosciences are the study of phenomena and the manipulation of material at the atomic, molecular and macromolecular level, where (physical or chemical) properties are significantly different from those obtained on a larger scale.

Nanotechnologies that allow very small-scale manipulations are extremely promising in terms of agricultural, agro-food and even therapeutic applications. In the case of milk for example, nanotechnologies would enable the easy extraction of milk proteins that are proven to be effective in the treatment of osteoporosis, psoriasis, even Alzheimers, or of a certain type of casein in order to make the milk more suitable for babies.

In agriculture, nanosensors could monitor plants in order to detect harbingers of disease, attacks by pests or hydric stress. Nanosystems will be capable of analysing animals' saliva in order to prevent disease epidemics. By creating opportunities for optimising the use of chemicals and irrigation, nanotechnologies could be good vehicles for sustainable development. They are also promising for the agro-food sector: they will improve food preservation by allowing the presence of microbial agents to be detected.

We are probably now only on the threshold of a technological revolution. Provided that these advances are well supported, there is little justification for too much cause for concern. These innovations will without any doubt make it possible to pursue rapid production growth while facilitating better respect for social and environmental constraints. However, although these technologies have the potential to become the pillars of an increasingly sustainable development, inequalities between the two shores of the Mediterranean in accessing them could have disastrous consequences for the harmony of the region.

We have shown that this divide is already apparent. Northern Mediterranean countries have in general taken on board these technologies, whereas SEMCs have not yet provided all the conditions needed for them to be able to prosper. However, while it is down to SEMCs to promote these technologies by creating a secure space, improving education systems and making the necessary investments, there is also an obvious need for cooperation in terms of investment aid or the transfer of technology and skills. If we not only fail to close the technological divide but allow it to grow wider, it is a safe bet that social and political divisions will also be aggravated as a result.

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CHAPTER 5

DIETARY PATTERNS AND TRENDS IN CONSUMPTION*

Mediterraneans, particularly those on the southern shores, are facing the major challenge of having to cope with growing food needs, since population growth is only just beginning to slow down now at the beginning of the 21st century. And there have also been unprecedented changes in their lifestyles in the course of the past few decades, particularly in their food patterns, with both favourable and adverse consequences for human health. We perceive only some of the factors characterising these recent changes through current social debates (on fast food, genetically modified organisms or fears expressed in the event of food crises). Yet it is only by taking a comprehensive view of the situation over the long term that we can appreciate the magnitude of these trends and realise that action is urgently needed if we are to correct the current deviations in Mediterranean eating habits. An in-depth analysis of this nature, conducted from both the quantitative and the qualitative point of view, is necessary in order to determine the preconditions for food security and food safety for the populations in the region.

Food consumption and eating habits in the Mediterranean

Over the centuries, the Mediterranean region has created a diet that is unique in its tremendous diversity, the result of the mosaic of peoples and cultures in the region but also of varying purchasing patterns. Rather than standardising eating habits, the blending that has gradually taken place has in fact helped to broaden dietary and culinary repertoires. There are many factors contributing to this diversity of food and diet, but three are of particular significance:

- the extremely varied geographical environments in the Mediterranean Basin;
- the succession of dominant peoples: the Greeks, the Carthaginians and the Romans, who introduced the vine, olives and the fruit and vegetables of the Near East; the Arabs, the Byzantians and the Ottomans, who brought the vegetables and culinary practices of the Orient; and the Spanish and Portuguese, who introduced vegetables from the Americas;

* - This chapter has been based on documents prepared by Martine Padilla (Ciheam-MAI Montpellier).

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- the essential role of the towns and ports, which promoted the intermixture of cultures and thus of food patterns. Barring rare exceptions, urban diversity contrasts with a more homogeneous picture in rural areas, where the diet is generally monotonous and often poor.

Features and trends that vary widely from one region to another

Although this historical heritage explains why diets in the Mediterranean countries vary considerably, there are several fundamental features common to all countries. Frugality is the primary factor: although there is abundant food available (2,700 to 3,500 calories per person per day), the primary energy content of food intake is low (only 20% is composed of animal products compared to 40% in English-speaking countries). The bulk of the meal consists of vegetables; fish – in coastal zones – and meat serve to add flavour or are reserved for festive occasions. And vegetables are also used to accompany cereals such as couscous or pasta or constitute the basic ingredients of sauces enriched with olive oil and condiments. Salads (seasoned with olive oil) and fruit are part of all main meals. Cheeses are frequently combined with vegetable dishes. Fresh milk is used very little, but fresh sheep or goat's milk cheeses, cultured milk (labneh, rayeb, ayran, etc.) and yoghurt are staples in all Mediterranean diets. Culinary herbs and spices are widely used as well as acid flavouring, vinegar or lemon juice. Except in Muslim countries, where alcohol is prohibited, beverages consumed during meals consist of wine (often diluted with water) or drinks that are flavoured with aniseed and accompany side dishes.

And last but not least, the fourth common feature is attitude to food. Meals play an essential social role in the Mediterranean region. Eating patterns are marked by a certain form of sociability centred around the three daily meals, which follow a certain ritual marking respect for food and even a food cult. Sharing a meal is a necessary vector of group cohesion, whether it be 'tapas' in Spain, 'tramezzi' in Italy, 'kemya' in Tunisia, 'meze' in Lebanon or 'mezelik' in Turkey. Enjoyment of food is thus a subtle combination of dietary practices and cultural expression.

This diet, which is much praised for its nutritional and organoleptic qualities as well as its social role, has inspired many international and national recommendations and was officially recognised as an international reference by the WHO in 1994 (Willet, 2003); it is referred to by specialists as the Cretan model of the 1970s following the famous international study by A. Keys (1986).¹ For it was in Crete or, more generally, in Greece that the connection between dietary characteristics and the health of the population (lower incidence of cardiovascular disease, lower cancer rates) was established and recognised.

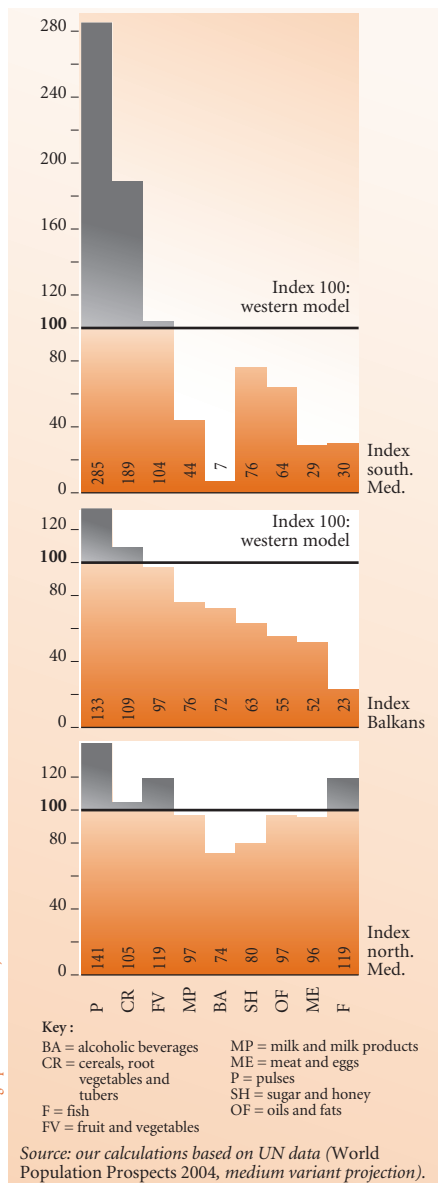
Marked regional contrasts

There is still a contrast in food intake structure between the countries on the northern shores, the Balkan² countries, and the southern-shore countries. The diet in the latter countries is mainly vegetarian (10% or less of the calories are of animal origin); cereals are the basic ingredient and are complemented by pulses, which have a high protein

1 - Ancel Keys published the results of his "seven countries" study in 1986, showing a north-south gradient for the connection between the rate of cardiovascular disease and food intake.

2 - It is interesting to draw up a comparison of dietary patterns showing the differences between the Balkans and the northern and southern shores of the Mediterranean.

Chart 1 - North-South-Balkans comparison of Mediterranean diets, 2003



content. Food intake in the riparian countries in the North has a high animal product content and, expressed in plant equivalent, is twice as extravagant as the southern diet (see Table 1). The structure of this food intake is very close to the western model, the only difference being that it contains more fish and pulses and less carbohydrate. The Balkan countries have an intermediate food intake structure situated between the structures of the North and the South: intake is richer in animal products compared to the South and also contains more cereals and pulses than in the North. The final food intake is lower in the Balkans than in the southern-shore countries, not to mention the European Mediterranean countries (see Chart 1).

Drift of the health model in the North and aggravation of food imbalances in the South

Food patterns in the northern-shore European countries were very close to the Greek model in the 1960s. but this is no longer the case at the beginning of the 21st century: the daily energy intake has increased considerably (in 1960 the dietary energy supply was between 2,500 and 3,000 kilocalories per person per day, whereas in 2003 it was between 3,300 and 3,800 kilocalories). There are three trends which can be identified here:

- a tremendous increase in the consumption of lipids, which is explained by the higher consumption of animal fats (dairy products and meat, consumption increasing as living standards rise), but even more by the consumption of vegetable oils used for cooking and seasoning or included in various industrial foodstuffs;
- an increase in the consumption of simple carbohydrates, connected in particular with the consumption of beverages and foodstuffs with a high carbohydrate content, and a simultaneous decrease in the consumption of starches (bread consumption has dropped by half in the last 50 years in France, and potato consumption has dropped by two-thirds over the same period).

Table 1 - Structures of food intake, 2003

Regions	Intake in final kilocalories	% of animal calories	Intake in plant equivalent*
Northern Mediterranean	3,577	30	9,990
Balkans	2,772	24	6,820
Southern Mediterranean	3,231	10	5,157
OECD countries	3,510	31	9,996

Source: our calculations based on FAO figures.

* Intake in plant equivalent = number of plant calories + (number of animal calories x 7).

The regional structures are as follows for this table:

Northern Mediterranean: Spain, France, Greece, Italy, Portugal.

Southern Mediterranean: Algeria, Egypt, Jordan, Lebanon, Morocco, Syria, Tunisia and Turkey.

Balkans: Albania, Bosnia-Herzegovina, Croatia, FYROM, Serbia, Slovenia.

OECD countries: average excluding the so-called countries of the South (South Korea, Mexico, Turkey).

- There has been little change in the total protein content, but the share of animal proteins is increasing to the detriment of vegetable proteins (dried beans, cereals).

This change in diet is a universal trend, which often goes hand in hand with economic development and the urbanisation of societies. It is the result of the dual phenomenon of the spread/imitation of the dominant dietary model of the English-speaking countries, but also of the globalised economy, in which the traditional Mediterranean sectors have become less competitive, to the advantage of the agro-industrial systems, which are dominated by better-equipped countries. Since the 1980s, the trends in lifestyle and their corollaries (radical change in eating patterns and industrialisation of consumption) have been very closely connected with the Mediterranean countries' integration into the European Union. With the growing number of women on the labour market, family recomposition and the increasing number of people living on their own, processed foods (ready for cooking) or prepared foods (ready for consumption) have become extremely popular. Mediterranean dishes, which require fresh ingredients and preparation, have been abandoned, on the other hand, since they are regarded as incompatible with modern working life.

In the southern Mediterranean countries, the available food supply has increased considerably over the last 40 years with an average increase of 800 kilocalories per person per day. The efforts made have been considerable when one bears in mind the population growth rate over the same period. But the food model of these populations seems to be departing from the Mediterranean model, although one still cannot say that the diet is becoming westernised. Greater emphasis on the major components (cereals and pulses) is in fact observed as well as a comparatively high level of consumption of simple sugars. Food diversity is inversely proportional to the share of cereals in food intake: the higher the cereals intake the lower the amount of energy derived from fruit, vegetables and fish (foods that are highly recommended). The progress made in meat and milk production is often cited in these countries. yet there has been little obvious

Dietary patterns and trends in consumption

effect on the increase in animal product consumption in relative terms, since it is still very low: meat consumption amounts to approximately 20 kg per person per year in Egypt, Morocco and Turkey (compared to over 100 kg in France and Spain). Economic conditions have no doubt been inconducive to the dietary development it was hoped these countries would achieve. While more modern culinary practices have been adopted in urban areas, the diet in the South of the Mediterranean Basin is still very traditional.

Comparison of the food situation in the Balkans in 2003 with the situation in 1963 reveals marked deterioration on the whole: all products seem to be less available, with the exception of animal products and fruit and vegetables, as well as foods obtained from domestic production for own consumption. Observation of the trends in the nutritional components of food intake reveals major disparities: whereas nutritional balance in Bosnia, and in particular in Croatia, has deteriorated considerably, Yugoslavia and Slovenia show a relative balance, and there has been slight improvement in Albania and the FYROM – but at levels well below a balance. Even though the Balkan diet seems to be diversifying to some extent and coming closer to the ideal Mediterranean model, there are signs of generalised poverty.

Dietary preferences dictated by a new lifestyle, which is becoming urbanised

Consumers are social beings and their behaviour seems to be influenced to a large extent by their links with the social and economic environment in which they are living. This results in constraints or opportunities and considerably influences the structure of food demand. There are six major variables which can be cited to explain these changes in community environment and thus in dietary patterns:

- *Urbanisation.* There has been considerable redistribution of the population in the past few years with a high migration rate to major urban centres. Since local or imported industrial products are circulated in urban areas, urban consumers are more receptive to Northern consumption patterns.
- *The population in the South is mainly young.* By 2020, 36% of the population in the South will still be under 20 years of age compared to 20% in the North. It is a well-known fact that young people who are going through the phase of a break between generations are more open to media influence and fashion trends and that they cultivate a certain degree of ambiguity between modern food which has a social identity appeal and traditional food.
- *Growing participation of women in economic life.* Mediterranean women, for whom it was traditionally status-enhancing to give of their time and to provide quality food for their families, are now becoming integrated into working life. More and more women are working outside the home (7% in Jordan, 17% in Algeria, 24% in Tunisia, 29% in Morocco, 43% in Turkey), either by choice or by necessity, and the time constraint can become as important as the income constraint in explaining the change in domestic consumption, if not more so. Mediterranean dishes are considered to be incompatible with modern working life and are reserved for special occasions. However, Mediterranean women are still very influenced by the cultures of their patriarchal and hierarchical societies and seek to preserve their image of “nourishing mother”, even

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in their processed food demands (foods that are ready for cooking or ready for consumption). Although they are using more and more pre-prepared foods with which they can save time, they are reluctant to purchase food that is ready for eating, because it deprives them of their prerogatives and personal “brands” (Padilla, 2000).

- *Fewer household members, fewer generations living together, and desocialisation.* Urbanisation and the fact that people are engaging in several activities, often because they have no other choice if they want to have a decent standard of living, explain why nuclear families are forming. The number of children per family is decreasing as the level of education of women gradually rises. In Tunisia, there were 2 children per woman in 2000, compared to 7 in 1960, and in Egypt, the number of persons per household dropped from 5.2 to 4.3 in the 1990s (Soliman, 2001). As households diminish, modernity spreads and notions of commensality change, with equal purchasing power people are tending to opt for more processed foods and more so-called superior foodstuffs (meat, milk products, fruit and vegetables).
- *Organisation of working time.* In urban areas, the non-stop working day, which is now widespread, and/or the fact that people are engaging in several activities have resulted in the growing use of institutional catering, fast-food or street food. This type of food must not be stigmatised in the countries in the South, however, for it is often still traditional, as is the case with the cosharies in Egypt or the mahlabas in Morocco.
- *The collective environment.* With the spread of compulsory schooling the collective environment is gradually replacing the traditional family group, and this is happening at an increasingly early stage in people’s lives. Young people’s tastes are now formed essentially outside the family, where food is simplified and industrialised and rarely reflects Mediterranean traditions.

Although this brief description of the major changes that are taking place in the consumer environment might suggest that modernism is now apparent in the South, it is only relative, for the majority of the population is still often living in hardship. Few really have access to the so-called modern distribution chain, and in particular to the large-scale retail trade, which was far removed from daily realities in southern Mediterranean countries for many years – it was not until 1990 that it became established in Morocco, 2001 in Tunisia and 2006 in Algeria. And despite the fact that it is spreading it accounts for less than 10% of the retail trade in the South! On the other hand, trade liberalisation has meant that food products from local industries or imported foodstuffs are now distributed widely in traditional corner shops. One quite frequently sees fizzy drinks served with couscous, for example, even in rural areas.

Overall drop in the consumption of traditional products

While the quantities of traditional products consumed are decreasing on the whole, particularly in urban areas, consumers are nevertheless still attached to them, as is evidenced by continuing consumer confidence. As far as milk products are concerned, for example, almost 90% of urban households in Morocco still buy lben regularly, a moderately priced product that is readily available, 30% buy beldi butter, despite the fact that it is expensive, and in urban areas 60% of the households included in the survey make raib at home (Benjelloun *et al.*, 2006). In Turkey, almost 95% of households buy

The large-scale retail landscape in the Maghreb

There are currently four companies which share the modern food distribution market in Morocco. Marjane Holding, the oldest, is also the most powerful, since it is a subsidiary of Omnium nord-africain (ONA) and (since 2001) of the French group Auchan; it employs almost 4,300 people throughout the country. The first Marjane hypermarket was opened in Rabat in 1990, and the group has since then been covering the territory with no less than 12 chain stores (two in Casablanca and Rabat, one in Agadir, Tangiers, Fez, Mohammedia, Meknes, Marrakech, Tetouan and Ain Sebaa). In addition to these hypermarkets Marjane Holding also controls and operates some 20 supermarkets under the trade name of Acima. Metro Maroc (formerly Makro, taken over by the German company in 1997) ranks second with its six cash-and-carry stores. Label Vie, which belongs to the Moroccan group Hyper SA, is the third leading commercial company with some 10 supermarkets. The fourth and last company is Aswak Assalam, which belongs to Chaabi, the Moroccan group, and has three hypermarkets including one which has been operated under the trade name of Géant in partnership with the French firm Casino since 2004.

In Tunisia, the large-scale retail trade appeared on the scene in April 2001 with the establishment of a Carrefour hypermarket at La Marsa, situated on the well-to-do fringe of the capital. The French group has gone into partnership with Ulysse Trading and Industrial Companies (UTIC), which is owned by Taoufik Chaïbi. This spectacular breakthrough is causing rapid restructuring of the commercial landscape in Tunisia, and in particular of the retail trade dealing predominantly in food products, which is now focused around three main players: the UTIC with its Carrefour hypermarket and further 44 supermarkets (operated under the trade names of Champion and Bonprix), the Mabrouk group with its 39 supermarkets (Monoprix, Touta) and in particular its Géant hypermarket, which opened in September 2005 in partnership with the French group Casino (located north of Tunis on the Tunis-Bizerte motorway), and, finally the state-owned Magasin général (44 supermarkets), which is due to be privatised shortly in order to form a really competitive third pole. And finally, Promogros is a special case, since it operates in the semi-wholesale trade.

In Algeria, Carrefour was thus the first large-scale retailer to become established in the country, opening its first hypermarket there in January 2006. The group seeks to take advantage both of the Algerian economy's recent good health and of the absence of direct competition in the field. When opening this first hypermarket in Algiers the French group opted for a partnership solution with Arcofino, an Algerian group specialising in insurance and the property market. Carrefour then invested in Ardis, a new company which was set up and which is now the distribution branch of the Arcofina holding. The French group, which already operates in Egypt, where it has three hypermarkets, and in Tunisia, now has great expectations for Algeria, the capital and the city of Oran being the main zones targeted, and 16 new commercial structures could be built by 2015. Competition may well arrive earlier than expected, however, given the declared intention of the Algerian groups of Blanky and Cévital to step into the commercial breach in the large-scale food retail trade (Blanky is planning a new Promy Plus supermarket chain, and Cévital is planning a network of cash-and-carry stores).

Source: Padilla and Abis (2007).

feta cheese, 72% buy kashkaval, 82% buy traditional yoghurt and those who do not buy it make it at home; the same applies to ayran, which 95% of households prepare at home (Hassainya *et al.*, 2006). There are numerous other examples. Of all the countries studied, Tunisia is without doubt the country which has entered urban modernity most decisively: while 47% of households buy traditional leben, only 25% continue to buy raib and only 10% buy smen (Khaldi *et al.*, 2001).

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It would be an exaggeration to say that people have lost interest in traditional products, but the occasions on which such products are consumed have diminished. These foods are reserved for certain dishes (such as couscous), religious feasts (such as Ramadan) or festive occasions and are less frequently consumed because the opportunities for consuming them in the family are decreasing as urban lifestyles develop and people are obliged to eat outside the home, as is evidenced by the proliferation of traditional eating houses (such as the mahlabas in Morocco) and the fact that young people frequently consume raib as a snack.

The opposite trend is observed in Albania, where the consumption of traditional products is booming. After a long period of shortages, the opening of the country has brought an “invasion” of both imported and local products. The privatisation of collective estates has boosted local supply. Albanian consumers are still persuaded that Albanian products are fresher and made with natural milk (Gjergji, 2000).

Traditional products can also be harmed by a shift in demand (to varieties or types of product that are geared to the international market) or by awareness of the pollution of the water used for producing them. In Egypt, for example, there has been a drastic decrease in the consumption of leaf vegetables, which along with cereals have been the mainstay of the traditional diet and are widely known to contain protective nutrients.

As urban populations grow, non-domestic consumption increases under the dual constraint of time and budget. The fast-food industry has exploited this market niche by responding to the dynamic trend in demand for products that were formerly rare and foreign – high-carbohydrate, high-fat foods, which are palatable and rapidly bring the sensation of satiety (pizza, fried chicken, hamburgers, similar Mexican dishes) (Smil, 2000).

Pleasure aspect still important

Mediterranean consumers are still particularly concerned about product quality. They are very aware of the hygiene aspect and the risks of faulty preservation and sometimes of fraud. But “quality” is not limited to health aspects for Mediterranean consumers; taste, flavour and perfume still influence consumer behaviour to a large extent, since they are the main factors of confidence in products and distribution networks (Padilla *et al.*, 2006). Mediterranean consumers are thus very loyal to the brands and products they know. They have great faith in European brands, a fact which local industrialists have turned to their advantage by imitating brand names and designs. Where there is no brand name, consumers tend to trust local shopkeepers with whom they have neighbourly relations and are on familiar terms. In Egypt, since the cold storage chain has not been adequately complied with, consumers are no longer so trusting, however. Those with higher incomes have turned to the so-called modern distribution chain, although the “bakala” (corner shop) culture is still very widespread in the lower income brackets due to the personal customer-shopkeeper relationship that has been entertained for many years.

Strong cultural identity

Food is an important cultural factor, often fulfilling an economic, social, ceremonial and religious function. Sharing food ensures social cohesion, and both the foodstuffs used

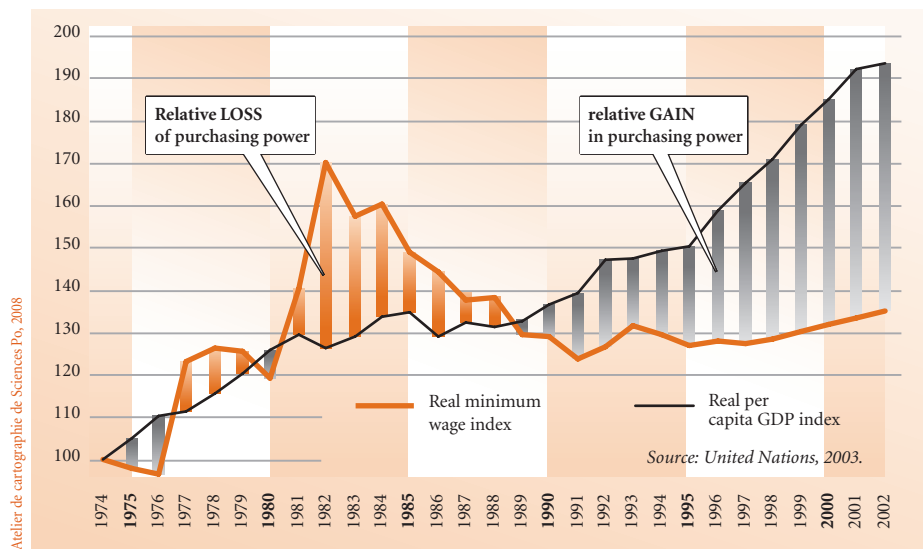
and the specific preparation methods are still status symbols and part of cultural and/or religious identity. The communities around the Mediterranean, whether urban or rural, share strong attachment to tradition and ritual, which even the humblest households follow in certain circumstances. While the food industry in northern-shore European countries is responding to a great extent to the demand for traditional products, the supply is very limited in the South, with the exception of Turkey, where these products have found their place in modern food markets (Hassainya *et al.*, 2006).

A relative drop in purchasing power and greater disparities

The eradication of poverty and hunger is the first of the eight Millennium Development Goals, an objective which recognises how closely the standard of living and the satisfaction of food needs are connected. According to the classical liberal creed, opening markets should raise living standards both as the result of competition, which boosts productivity, and by the “law of interconnected vessels”, i.e. a levelling of developed and less-developed zones. The economic realities of the last 15 years seem to contradict this assumption. The evolution of wealth evaluated as per capita GDP in terms of purchasing power parity shows that the gulf between North and South in the Mediterranean region is still just as wide. Some southern-shore States are richer than they are developed, for poverty has sometimes increased, particularly in rural areas, as the result of structural adjustment plans and the increase in underemployment.

A clear distinction must be made in particular between the average level of wealth per capita and the level of purchasing power. A study conducted by the UN Resident Coordinator’s Office in Tunisia reveals that purchasing power has dropped even further since 1990, particularly in the case of low wages. The working population has not benefited to the full from the growth that has been registered over the past decade and the general improvement in income levels in the country. As the result of the loss of low-wage purchasing power which followed the adjustment period, wage earners’ pay conditions (inter-trade real minimum wage) are lagging far behind the improvement in wealth in the country (real per capita GDP). A similar trend in living conditions and wealth distribution has been observed in all of the countries of the South since the structural adjustment period (see Chart 2).

No accurate study of food purchasing power in the various Mediterranean countries has as yet been conducted, although it is a subject which certainly ought to be analysed. Comparison of real food purchasing power in paid-working-hours equivalent (hours paid at the minimum rate) in France (SMIC) and Algeria (SNMG) (see Table 2) shows that food is systematically more expensive in Algeria, particularly in the case of processed products: milk, olive oil, canned foods, coffee and pasta can be considered luxury goods. Meat is five to ten times as expensive there as it is in France. Even common fresh products such as tomatoes are twice as expensive, and imported apples are unaffordable for the majority of the population. Bread, which is still subsidised in Algeria, is the only product where price levels are comparable to those in France.

Chart 2 - Trends in per capita wealth and purchasing power in Tunisia, 1974-2002

Food security ensured but food quality a weaker point

The southern and eastern Mediterranean countries (SEMCs) are only just overcoming food insecurity or still have pockets where the food situation is precarious, particularly in peripheral rural zones that are situated in enclaves or have been the victims of economic marginalisation. In the south of France it was not until the 1920s that the population no longer sought to economise on food; in Italy or Spain, this was not the case until the 1950s, and in Portugal and Greece the 1960s (Malassis, 2000). In the early 1990s, food consumption in the Maghreb and Mashraq countries barely exceeded what was necessary for covering the estimated nutritional needs, leaving large fringes of the population in difficulty.

Active policies to improve the supply of agricultural commodities and to enhance purchasing power by controlling prices and introducing subsidies for staples in the 1970s and 1980s resulted in a marked increase in average food intake in quantitative terms. So what is the situation now that subsidies have been abolished and internal markets have been opened to products from the rest of the world? Has this actually improved food security for the populations concerned?

Moderate food insecurity in the Mediterranean region

The SEMCs do not belong to the group of countries with high food insecurity such as sub-Saharan Africa (2,260 kilocalories per capita per day). The average food resources for the 2001-2003 period were between 3,000 and 3,400 kilocalories per person per day,

Table 2 - Comparison of purchasing power in minimum-wage-hours equivalent in France and Algeria, 2005

	Unit	Purchasing power	Purchasing power
Bread	250 g	8'	5' ⁽¹⁾
Pasta	Kg	48'	5' ⁽¹⁾
Beef and veal	Kg	11h 50'	2h 24' ⁽¹⁾
Mutton and lamb	Kg	11h 50'	1h 58' ⁽²⁾
Canned tuna	200 g	1h 45'	13' ⁽²⁾
UHT milk	Litre	1h	5' ⁽¹⁾
Olive oil	Litre	4h 48'	51' ⁽¹⁾
Table oil	Litre	1h 22'	13' ⁽²⁾
Butter	250 g	30'	12' ⁽¹⁾
Sugar	Kg	43'	11' ⁽²⁾
Coffee	250 g	1h 16'	12' ⁽¹⁾
Mineral water	Litre	26'	3' ⁽¹⁾
Tomatoes	Kg	50'	26' ⁽²⁾
Lettuce	per unit		10' ⁽²⁾
Potatoes	Kg	2h 28'	17' ⁽²⁾
Oranges	Kg		16' ⁽²⁾

Source: our calculations based on our surveys; TAHINA in the case of Algeria

Our calculations based on INSEE data: (1) = March 2006; (2) = May 2006

In Algeria, the minimum wage (SNMG) = DA 57/hour, July 2005

In France, the minimum wage (SMIC) = € 7,61 in 2005, € 8,03 in 2006; source: INSEE.

except in Jordan, where the average energy intake is much lower. This daily available food supply is still higher in the EU Mediterranean countries, although the difference between the two shores has been reduced compared to the early 1990s. Furthermore, there is no extreme poverty in the SEMCs, and the incidence of major infectious diseases is now very low (see Table 3).

Algeria, Egypt and Morocco present the weakest indicators in the zone with regard to the economy, education (literacy rates of 30% to 40%) and health (the infantile mortality rate is close to 40‰ compared to 20‰-30‰ in the other countries of the South and 4‰-5‰ in Mediterranean Europe), a fact which creates a certain degree of vulnerability regarding food. There is still a real problem of undernourishment in these countries, concerning 3%, 6% and 7% of the population respectively. On the other hand, the rate of stunting amongst children under five years of age, an indicator of major vulnerability, is very high in many countries in the South: 18% in Algeria, 21% in Egypt, 12% in Lebanon, 24% in Morocco, 12% in Tunisia, and 16% in Turkey (SCN, 2004). Whereas undernourishment (quantitative deficit) is less marked in the southern Mediterranean region compared to other zones such as sub-Saharan Africa, the number of malnourished persons (quantitative deficit) is unfortunately rising in absolute values, although only a small proportion of the population is concerned: it is estimated that 4 million people are now suffering from malnutrition compared to 2.9 million in 1990.

Food insecurity is not an exclusive feature of the countries in the South, however. The poverty rate in the northern Mediterranean countries is levelling off above the European average, which has been 15% over the last decade. Taking the European 'poverty line'

Table 3 - Available food energy (kcal/caput/day)

Country	1990-1992	2001-2003	Average annual growth over the period
Algeria	2,920	3,040	0.37
Egypt	3,200	3,350	0.42
Jordan	2,820	2,680	- 0.46
Lebanon	3,160	3,170	0.03
Morocco	3,030	3,070	0.12
Syria	2,830	3,060	0.71
Tunisia	3,150	3,250	0.28
Turkey	3,490	3,340	- 0.4
Israel	3,410	3,680	0.7
Cyprus	3,100	3,240	0.4
France	3,540	3,640	0.25
Portugal	3,450	3,750	0.76
Italy	3,590	3,670	0.2
Spain	3,300	3,410	0.3
Greece	3,570	3,680	0.28
World	2,640	2,790	0.5
Developing countries	2,520	2,660	0.49
Sub-Saharan Africa	2,170	2,260	0.37
Asia and Pacific	2,710	2,670	0.56

Source: Faostat 2006.

criterion³ as a basis, all of these countries fare poorly: 34% of the population is deemed poor in Greece, 26% in Spain, 8% in France, 21% in Italy and 40% in Portugal! It is not known what effects this has on food consumption levels; it is only known that the consumption of expensive foods such as fruit and vegetables, meat, and milk products is very low in these socio-economically weak population segments, whereas the consumption levels for cereals, oils and fats and carbohydrates are high (Darmon, Ferguson *et al.*, 2002).

Food security at the price of energy surpluses or deficits in local production

The ability of countries to feed their populations is often assessed in monetary values for lack of concrete information in the form of quantitative data, and this distorts the results to some extent in view of dollar exchange rates. The FAO has recently published

3 - Poverty in Europe is measured in terms of the average per capita income threshold, equivalent to 50% of the European median income (Eurostat, Community Household Panel, 2000)..

Dietary patterns and trends in consumption

very realistic data on per capita production expressed in kilocalories. This data can be compared with domestic food availability in order to evaluate the deficit in kilocalories. Three of the Mediterranean countries – Malta, Libya and Jordan – have very high deficits (over 2000 kilocalories per person per day); three others – Israel, Algeria and Lebanon – have deficits close to 1,500 kilocalories per person per day, and four – France, Spain, Greece and Turkey – are clearly in a position to feed their populations.

There are three comments which should be made here:

- All of the countries without exception – even those which have high surplus production – import large quantities of cereals for seeds and fodder as well as oil products to cover the food industries' intermediate good needs. The volume of these imports is considerable and can by far exceed human food availability in energy terms. The question thus arises of how rational a food system is where one incurs massive debts in order to feed animals, which, when all is said and done, could graze in large natural pastures as they did in the days when pastoralism was customary practice.
- France is an exception in this context, since the country exports almost half of the agricultural energy it produces. Several other countries have also resolutely embarked on an export drive, but to a lesser extent. Cyprus, Spain, Italy and Sicily all have surplus production and export approximately 20% of the calories they produce. Israel and Lebanon do likewise, but have major overall deficits.
- Jordan is the most extreme case: while the country has a per capita deficit of over 2000 kilocalories per day, it exports the equivalent of 161% of its calorie output! Conversely, Jordan imports the equivalent of 6,500 kilocalories per person per day (see Map 1).

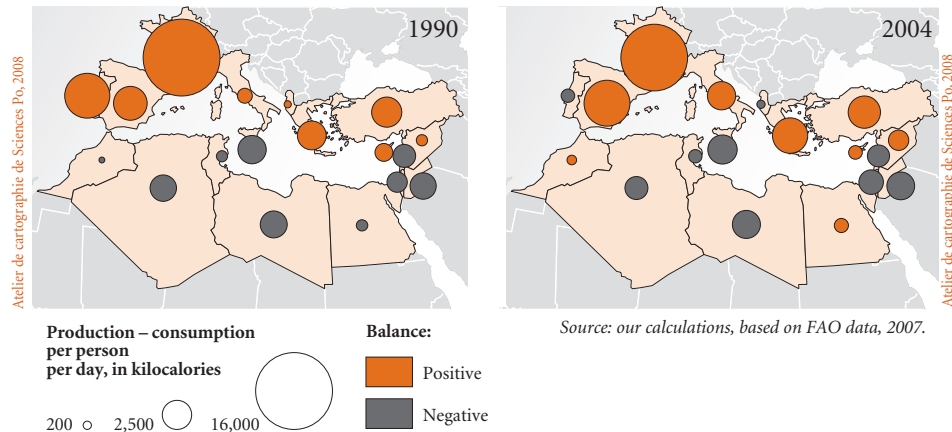
Is food safety deteriorating?

The Mediterranean countries are reputed for their healthy and balanced diet. Although progress has undoubtedly been made as regards the quantity of food available, can the same be said for food quality? In order to answer this question a food quality indicator (FQI) has been constructed, which includes a number of recommendations that have been issued (see Table 4) concerning the daily intake of certain foods or the proportions of nutriment to be respected in daily intake.⁴ The FQI is the sum of a series of scores that are attributed according to consumption level per type of foodstuff compared to the quantity recommended. The lowest score indicates the intake that is most beneficial for the health and most preventive.

Using this table of scores we have calculated the FQIs for the Mediterranean countries over the period from 1960 to 2000 (see Chart 3 and Table 5).

The table shows quite clearly that, although the situation in the Mediterranean countries is not disastrous (no FQI below 4), it is worrying, since there is a marked drift in the number of countries with a good or very good FQI in 1960 towards average or even poor FQI levels by 2000. The overall situation is shifting from a wide variety of situations to a more homogenous situation but with lower quality levels. There are two aspects of major concern:

⁴ - National Research Council of the American Health Association and Joint FAO/WHO Expert Committee (2003).

Map 1 - Per capita food surplus or deficit, 1990-2004

- an increase in the consumption of lipids, particularly saturated fats, due essentially to the increase in the consumption of meat, dairy products and industrialised products (in which a large quantity of palm or copra oil is used); in 1960, there were three Mediterranean countries which had a poor score for saturated fats (Albania, France and Malta), but by 2000 there were seven (Albania, Spain, France, Greece, Italy, Malta and Portugal);
- there has been a very marked deterioration in the scores for complex carbohydrates (components of carbohydrates such as those contained in cereals) due to the sharp increase in the consumption of simple carbohydrates, particularly those contained in processed products (beverages, biscuits, desserts, etc.). Whereas there was only one country with a poor score in this field in 1960 (France), there were 9 in 2000 (all of the European Mediterranean countries plus Malta, Tunisia and Lebanon)!

Variety of intake is a further important aspect of food quality. The quality of food is necessarily inversely proportional to the share of cereals in intake. That share is 47% in Turkey, 61% in Morocco and 66% in Egypt (FAO, 2001), which means that there is very little variety in food intake. It is understandable that there should be very little variety in the food intake of the poor segments of the population, which still depend on subsidised products such as bread in Egypt. This explains the incidence of malnutrition, micronutrient deficiencies, and stunting and obesity in children (Wassef et Ahmed, 2005).

These changes in food quality are resulting in a situation of uncertain food safety, which is aggravated by the fact that changes in lifestyle are reducing physical activity both at work and during leisure time.

Limited access to wholesome products

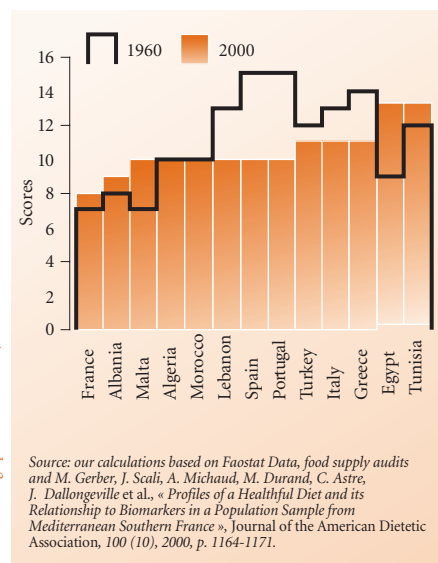
Access to so-called wholesome products is limited, particularly in the case of low-income city dwellers, since these products are not readily available and are expensive. Fruit and vegetables, which are perishable goods, are not always to be found in grocery shops or in the new supermarkets in the countries in the South, due to the lack of cold storage

Table 4 - Scores allocated according to consumption levels

Variables	Score		
	2	1	0
Meat - g/day	< 200	200-400	> 400
Olive oil - g/day	> 15	15-5	< 5
Fish - g/day	> 60	60-30	< 30
Cereals - g/day	> 300	300-100	< 100
Fruit and vegetables - g/day	> 700	700-400	< 400
% lipids in intake	< 15	15-30	> 30
% saturated fats in intake	< 10	10-13	> 13
% complex carbohydrates in intake	> 75	55-75	< 55 %
% proteins in intake	> 15	15-10	< 10

Source: M. Padilla based on FAO/WHO, 2003.

Foods rich in saturated fats are butter, cream, cheese, prepared meat products, meat, palm/cotton/copra oil, and margarine. Complex carbohydrates are essentially cereals, pulses, fruit and vegetables.

Chart 3 - Trends in the food quality index in the Mediterranean countries, 1960-2000

facilities and the fact that regular supplies are not organised. A further cause of inadequate supplies is the fact that urban planners have failed to maintain fields for horticulture in the rural-urban fringe. High prices are also a factor here, particularly those of fish and olive oil, which have become unaffordable: a worker earning the minimum wage has to work almost 2 hours in Algeria in order to buy a kilo of fresh sardines and approximately the same length of time in order to buy a tin of tuna fish; and he has to work almost 5 hours in order to buy a litre of olive oil.

Lack of time combined with the fact that wages are earned and spent on a daily basis obliges poor citizens in the southern Mediterranean countries to buy food in small quantities on a day-to-day basis in local grocery shops, and, as a result, the food system is fragmented and the unit prices of foodstuffs are higher. Due to the cost of opportunity of time (the time devoted to

Table 5 - Food quality indicators. Number of Mediterranean countries achieving the various food quality indicator scores, 1960-2000

Year	Scores				
	0 - 4 Very good	5 - 6 Good	7 - 9 Average	10 - 12 Poor	13 - 18 Very poor
1960	3	4	3	3	0
1970	1	3	8	1	0
1980	0	1	10	2	0
1990	0	1	9	3	0
2000	0	2	10	1	0

Source: our calculations.

domestic work is diminishing to the advantage of time devoted to economic and leisure activities) and exposure to burgeoning, but aggressive, publicity, people are consuming more and more processed foods and street foods. Where these products are industrialised, consumers no longer have control over their food intake (hidden fats, sugar and salt already included, ingredients added, etc.). Technological processes can also modify the nutritional value of foods and even produce harmful agents.

Obesity, a reflection of eating habits

If consumption trends continue as forecast, they will accelerate the food transition as well as the epidemiological transition. The Mediterranean countries will very soon find themselves in a situation similar to that of the northern countries in terms of health: there is bound to be a sharp increase in cardiovascular disease, high blood pressure, cancer, diabetes and obesity, with the ensuing consequences concerning the cost of treating these diseases, an increase in mortality and a decrease in human productivity.

Mediterranean populations, which were long protected from these chronic non-transmissible diseases thanks to their diet and to a certain amount of physical activity, are now tending to reach the levels of overweight registered in the most industrialised countries. All age groups are concerned, but obesity is frequently observed amongst pre-school-age children (0-5 years) in North Africa, and the incidence rate is rising steeply: 7.7% in 1995, 11.7% in 2000, 17.4% in 2005 (SCN, 2004). The situation is already serious in the northern Mediterranean countries: 27% of children are overweight in Spain and Greece, and 36% in Italy (Combris, 2005). Furthermore, obesity can coexist with signs of undernourishment (see Chart 4 and 5).

Modern distribution seeking to gain ground on a market where product-specific sales points are the norm

The advent of the large-scale retail trade is often cited as a major upheaval in southern Mediterranean consumer shopping practices. Although Algerians shopped in El-Fellah souks or local Monoprix supermarkets in the past and Moroccans have had Marjane self-service mini-markets since 1991, it is only since 2000 that this form of food

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distribution has really been established and expanding. Egypt still has only two Carrefour sites (in Cairo and Alexandria), but Algeria, Morocco and Tunisia are gradually opening up to the large-scale retail trade, and new firms are appearing.

While specialists regard the market in these countries as very promising, it will take time, although the major French hypermarket groups have rapidly become the leaders in the large-scale retail trade. Although the modification of commercial structures in the various countries has undoubtedly changed the purchasing habits of a certain category of the population, only 5% to 10% of sales in large and medium-sized supermarkets concern food products, whereas in southern Europe 60% to 80% of supermarket sales are food sales.

Chart 4 - Percentage of overweight and obesity in adults, 2004

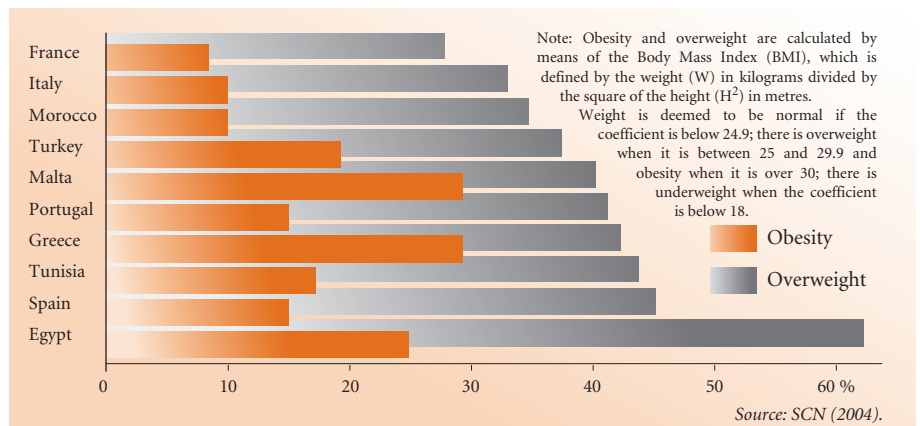
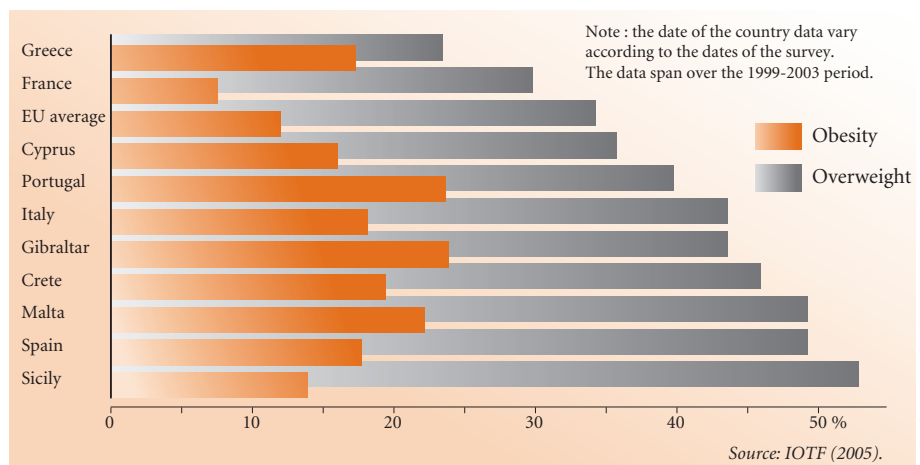


Chart 5 - Percentage of overweight and obesity in young people between 7 and 11 years of age in the northern Mediterranean region



ANALYSIS of agriculture and the agro-food situation in the Mediterranean region

The prospects can be encouraging for the local economy when one considers that each commercial structure can in fact generate several hundred direct jobs. From the point of view of the logistic impact and the impact on society, however, this development of the large-scale retail trade poses two problems (Padilla et Abis, 2007; Hammoudi, 2006):

- The first concerns the ability of local agriculture and industry to meet the expectations of these major distribution groups in countries which are still on the road to development. It is imperative that production methods and corporate organisation be rapidly upgraded at all levels of the supply chains. The new agricultural production or industrial manufacturing practices are more demanding and thus also sometimes more costly; they require higher levels of skills, which means that training is necessary and that more stringent supplier selection procedures need to be applied.
- The second problem comes from the actual fragility of these imported systems. Since consumers are already demanding that Carrefour sell more French Carrefour products or more European products, which they regard as being better quality-wise, the fear that more and more foreign foodstuffs and consumer goods will enter the market at the expense of local products is quite justified.

However, the change in purchasing habits has not been the same for all population groups. Some consumers have taken to the new forms of distribution more rapidly, whereas others keep to the traditional forms, and a third category - the one most frequently observed - patronises the various sales outlets. The choice of shop is in fact very closely linked to purchasing power and to the product sought. In the southern Mediterranean countries, an important factor in choosing the local grocery store for buying most food products is the credit facility the grocer grants to local residents. Furthermore, the local store is also more accessible, since supermarkets are generally situated at some distance from working-class districts, whereas most households do not have a car and bus services are unsuitable.

Perceived importance of quality labels

In many Mediterranean countries foodstuff labels have not yet been fully developed or applied. Not every country has the technical facilities and expertise required for quality control, although this situation may develop rapidly in connection with the commercial agreements signed with the European Union. The inadequacies of the food production system, in which activities are concentrated around urban and tourist centres, and the fact that consumer associations are weak make it necessary for the food industries to label products in order to ensure that a specific quality is readily visible. Traditionally, the origin and authenticity of products have been recognized by experience; there are no quality marks in the countries in the South. Given the assets that are indicated and commented on in the literature in the case of countries such as France, Italy, Portugal and Spain, quality marks seem to be of manifest advantage. These labels indicating quality, origin, local know-how, environmentally sound production methods or methods respecting animal welfare are becoming increasingly important for European consumers. And the fact that consumers are willing to pay more in exchange for a guarantee - an attitude particularly widespread in France and Italy, unlike Portugal - shows just how popular these products are. In the countries in the South, the better-off are beginning to show interest, but there is still little sign of any consumerist mentality.

Food quality - a growing challenge

Mediterranean diets are far from homogeneous; they involve a wealth of products with their own very typical features, and they are extremely varied. It is that diversity which provides a certain level of nutritional and social well-being for the various populations. Now that undernourishment is virtually no longer a problem in the region, Mediterraneans should devote more attention to the quality of their food, overcome their complexes in relation to Western society and highlight their knowledge and know-how in the field. For consumers, the Mediterranean image involves a number of issues which are very closely connected with identity and people's attitude to food – hence the power of the promises which the Mediterranean diet can convey:

- the promise of combining pleasure and wholesomeness, of reviving the concept of nourishing food, of placing much less emphasis on the “health” aspect so prevalent in the food culture in English-speaking countries, of emphasising the sensual aspect, and of easing the dichotomy between what is enjoyable and what is good for the health;
- the promise of highlighting the value of Mediterranean culture with its diverse flavours and colours... and establishing a Mediterranean identity: it is no longer a question of “eating other people's food” but of “providing and eating one's own food”;
- the promise of awakening the desire for renewal and “reassurance” by returning to traditional foods; this trend is to be explained by the gap between the production chain and the consumption chain, which causes concern amongst consumers, since they can no longer clearly identify the foods they eat, and results in the demand for authentic regional products, recipes from bygone days and local products;
- Consumers are more and more concerned about health issues, food security and nutritional balance; they are also more aware of environmental problems and pay greater attention to the conditions in which products are produced and processed and to so-called “ethical” businesses.

In English-speaking countries, industrialists and political leaders have astutely sized up these trends in consumer choices; backed by nutritionists and epidemiologists, who have scientifically demonstrated the protective benefits of the Mediterranean diet, they have adopted the concept. This rediscovery is taking place at a time when dietary specificities are disappearing in – both northern and southern – Mediterranean countries as lifestyles develop and trade becomes globalised. Is globalisation liable to permanently compromise the Cretan model? Nothing is less certain, for the world is currently going through a phase where the societies of English-speaking countries are being imitated and, paradoxically, Mediterranean populations seem to be rediscovering their diet in this international dissemination/imitation movement. Although the food industries are rushing into this growth market and are liable to distort the very foundations of the Mediterranean diet, the new considerations of sustainable development, which include preserving nutrients, adopting benign technologies and developing local products, can, fortunately, modify the trend towards industrialisation that is dominated to a very large extent by health considerations.

The new scientific angle on Mediterranean food is helping to create new foods with traditional ingredients and is making the Mediterranean diet part of a movement of reconciliation, in which the ancestral knowledge of the people is acknowledged by the elite. Co-operation between Mediterranean Europe and the southern and eastern Mediterranean countries has everything to gain by following suit.

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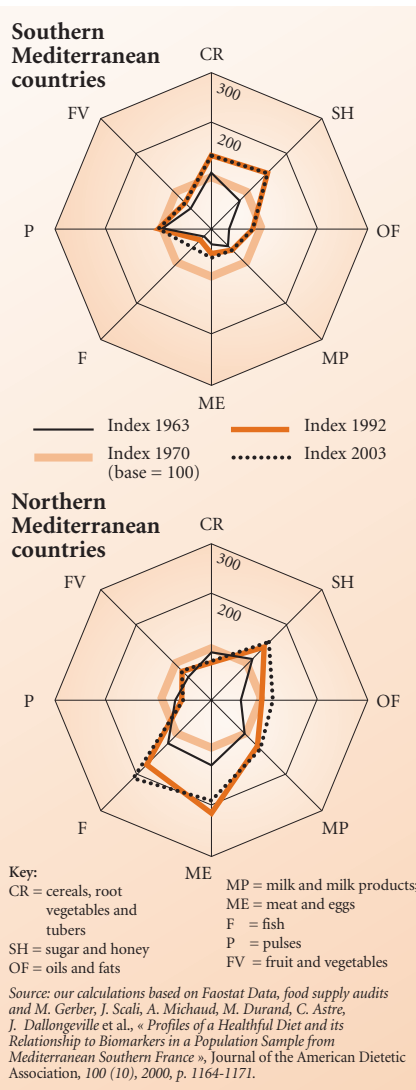
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Annexes

Annex 1 - Consumption trends per product in relation to the Cretan model, 1963-2003



CHAPTER 6

GOVERNANCE IN THE RURAL AND AGRICULTURAL WORLD*

The term governance, which has been in widespread use for some little time now, has long been a fact of life in agriculture. Ever since the Mediterranean emerged from the Neolithic revolution, its agricultural activity has been the focus of more or less constant concern of authorities ruling the various territories. Management of stock, to provide against lean times, was already part of agricultural policy in the time of the pharaohs. Since then, with varying success, various political powers have exercised control over a sector seen as highly strategic since it is the paramount guarantor of food security. Aware that agriculture is nothing without investment to support it, authorities have also engaged in development of agricultural lands, especially after the Second World War. This effort in the sphere of agriculture was the crucial element of rural development which, as time went by, involved other sectors in the North Mediterranean countries in order to diversify activities in the countryside. Despite that, social and economic disparities between the rural and urban world persist, especially in the South and East Mediterranean countries (SEMC). Poverty, lagging development and social tensions contribute hugely to this.

When concerned with agriculture and rural development in the Mediterranean sphere, it is worth analysing the policies, and the challenges that underlie them, in the various countries of which it is composed. From this point of view, it quickly emerges that the European countries of the northern shore, which have combined their agricultural policy (through the Common Agricultural Policy, CAP) with rural development, are quite different from the SEMC. Moreover, two trends are at work at different levels: in governance within States, a clear dynamism can be seen with the emergence of numerous actors; more generally, there has been a desire to establish partnerships at Mediterranean level as a whole for some years.

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Actions by Mediterranean States for agriculture and the rural world

In the South of the Basin: from interventionism to liberalisation

The agriculture and agro-food sectors have been a fairly constant focus of attention of States since the 1950s. In the context of decolonisation, interventionist policies were pursued for a long time in the SEMC, at least until the early 1980s. The challenge for these agricultural policies was multiple and hard to implement in practice: social (redistribution of incomes by redistributing land) economic (producing more to limit the drain on foreign exchange and thus foreign debt), political (maintaining domestic stability) and geopolitical (freeing themselves from the threat of food as a weapon).

In the Mediterranean, the problem of access to land was acute. In the 1950s, cultivable land was characterised by its unequal distribution and its scarcity. With varying degrees of emphasis and success, the agricultural policies of the last decades have sought to respond to this dual problem. However, in those regions marked by the arid climate, developing new lands often required more access to water, which in turn demanded the introduction of powerful water policies.

In the East of the Basin, the Ottoman domination was the underlying cause of the unfair land distribution. The seizure of lands by a handful of Arab owners began with the Tanzimat movement in 1858. It consisted in particular of a major reform of the functioning of the Ottoman State apparatus. Many communal lands were then granted by the Sublime Porte to families of ancient nobles or tribal chiefs (*shaiks or sheiks*) to ensure their subjection to the Empire. Under the French and British administrations, landowners, allied to the new powers, were the subject of particular attention by the two mandated rulers, in particular, granting them new lands and many other prerogatives. Initially, the independence of these countries changed nothing, and the new monarchies in place were not concerned with the agrarian situation.

This manifest imbalance in the distribution of land did not survive the changes in regime in certain countries of the zone in the 1950s and 1960s. Inspired by socialism, the new Arab nationalist governments put the redistribution of wealth at the heart of their political priorities. Agrarian reforms rapidly saw the light of day, notably in Syria and Egypt where capping land areas was chosen as a way of limiting acquisition of land. These reforms not only put an end to excessive inequalities but also led to a considerable redistribution of incomes in favour of small farmers. Demographic pressure and the peculiarities of Arab inheritance law, however, led to the splitting of land into ever-smaller plots. Despite the scale of the rural exodus, family farms capable of productive investment could not be developed. This relative setback to the reforms underlines how vital it is for countries driven to conquer new land by the twin necessities of absorbing part of the demographic growth and meeting the food needs of a rapidly expanding population.

In the Maghreb, the question of access to land arose in a different form. It was less a matter of recovering lands belonging to large native families than redistributing the colonial estates left by France which represented 10% of the cultivated land in Tunisia

and Morocco and just over one quarter in Algeria. Land was recovered progressively in Tunisia and Morocco, but it was accompanied both by appropriation by the State and frequent sales to landowners who were already well endowed. In Algeria, the recovery was more rapid and workers on the former estates were the primary beneficiaries. A true agrarian reform was undertaken between 1971 and 1975. The limitation of the size of properties and nationalisation of absentee landowners also gave rise to the formation of large agricultural cooperatives, among them, in particular the production cooperatives of the agrarian revolution (Capra) which would only finally be wound up in the early 1980s, while the nationalised land would be restored to its owners.

This land distribution in the SEMC, when it occurred, was also accompanied by a policy of land conquest in which water was a decisive factor. The Moroccan target of one million hectares under irrigation was achieved in 1980, while on the eastern shore, Egypt and Syria embarked on a policy of land improvement after the political revolutions of the 1950s and 1960s. With the construction of huge dams (Aswan in Egypt and the Tabqa dam in Syria), these two countries considerably added to their potential irrigated areas, both by bringing water to new lands (horizontal expansion) and by doubling, and even tripling, crops (vertical expansion). To accompany these land and water policies, SEMC provided strong support for inputs and food products, so as simultaneously to enhance productivity of farms and deliver social peace by a supply of cheap food.

These strongly interventionist policies marked time in the early 1980s. Subject to the demands of economic and financial adjustment under pressure from international organisations (International Monetary Fund and World Bank), the majority of SEMC had to review their agricultural policies in depth. The decade of the 1980s was marked by liberal reforms placing the process of privatisation of service activities (marketing, supply) and reduction of direct aid to production or consumption at the core of agricultural policy. In some countries (Tunisia, Turkey, Algeria and Egypt), certain subsidies (for staple goods, for example, or factors of productivity) were nevertheless maintained in order to deal with a particularly difficult political situation and satisfy the demands of certain categories of farmer (interest rate discounts, equipment subsidies) or urbanised populations. This did not prevent the increased pace at which the economies and markets of the SEMC opened up to the outside world, giving rise to strong concerns in the face of abrupt and often ill-prepared liberalisation.

In this context, the improvement in the performance of irrigated agriculture and security of food supply to towns are the principal lines of agricultural policies put in place in the majority of SEMC. The development strategies currently adopted are based on the following pillars:

- *The solving of problems of a structural nature linked to the size of farms, the status of agricultural land and the use of natural resources.* In Algeria, access to agricultural land involves clarification of the status of agricultural land. In legal terms, it means in particular defining new rules governing, firstly, the operation of *melk* (privately-owned land), in order to regulate the problems caused by joint ownership and, secondly, operation of *wafks* (lands belonging to religious foundations) and their inclusion in the economic sphere. The authorities are also trying to enhance the status of farmers so as to guarantee the rights of tenants and owners, to promote the use of rural leases to

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protect both and to encourage the circulation of assets to allow revitalisation of certain rural areas where small privately owned land predominates. Everywhere in the Maghreb, the mutualisation of the means of production is organised by strengthening agricultural cooperation and promoting farmers' groups.

- *The policy of mobilisation and rational management of water and hydro-agricultural improvements justified by the aridity of the climate and the irregularity of rainfall.* In this sphere, Tunisia has launched numerous water and soil conservation works, the most noteworthy of which are the *meskats* of the Sahel (development of basins to collect surface water run-off), the *jessours* of the Matmata Mountains (small dykes in ravines to collect water and soil upstream for agriculture) and *m'gouds* (works for harvesting and irrigating with flood water) in the Kairouan plain. These traditional works are generally built and managed by the farmers themselves. The network of interconnected dams in the North of Tunisia is intended to regulate water resources, and the water mobilisation strategy after 2010 will be based on the use of non-conventional water sources (drainage water, waste water, desalinated sea water). In Morocco, the national irrigation programme envisages a major hydro scheme to extend irrigation in several areas (Doukkala, Gharb, Loukkos, for example) and small and medium-sized schemes to extend irrigation in smaller areas as well as the refurbishing of traditional areas. The projects for exploiting land in *bour* (dry) zones are based on improved irrigation, equipment and basic services, agricultural development actions, etc. Under the programme, it is planned to implement 71 projects covering a total area of 1.1 million hectares.
- *Improvement of land in arid and semi-arid zones and "renewal" programmes designed to increase employment and the incomes of farmers and rural communities by developments (plantations, irrigation) and better farming methods.* The countries of the South (from Morocco to Egypt) have been engaged for a decade in programmes to combat the effects of drought and aridity. In the Maghreb, management of climate risk over the vast expanses of steppe and pasture rely on a combination of cereal crops and livestock, food supplements purchased from the sale of animals, resources drawn from emigration and agriculture using irrigation from pumps. While none of these solutions offers characteristics of sustainability that are beyond dispute,¹ the last has developed very rapidly, especially in all the regions of North Africa (Algeria, Morocco and Tunisia), but is now encountering serious limits due to the sometimes rapid depletion of the water source (salinisation, fall in the water table). As the cost of pumping and irrigation becomes prohibitive, there is a risk of a selection operating between those who are able to master the use of the resource (through irrigation with a higher capital investment) and those who have to abandon this option which may well have played its part for several decades. Morocco recently adopted new programmes to combat the effects of drought which are distinguished from their predecessors by their scale and design. The approaches are based on management of the risk by means of more flexible financial instruments and decentralised methods. In the context of protection of vulnerable areas, a policy for mountain areas (which in Morocco cover over

¹ - The first does not provide every guarantee if the drought lasts more than a year. The second is closely linked to a prices policy in an environment which, in the long run, leads to a rise in cereal prices. The third is socially and economically untenable in the long run. The last is based on replenishment of the water table which is unlikely.

a quarter of the country) has also been introduced. In Algeria, a renewal programme is encouraging the development of rustic arboriculture. Reforestation sites have been opened (in particular in the framework of the rural employment programme) in order to improve the ratio of forest cover in the country.

- *Strengthening research, publicity and vocational training in agriculture, based on full modernisation and improvement of performance in the sector.* The introduction of study and research networks on rural development is on the agenda of all the countries of the South. Projects to enhance intellectual skills and scientific and technical potential must “provide a prompt tailor-made response to needs and enlighten the actions of companies” (Secretariat of Rural Development, 2004). Morocco has set an objective of developing an inter-university study and research network on rural development “to provide a better understanding of the rural environment and the processes involved in the transformation of rural societies, to capitalise better on experience, measures and methods used on the ground, and better to articulate information/training programmes and mobilisation of those involved in rural development” (Secretariat of Rural Development, 2004).

The financial resources allocated in the framework of agricultural policies, however, are still insufficiently and unequally distributed. They represent less than 10% of total public investment while contributing enormously to employment in many SEMC (over a quarter of the active population in Egypt, Morocco and Turkey), to exports (Tunisia, Morocco, Turkey and Egypt) and to wealth creation, as growth in GDP is closely linked to that of the agricultural sector (especially in Tunisia, Morocco and Egypt). Moreover, efforts advocated in strategic documents do not always lead to actions to match the high ambitions announced. However, these two observations do not seem to apply to Algeria, which again invested in agricultural policy at the end of the 20th century.

Algeria's national agricultural development plan

The chronic food deficit led the authorities to develop a national agricultural development programme (PNDA) starting in 2000. The new agricultural programme does not break with the liberalised economic framework defined in the early 1980s, but its approaches converge essentially on the objectives of renewal of agricultural lands. It is part of a *rehabilitation of the regulatory functions of the State* and re-launches the process of investment interrupted in 1986. Although the approaches contained in the agricultural programme reflect socio-economic and technical needs (improving Algeria's agricultural competitiveness, increasing production and yields), the principal operations defined in it have the objective of renewing agricultural lands, protection of fragile ecosystems and improvement of cultivable land. They are based on agro-climatic constraints the effects of which had long been ignored.

The agricultural programme sets out large scale actions. The objective of renewal of land, which is the largest operation since it covers over 3 million hectares (740,000 hectares in the first phase), is to concentrate cereal production in so-called favourable zones (1.2 million hectares) and, in dry and arid regions, rustic arboriculture, wine-growing and small-scale livestock farming.

The development of branches (cereals, milk, potatoes, forestry), another component of the PNDA is intended to multiply crop yields and labour productivity in the coming

years. Improvement measures involving grants of land to farmers or private investors are defined for mountain areas, mountain forelands, steppes and Saharan zones. Lastly, the national reforestation programme concerns 1.2 million hectares (to increase the ratio of forest in North Algeria from 11% to 14%).

The final objective set for these actions as a whole is to reconfigure the agricultural territory inherited from the colonial era, which discriminated between a useful agricultural Algeria and the rest, which was not suited to the changes in the country over the last forty years, and to improve farmers' incomes through financial subsidies (for growing wheat, irrigation, planting, improvement, use of assets to encourage intensification...).

Some essential questions are still pending. In particular, problems of land ownership and organisation of agrarian structures persist. The liberal agricultural reforms have not provided viable solutions in this area. The demographic trends, the doubts raised about the 1971 agrarian reform, combined with the absence of an overall development strategy (and industrialisation), have forced country areas in recent years to maintain a growing population, thereby aggravating further the state of the agrarian structures. Surveys show that over 80% of farms have less than 10 hectares and that the average area is 4.7 hectares. These agrarian structures, dominated by small farms, once again raise the question of the need to diversify agricultural activities and employment (other than agriculture) to improve income levels. They revive the demand for land reform to improve the land allocations and/or capital of farmers who are under-resourced. Finally, they raise the problem of access to and dissemination of technical progress in small and medium-sized family farms in order to increase their labour productivity.

Uncertainties remain to be removed to guarantee the future of Algerian agriculture. As regards the place of agronomic research, the financial resources mobilised up to now, like the means of organisation of research, have not always allowed accumulation, let alone capitalisation, of research aimed at sustainable agricultural development. The essential technical references to remove the barriers which stand in the way of increased land productivity are not rigorously defined, whether in the zones concerned by renewal of crops or those involved in actions to intensify cereal cultivation. In the last resort, new economic and social paradigms need to be mobilised. The objectives related to renewal of the territory and the conceptions of sustainable development, essentially long-term, which underpin the PNDA often clash with the short-term strategies dictated by the laws of the market and the pursuit of immediate profit. The objectives of agricultural production must be brought into line with the essential need to recover lands and preserve the land capital.

Source: Besaoud (2002).

In the North of the Mediterranean: the pursuit of quality over quantity

While in the South of the Mediterranean, States are the principal actors in agricultural policies, those of the North have shifted part of their agricultural policy to the supra-national level, i.e. Community level. Since the Treaty of Rome (1957), market policy has been devolved to European level, while structural policy is rather left to States. Thus France, in 1960 and then in 1962 established guideline laws the purpose of which was to form family farms able to provide a decent income to their members and engage in a process of modernisation.

At European level, the "productivist" CAP of the 1960-1970s, set on the path of modernisation and the pursuit of productivity in the framework of strong price guarantees and

external protection regimes based on community preference, ensured the Community's agro-food supply. Its success even surpassed expectations because, from the mid-1970s, Europe became self-sufficient in the majority of staple products (meat, milk, cereals, sugar). Parallel to this, the shift of the agricultural population to other sectors of activity continued willingly or grudgingly. In some countries, such as France, Germany and Italy, the agro-food industry achieved take-off and is now among the world leaders in this area.

Despite all these wholly positive aspects, the CAP also had perverse effects: major disparities between territories and types of farming, surpluses to be sold in external markets or destroyed, growing budget expenditure and worrying environmental impacts. Since 1992, European agricultural policies have been undergoing a clear re-orientation. The internal situation marked by high Community surpluses and ever more massive expenditure on subsidies and intervention forced the European Union (EU) to review the policy. This change in subsidy policies became all the more necessary when the inclusion of agriculture in the GATT round which opened in 1986 put market policies in the firing line of criticism. This criticism came from the United States which saw itself challenged in its trade supremacy by a conquering Europe. It also came from the Cairns Group of fair traders in a market facing calls to liberalise.

In the new CAP, improving the competitiveness of European agriculture was an important component. The reduction in guaranteed prices designed to facilitate opening to trade was offset by direct aid to farmers calculated on the basis of past benchmarks and more compatible with the rules laid down by the World Trade Organization (WTO) which prohibited all subsidies to production. The EU also had to de-link aid almost entirely in order to conform to international trade rules. While this competitiveness should allow higher quality products, conquest of global markets and diversification of activities and products, it also seeks to anchor it more firmly in areas where employment or use of rural areas have become recurrent concerns. In the new orientations of the CAP, the major goal is to intervene in anything which can lead to the development of viable agricultural or related activities in socially acceptable conditions and, in some cases, strengthening the existing major infrastructure.

The reform process gradually resulted in a more "qualitative" CAP which attempts to respond to the demands of European consumers and citizens who certainly experienced several food crises in the late 1990s (dioxin, mad cow disease). In this context, it seeks to give priority to food quality (sanitary conditions, diversification of products and protection of origin), incorporate environmental concerns by encouraging both sensible agricultural practices also based on the notion of the multipurpose nature of agricultural and the countryside. An important element of the reformed CAP concerns improvement of the quality of life and diversification of the rural economy through actions to support enterprise creation, development of the natural, cultural, historical and religious heritage, development of tourism and improvement of rural services.

Poverty in the countryside: a Mediterranean scourge

Even if forms of urban poverty are developing worryingly in the SEMC, the phenomenon is still concentrated in rural areas, related to traditional and subsistence agriculture. While neither agrarian reforms, when applied, nor interventionist policies had really

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taken agricultural populations out of poverty, the structural adjustment plans imposed from the 1980s onwards only added to it, along with unemployment, exclusion and social precariousness. By imposing a policy of budgetary restrictions which mostly affected social spending and public redistribution policies, these plans contributed to a reduction in investment in agriculture and agro-industry, and thus to worsen the fate of rural areas. In the Maghreb today, two thirds of the poor population live in the countryside. A major gulf separates the urban from the rural world, landlocked and under-equipped in terms of basic infrastructure and socio-educational facilities. These inequalities in access to resources (and thus in their geographical distribution) condemn large parts of the rural population (women more than men) to poverty, and even more persistently in mountain areas. The crises in agricultural and livestock production, caused by climatic or economic shocks, accentuate this poverty and food insecurity for communities.

The objectives of combating poverty (like the development of human capital) are today the primary strategic pillar of rural development policies in the South Mediterranean, along the lines of the royal human development initiative in Morocco. Implementation of these policies takes the form of specific rural equipment actions (education, literacy, health, drinking water supply programmes, rural electrification, connection to the drainage network, etc.) and improvement of the rural environment. Although programmes for the diversification of economic activities in the rural world are also implemented in order to improve conditions of employment and incomes of rural communities, the dynamic of the application of the various programmes varies considerably, and the results often fall short of the objectives set.

The challenge of balanced development in Lebanon

During a lecture he gave in April 2003, the former Lebanese Prime Minister, Selim Hoss, deplored the perpetuation of an unbalanced development despite the repeated pronouncements of many political leaders on the need for harmonious distribution of economic activity in Lebanon. The challenge, of course, is a social one, as it is necessary to allow access to services which offer the fairest possible solution for communities wherever they live. It is also geographical, since it involves both avoiding the saturation of urban centres, especially Beirut, and preventing devitalisation, or indeed desertification, of the periphery. This contrast between centre and periphery is scarcely specific to Lebanon, and all countries face this dual challenge to a greater or lesser degree. A third challenge is added to the mix when it comes to Lebanon: balanced development is an instrument to combat denominationalism in its negative sense, i.e. a situation where belonging to the community impedes or even prevents the sense of belonging to the republic, with all that implies in terms of tensions and rivalries. As Selim Hoss said in his lecture, some regions of Lebanon have a dominant denominational colour. When they suffer from under-development and poverty, these two characteristics then take on a denominational hue which ultimately further entrenches denominationalism in the country. Promoting comprehensive development, therefore, means forestalling community reactions which pose a threat to civil peace.

Source: Blanc (2006).

The rural areas of the North Mediterranean also have pockets of poverty, but these are mainly concentrated in the agricultural environment. It chiefly involves households composed of elderly farmers working in small farms or rural dwellers living in remote areas

hardly affected by the development of industrial activities, services and rural tourism. These zones at high risk of abandonment have not even seen any real agricultural development, which has helped to prolong a situation of isolation and under-resourcing in terms of basic services. In order to reduce these pockets of social poverty, in 2006 the European Commission set out in its strategic orientations approaches aimed at ensuring social cohesion and geographical equity. While at the beginning of the European adventure and for almost three decades, the CAP was the principal instrument of rural development, it has since become an integral part of regional policy. One of the approaches defined in the strategies of the EU countries strengthens measures to offset natural handicaps and maintain activities in mountain and highland areas in the Mediterranean regions. At this level, the role of the various very early attempts in these zones (essentially the mountains policy) to draw up efficient development policies is exemplary.

The rural development policy in Europe is the legacy of a policy which, from the outset, sought to solve the structural problems of the productive sector, then progressively to support the multiple functions played by agriculture and explicitly recognised by society. It tends to be integrated increasingly in the framework of a broader rural world itself reintegrated in the overall economic and social dynamic and making a full contribution to this dynamic.

Regional policy in Europe, an effective means of redistribution

With the Single Act of 1985, which envisaged the single market for 1993, Europe put in place a regional policy designed to fill the interregional gaps. The principles of this policy were drawn up in 1989. It now represents one third of the EU's budget (agriculture accounting for some 40%) and has three funds which are real economic levers (two of which have changed name since 2005):

- The EAGGF (European Agricultural Guidance and Guarantee Fund) Guidance section which contributes to improvement of agricultural and agro-industrial structures and rural development;
- The ERDF (European Regional Development Fund), designed to correct regional imbalances and to contribute to development in the least prosperous regions;
- The ESF (European Social Fund) whose mission is to intervene in employment, vocation training and insertion.

These funds are linked by their objectives, geographically or otherwise. Prior to 2000, only objectives 1, 2 and 5 involved zoning, the others, objectives 3 and 4, being cross-cutting. Rural development concerned only objective 1 and objective 5b. Zones classified in objective 1 often included regions known as lagging behind in development, which mobilised the three funds on the basis of the general character of their problems: most of Spain, southern Italy and the whole of Portugal. Rural zones classified in objective 5b were disadvantaged and also mobilised the three funds.

From 2000 to 2006, objectives 5b and 2 (renewal of industrial regions in decline) were combined in a single objective 2, while objective 1 continued as defined previously. Alongside these regional development programmes, Europe implemented programmes of Community initiatives, in particular the Leader Rural Development programme. Based on the construction of local projects by local actors, they have proved increasingly successful (Leader 1 in 1991, Leader 2 in 1994, Leader + in 2000). The EAFRD (European Agricultural Fund for Rural Development) was set up on 21 June 2005 (Regulation 1290/2005). It finances Pillar 2 of the CAP, while the EAGF (European Agricultural Guarantee Fund) replaced the EAGGF (European Agricultural Guidance and Guarantee Fund) for Pillar 1, i.e. market policy.

The forms of intervention of the EAFRD, defined by Regulation 1698/2005 of 20 September 2005, are organised according to three objectives:

- to improve the competitiveness of agriculture and forestry by support to restructuring, development and innovation;
- to improve the rural environment by support to land management;
- to improve the quality of life in rural areas and promote diversification of economic activities.

Alongside these three thematic components, a fourth cross-cutting component takes up the Leader approach.

Tackling the challenge of sustainability

The protection of natural resources is another priority theme of the new multi-dimensional and geographical concept of rural development which has emerged in the last few years. Bearing in mind its social and economic role, agriculture has exploited natural resources (water and soil chiefly) increasingly unsustainably, placing the agricultural sector at the heart of the environmental debate in the Mediterranean. The economic and social fragility of rural areas is identified as one of the major causes of the degradation of natural resources. This degradation, sometimes irreversible, in turn imposes strict constraints on the economic and social development of rural communities.

Faced with limited availability (close to exploitation ceilings) and the serious degradation of natural resources, essential to rural development and food security, most SEMC in recent years have witnessed the introduction of a legal and institutional framework, the objective of which is better management of resources and solutions to environmental problems. Action plans or programmes aimed at limiting the degradation of forests, or integrating forests in the dynamic of rural development, programmes to improve roads, and national programmes to combat desertification (NPCD) have been adopted in all the countries.

Tunisia: the national action plan to combat desertification (NAPCD)

The NAPCD is intended to combat desertification and alleviate drought in arid, semi-arid and dry sub-arid areas, thanks to measures to protect resources and development based on improving productivity of land and conditions of life of the rural communities concerned. It involves an integrated and participatory approach, relying on partnership and cooperation between the authorities, local communities, farmers, professional organisations and NGOs.

The programme concerns the socio-agro-ecological zones of the Tell and Dorsal in the North, the High Steppe and Low Steppe in the centre and the Jeffara, the zone of the Saharan Atlas ranges, the Shotts, the Mahatma, Dehar and Erg in southern Tunisia. The formulation of regional master plans gives pride of place to community participation. Instead of creating new structures, the mission of the NAPCD is to exploit the existing network of associations and professional groups already present in the country: local authorities, community interest groups in the water and forestry and pastoral sectors and NGOs.

Despite its translation into law, this awareness is rarely followed by effective policies and concrete actions. Where they exist, the most significant programmes are often externally financed (e.g. the MEDA programme from 1995 to 2006) and are often imple-

mented in collaboration with international organisations (EU, World Bank) or NGOs heavily subsidised from abroad. Despite appreciable progress in some countries (Morocco and Algeria) and certain ecological areas, policies on the conservation of natural resources are still inadequate in terms of financing and implementation.

In the North Mediterranean, realisation of the negative effects of the CAP on the environment has been reflected in the inclusion of environmental measures in successive reforms (agro-environmental measures, eco-conditionality, etc.) but the level of introduction of available mechanisms still varies enormously and is highly dependent on the capacities of the responsible central or local authorities. The second Community rural development strategic guidelines defined in 2006 extend and strengthen sustainable management of natural environments and rural areas by introducing new agro-environmental measures for the period 2007-2013. From now on, farmers are regarded and legitimised both as producers of public assets (biodiversity, countryside, territory occupied intermeshed in a managed way that is as regular as possible, etc.) for the benefit of society.

The emergence of local actors in rural governance

Globalisation and the opening of markets modify the relationship between the State and civil society and thus exert an influence on modes of governance. Whatever the region of the Mediterranean (North, South or East), the acceleration of these processes is accompanied by institutional and organisational change. The central role of the State has been called into question and there has been an attempt to promote modes of governance which grants a growing role to decentralised institutions and different forms of professional organisations, associations and community groups, especially in rural development. In the South, this trend coincides with a certain contraction of the State induced by the implementation of structural adjustment plans. In the North, it stems more from the processes of regionalisation and administrative decentralisation (France, Italy, Spain).

Weaknesses and problems in the organisation of the rural world in the South Mediterranean

Some local authorities have been created in many South and East Mediterranean countries, but their responsibilities remain poorly defined in relation to the State. More generally, some States are still faced with a dual constraint: pushing forward with the process of decentralisation while maintaining the administrative fabric of the country, in particular in landlocked rural areas. The fact is that administrative structures and public services are polarised and concentrated in those areas the most favoured from the point of view of their production and growth potential. The deficit in communications and transport infrastructure, the lack of interdependency regions, segmentation of circuits, asymmetric economic flows and the absence of a stimulating environment lie at the back of the institutional deficits of the poorest regions.

Political reforms liberalising the public sphere and facilitating the creation of associations have led to a burgeoning of community initiatives which have enriched the organisational fabric of countries such as Turkey, Morocco and Algeria. Professional associations were

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created spontaneously after the disappearance of the agricultural cooperatives. Agricultural and rural organisations (including informal arrangements such as village assemblies) took the place of the former State institutions. The withdrawal of the State and the reduction of its role at local level also had the effect of strengthening demand for new institutions (chambers of agriculture, professional organisations, agricultural unions, etc.) which progressively replaced the traditional and customary organisations.

The extension of trade relations encouraged the development of commercial agricultural businesses, generating at a stroke the emergence of a class of powerful individuals whose interests are turned outwards and who saw the customary rules as merely a brake on their expansion. The emergence of civil society is a long and complex process which depends on the state of development of trade relations in rural areas. The truth is that the breaks with tradition are sometimes formal. The bonds of regional or family, clan or religious ties are the forces which are still the basis of the functioning of rural communities in the South Mediterranean,² and even on the northern shore, as in the southern regions of Italy. The development of this agricultural and rural civil society in the SEMC has often been the fruit of aid from one or more international institutions. The financing of large scale rural development projects in Turkey or Lebanon, for example, was accompanied by the creation of producers' organisations. In Egypt, the Governments of Saudi Arabia, Kuwait and the other Gulf States generously support fundamentalist movements, associations and NGOs, including in rural areas. The partnership with foreign institutions and NGOs is also considered to be one of the principal gains of rural associations in the South. In addition to their material contribution, it often allowed them to acquire a credible image and use it in their negotiations with State institutions, rural communes or provincial authorities.

Professional associations in some countries of the South

Morocco has 250 producers' associations and groups. 37 agricultural chambers and 6,000 cooperatives were counted in 2006. In Algeria, agricultural professionals are grouped into 48 chambers of agriculture, 1,300 professional associations and over 800 service cooperatives. In Egypt, there were 5,717 cooperatives with 4 million members in 2002 with a turnover estimated at 25 billion Egyptian pounds, the equivalent of 4 billion euros. These cooperative support production and provide marketing of agricultural products, but encounter difficulties related to the redefinition of their role in the new context of liberalisation, disengagement of the State and structural adjustment. In Lebanon, there are four types of agricultural professional organisation: cooperatives, farmers' unions, farmers' federations and associations. Their creation is subject to grants awarded by international organisations and aid received from the Lebanese Government.

While the organisational renaissance of the rural world is most often institutionally driven, new agricultural and rural organisations are sometimes the product of sectoral initiatives (water management, farm or organic products...). The creation of associations then seeks to achieve objectives centred on the needs of communities or to find a specific niche in local development. The emergence of rural organisations is also particularly favoured by the appearance of new elites (young graduates from the rural

2 - For example, in Egypt where the agricultural and rural organisations which emerged in the new rural communities established on newly developed land (*The New Lands*) are often controlled by the Muslim Brothers organisation.

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environment). Certain rural areas, notably in the Maghreb and Egypt, have benefited from the establishment of a network of high schools or university institutions recruiting their students from the interior of these countries. The return of young graduates to their place of origin contributes to strengthening the human potential of these areas. However, a certain number of obstacles put a brake on the development of agricultural and rural organisations in the SEMC:

- In the great majority of these countries, the legal texts define the boundaries between the State and civil society organisations poorly. The rules which have been defined often place agricultural professional organisations under the supervision of local administrations, thus limiting their autonomy and capacity for intervention.
- These rural associations and organisations are often subject to the question of legitimacy. They must win the recognition of members or the local population in order to pursue collective action. The organisations are not invited as partners in the conception of development programmes and the exchanges are essentially vertical. They also have to deal with the inflexibility of the public administration due to the fact that the process of decentralisation is incomplete.
- Local or national organisations suffer from strong financial pressure. They must constantly work to avoid financial penalties which would cause their disappearance.
- The training and information deficit of grass-roots actors is a further constraint which limits the capacity to mobilise human capital in general. This deficit has consequences for the exercise of collective or individual responsibilities.

When farmers from both shores cooperate

The International Federation of Agricultural Producers (IFAP) is the world farmers' organisation. It has observer status in the United Nations Economic and Social Council. In this framework, a Mediterranean committee has been set up to enable farmers on both shores to work together at three levels: lobbying in European bodies; a platform for exchange of ideas and experiences of farmers of the region on questions which affect them directly; stimulation of technical cooperation between the member organisations and also with certain IFAP partners such as international organisations, research institutes and agricultural cooperation and development agencies.

A structured and diversified rural world in the North

In the countries of the northern shore, the agricultural profession has long been organised in unions, cooperatives and chambers of agriculture. In France, it is this highly organised profession which has negotiated all the national reforms since 1960. Since the decade of the 1990s, the promotion of rural development has contributed to the flourishing of new actors and the establishment of new partnerships. Community rural policies and the institutional changes which accompanied them have had important effects on the general organisation of these actors, by encouraging the emergence of new associations and helping to create a climate more favourable to the development of relations between actors. The principles governing the Community Leader initiative

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(Links between Actions for the Development of the Rural Economy, launched in 1991), now Leader + (2000-2006) give priority to a geographical approach characterised by bottom-up measures. This has led to the constitution of networks within which different rationales are harmonised in common development actions.

With the Leader programmes, the participation and organisation of local actors seems to have been strengthened. The majority of associations have realised that their activities or the contribution that they hope to make to the development of the area must necessarily be part of a perspective of collaboration and partnership with other local actors. Even if some partnerships are merely financial or information flows, this type of relationship is more and more frequently envisaged as a common definition of objectives, tasks and responsibilities. In this case, there is a move towards common administration of local rural development programmes encouraging the development of a project culture (the rationale of the project in place of the shop-window).

Through the implementation of development projects, many agricultural and rural organisations today are recognised as legitimate partners by local rural society or by public institutions (local communities, local government...). The improvement and development of the area are also the subject of policies of the EU, States, regions and departments, but now characterised by a great variety of procedures. The result is a degree of complexity and profusion of institutions, a source of problems of coordination and cohesion of actions among the various development actors. The “institutional clutter”, the “profusion of mechanisms” and the “juxtaposition of areas of intervention” (intercommunal territories, Leader territory, areas, natural parks...) often hampers initiatives.

The Community Strategic Guidelines on Rural Development for the programming period 2007-2013 now call for a consolidation of the Leader approach (European Council, 2005 and 2006). The European Commission wants to pursue territorial projects with broad participation of local actors and a representative public-private partnership. Rural organisations are invited to take charge of the development of their territory, but adding their contribution in fields as varied as new technology, environment, employment promotion, promotion of women and the cultural heritage. The supply of commercial and non-commercial goods and services and creation of jobs and activities that they should encourage is intended, firstly, to attract new populations and, secondly, to improve the autonomy of the rural world in relation to the urban.

The environmental question at the heart of Mediterranean co-operation

Although local actors are now well represented in rural governance, there is also a growing contribution at supranational level. For a long time, the future of agriculture and rural life in the North has been as much a concern of Europe as a whole as its constituent States. What is new, however, is the introduction of these sectors into the partnership which is being woven between the shores of the Mediterranean. In Euro-Mediterranean cooperation, the question of integration of agricultural markets, which has been going on since 2003, appears to be crucial. Less well known yet already very real, the Euro-Mediterranean partnership also serves as a framework for environmental issues.

Since the 1970s, environmental awareness has been growing perceptibly in the world and in the Mediterranean especially. It is during the last decade that environment has become a subject of international policy (Lerin and Tubiana, 2005-2006). Following the first World Environment Conference in Stockholm (5-6 June 1972), which set up the United Nations Environment Programme (UNEP), in 1975, the countries bordering the Mediterranean and the European Community launched a Mediterranean Action Plan (MAP). This Plan was accompanied by an important legal instrument, the Barcelona Convention, which seeks to ensure the protection of the Mediterranean lands. It also led to the creation of the Blue Plan, established in the South of France in 1979, a think tank concerning the future of the Mediterranean environment.

In 1992, the Rio Conference, the first World Summit on Environment and Development drew attention to the unsustainable character of the current planetary trends and entered into a commitment to act by setting out a programme, Agenda 21. The concept of sustainable development, put forward in 1997 in the Brundtland Report, *Our Common Future*, was then popularised. Its message is simple: satisfy the needs of current generations without compromising the capacity of future generations to satisfy their own needs. In 1995, stimulated by the launch of the Euro-Mediterranean Partnership (EMP), a Mediterranean Commission for Sustainable Development (MCSD) was set up under the UNEP-MAP. Since then, several Mediterranean countries have created their national observatory of environment and sustainable development.

In 2002, in Johannesburg, the Second World Summit on Sustainable Development placed the emphasis on the need to change our patterns of consumption and production while stressing protection and sustainable management of natural resources. It renewed the commitments made in 2000 by the international community through the Millennium Development Goals (MDG). This marked a turning point, crossing the threshold from awareness to a manifest will to act. The decision to draw up a strategic document for sustainable development in the Mediterranean was approved at the Second Euro-Mediterranean Ministerial Conference on the Environment in July 2002, following the Helsinki Conference in November 1997. At the same time, the Arab countries focussed their efforts on the occasion of the Johannesburg Summit on the presentation of a sustainable development initiative and action plan adopted by the Council of Arab Ministers Responsible for the Environment (CAMRE). In June 2005, in Athens, the UNEP-MAP presented the Mediterranean Strategy for Sustainable Development (MSSD), a strategic text which proposes engaging dynamic and virtuous cooperation in the region between the coastal countries “for environmental sustainability and shared prosperity” (UNEP, 2005). This strategy has four major objectives with the aim of promoting progress towards sustainability in the economic, social and environmental areas: to contribute to economic development by enhancing Mediterranean assets; to reduce social disparities by implementing the Millennium Development Goals and strengthen cultural identities; to change unsustainable production and consumption patterns; and to improve governance at the local, national and regional levels. To attain these objectives, the MSSD recommends action in seven priority fields of action, which are increasingly interdependent today:

- better management of water resources and demand;
- improved rational use of energy, increased renewable energy use and mitigation of and adaptation to climate change;

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- sustainable mobility through appropriate transport management;
- sustainable tourism as a leading economic sector;
- sustainable agriculture and rural development;
- sustainable urban development; and
- sustainable management of the sea, coastal areas and marine resources.

These seven fields of action are both the most threatened by unsustainable trends and the most strategic in economic and social terms. The MSSD has set itself up since its creation as a reference framework for all governments and actors in the Mediterranean world. If acknowledging this “environmental debt” is primarily incumbent on the countries of the northern shore, placing the question of sustainable development at the top of the Mediterranean agenda is not only necessary to preserve the region’s future but is also a strong signal to intensify Euro-Mediterranean cooperation in concrete terms. The political framework provided by the EMP since 1995 has served to launch initiatives in this field. The European Union has financed numerous environmental projects through the MEDA programme, a Community financial instrument in support of the EMP. In 1997, in Helsinki, the Euro-Mediterranean environment ministers adopted a declaration establishing the Short and Medium-Term Priority Environmental Action Programme (SMAP), which engendered three generations of projects up to 2005 (SMAP 1 in 1998-1999, SMAP 2 in 2000 and SMAP 3 in 2005). This aid was complemented by the extension of certain activities to the European Environment Agency through the LIFE-third country programme. At the same time, the action of the European Investment Bank (EIB) with regard to the Mediterranean Basin led to the granting of several loans for the installation of environmental infrastructure, such as the Tangiers wind farm in Morocco. The EU has also worked with the World Bank, whose activities in the South Mediterranean include a strong environmental component, illustrated by the METAP project (Mediterranean Environmental Technical Assistance Program).

The METAP programme

Founded in 1990, the Mediterranean Environmental Technical Assistance Program (METAP) is a partnership involving countries of the Mediterranean Basin and multi-lateral donors to assist the beneficiary countries in preparing projects and building their capacity in regional environmental management. The initial partnership consisting of the European Investment Bank (EIB) and the World Bank (WB) was enlarged to include the European Commission (EC), the Development Cooperation Agency in the Ministry of Foreign Affairs of Finland (Finnida), the Development Cooperation Directorate (DCD) and the United Nations Development Programme (UNDP) which are the chief donors. Its mission is to build the region’s capacity to develop and adopt sound environmental policies with special emphasis on the following fields: policy and legislative instruments, water quality, management of waste water and coastal areas, management of municipal waste and hazardous waste. The successes of the METAP programme, shared with UNEP-MAP, include the entry into force in 2004 of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention as amended). The beneficiary member countries of the METAP are currently Albania, Algeria, Bosnia-Herzegovina, Croatia, Egypt, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia, Turkey and the Palestinian Territories.

For further information, consult the website www.metap.org

The environment seems to be one of the chief priorities of Euro-Mediterranean cooperation in the framework of the new European Neighbourhood Project (ENP), which is based on the mutual commitment of the EU and its neighbouring States to defend common values, including the principles of sustainable development. This approach is set out clearly in the framework paper of the European Commission of May 2004 (European Commission, 2004). The environmental challenge was recalled at the tenth anniversary of the ENP in Barcelona on 28 November 2005. The work programme drawn up by the 35 member countries of the process envisaged concrete measures, among them the objective of de-polluting the Mediterranean by 2020. This ambition was officially confirmed on 5 September 2006 by a communication of the Commission proposing the progressive decontamination of the Mediterranean Sea, the so-called Horizon 2020 initiative.³ The Commission is currently seeking to form a coalition of partners responsible for implementing the initiative with a first phase 2007-2013, which corresponds to the next budget period of the Union and thus of the new financial instrument dedicated to the European Neighbourhood Policy (ENP)/European Neighbourhood and Partnership Instrument (ENPI). The complete modalities and actors of the programme were approved at the third Euro-Mediterranean Ministerial Conference on the Environment in Cairo on 20 November 2006. During the conference, the European Commission was invited to coordinate the partnership of the initiative by setting up an effective steering group made up of key representatives of Euro-Mediterranean governments and other partners. The group will be generally responsible for the conduct of Horizon 2020, review and monitoring, and effective coordination with other related initiatives, in particular, through the strategic action programme to address pollution from land-based activities in the Mediterranean region.

The contrasting reality and outlook for the Mediterranean rural world

It is clear from this analysis that agriculture is no longer considered to be the sole engine of rural development. New sectors of activity (industry and services) are contributing to the promotion of rural areas, employment, growing wealth and development of natural resources and assets. In the North Mediterranean countries, agricultural development, linked to agricultural specialisation in rural areas, is no longer enough to sustain these areas, some of which, in any case, have been marginalised by the modernisation of agriculture. The pursuit of competitiveness is leading each of these rural areas to envisage developing their capacities for innovation and adaptation to globalisation. These rural areas are a necessary dimension in achieving this objective. In the North as in the South of the Mediterranean, the process of efficient, fair and sustainable local development comes from strategies of strengthening economic amenities, social cohesion and improvement of the living standards of rural communities.

For the North Mediterranean, rural development policies are largely the product of modernisation of agriculture and have the objectives of social cohesion, renewal of these areas and local development. For the countries of the southern shore, the future of rural areas is conditioned by the need to improve living conditions and combat poverty.

³ - See Press Release "The Commission proposes an environmental strategy to protect the Mediterranean Sea", IP/06/1155, Brussels, 6 September 2005.

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Sustainable management of natural resources and the involvement of local actors in exploiting local resources are another strategic dimension for the future of the Mediterranean rural world, alongside defence of rurality, protection of the heritage, capital and cultural values. Rural regions have specific resources, goods and services: landscapes, historical, architectural, religious and cultural heritage are all elements which can be mobilised to affirm local differences and specialities in the face of the standardisation of cultures. This phenomenon is emerging as a powerful force in many Mediterranean countries and could be an advantage if properly managed in the future.

Concerning modes of rural governance, several phenomena are emerging. New elites are making their appearance in rural regions. Young graduates from the rural environment, and urban citizens or civil servants are renewing contacts with the rural world, investing their knowledge, social or physical capital to the benefit of their community, region or locality. While the Leader programmes in Europe have helped to redistribute skills and human resources, the institutional drives in the South have encouraged initiatives by local activities or citizens, albeit sometimes opportunist in economic terms. Agricultural and rural organisations have served as a breeding ground for recruitment of a new political elite and/or candidates for local, regional or national elections. In the current configuration of the development of these organisations in the Mediterranean, local authorities are seeking to take full advantage of the local fabric of associations. For some, associations are a factor in improving the performance of the local authority. Others see them as a factor in learning about local democracy. The change in relations between the State and civil society, the transfer of responsibilities and powers to local authorities in the North is ushering in “the era of the expert” at local level. The quality of interventions in rural communes requires development of a project culture, and the ability to manage them (in terms of identification, implementation and evaluation) or mastering the administrative and financial procedures. The competitiveness of rural areas will be closely linked to their capacity for innovation, to adjust to an increasingly complex environment and to adopt new technologies.

Organisational dynamism is often linked to the expression of new local configurations. This is particularly the case of organisations that support Community programmes (in France, Spain, Italy, Greece and Portugal) or local development associations formed to exercise citizenship and participation in the process of change and local development. These rural organisations, which are quite large, form genuine networks, either on a formal basis (partnerships) or informal (exchange of information and experience, for example). Both North and South of the Mediterranean, they constitute highly effective partners for other development actors. They often try to preserve their independence in relation to institutions which are tempted (in a context of political competition imposed on them by these citizens’ rural organisation) to regulate them or control them politically.

In the future, however, the great challenges of rural governance take on a different aspect from one shore of the Mediterranean to the other:

- For the South and East Mediterranean countries, it is essential to ensure the transition from an agriculture (and an agro-food sector), which is protected and under-performing, to a more competitive agriculture open to the global market, with an acceptable political, social and ecological cost (Akesbi, 2006). Simulations of the

effects of multilateral trade liberalisation show contrasting effects from one country to another. While in international forums countries like Morocco, Tunisia and Turkey demand liberalisation of international trade in agriculture and the opening of European markets, net importing countries such as Algeria, which have not managed to integrate themselves in world trade to a significant extent, would have little to gain. The competitiveness of agriculture in the countries of the South is poor, and greater liberalisation of the agricultural sector would lead to a reallocation of highly scarce resources (know-how, irrigation water...) to export branches, thus creating a gap between traditional, agriculture or import substitution branches. Producers' incomes have tended to fall due to the low level of public subsidy, inflation and declining exchange rates. Agricultural and rural policies have little chance of reversing these trends in the short term. The chief improvements are expected in public programmes to consolidate community infrastructure (drinking water supply, rural electrification, roads and tracks, schools and health centres).

- The major challenge for the countries of the North is to strike a dynamic balance between two agricultures which are complementary in theory but often conflict in the use and development of rural areas. One is "competitive" agriculture, looking out to the global market. The other is "localised environmental and multifunctional", aimed at production of goods and services (including public) intended for knowledgeable and demanding consumers (Pisani, 2004). The reform of the CAP which has been in progress since the adoption of Agenda 2000, which replaces the philosophy of price support with that of direct aid and applies the principle of decoupling, blocked incentives to produce. The impact on structures and the productivity of European agriculture is real. The average size of farms has been increasing and the level of real agricultural incomes has been falling over the period 1998-2005 (as is the case in France). These agricultural incomes are partly offset at household level by the growth in incomes from other activities. It seems likely, however, that the probable rise in prices linked to demographic growth, saturation of productive areas around the world and the increasing number of climatic accidents will modify this trend to the *de facto* disqualification of agricultural activity.

At Euro-Mediterranean level, one of the most urgent challenges concerns identifying joint development paths, not only specific to the agricultural sector but for the agro-food system as a whole. Reflection and action to develop clear and transparent rules would be extended, with development of local specificities, sharing of knowledge, formation of international partnerships between agricultural and agro-food companies in the Basin, and the creation and strengthening of interregional production and marketing zones.

The inclusion, empowering and effective participation of the most vulnerable groups in the local rural development process remains a major challenge for the South and East Mediterranean countries. The adoption of local, participatory measures is at the heart of agricultural and rural development policies in the Mediterranean, but the level of learning and taking ownership of institutional mechanisms by rural communities (or the most deprived groups) is not adequate. This clearly requires action and cooperation in the field of capacity building. The importance of the role of international organisations falls into the same rationale. The latter are increasingly attached to supporting and building the

negotiating capacity of States in the international trade and policy context, and to encouraging the ability to adapt the new paradigms of agricultural and rural development to specific national and local conditions.⁴

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4 - In this regard, the “LeaderMED” initiative now in progress, with the support of the Mediterranean Agronomic Institute of Bari (IAMB) in the framework of the Leader + programme, involving eight local action groups in the Puglia Region of Italy and selected rural areas in Turkey, Malta, Lebanon and Syria, could provide interesting food for thought and ideas for action. Other lessons could be drawn from the experiences of the Sustainable Agriculture and Rural Development in Mountains (SARD-M) initiative implemented by FAO with the participation of several governments, representatives of civil society and international organizations, including Ciheam which is charged with implementing the initiative in the Mediterranean through the IAMB.

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FROM ANALYSIS TO ACTION PRIORITIES



The analysis of the current trends in the Mediterranean region that has been presented in the first part of this report is not intended to be exhaustive. It relates mainly, and deliberately, to the factors which can play a major role in the development of the agro-food situation in the region. Our purpose has been to highlight a number of baseline trends, the risks of breakdown and key issues, which are summarised in brief in the present section in order to explain our choice of the five major challenges in the second part of the report.

The socio-demographic context

Population growth in the Mediterranean Basin is marked by a widening gap between the northern and southern shores: in the North, the growth rate is levelling off and the population is ageing, whereas the population in the South is increasing rapidly and steadily. Two demographic giants are expected to dominate by 2020: Egypt (with 95 million inhabitants) and Turkey (87 million). Although the entire Mediterranean Basin is faced with demographic ageing, there will be a time lag in the trend between North and South, the population of working age increasing on the southern shores until 2020. If there is employment for that population this trend will be a demographic windfall in that smaller families will allow more savings and thus investment (provided, of course, that the political climate so permits). The trend in South-North migration flows (as well as in South-South flows) and/or co-development strategies remain major issues.

Urbanisation and the resettlement of populations in coastal areas are steadily growing trends. Population growth in the Maghreb is taking place virtually entirely in the cities, where 64% of the population now live. The question of urban sustainability, the risks of social explosions in urban areas and the impact of climate change on coastal regions as well as the threats it entails are becoming crucial issues. This population growth will of course also mean an increase in water and food needs and will furthermore be a contributing factor in far-reaching changes in eating habits and in the growing dependence of the countries in the South on supplies from the North. As urban areas expand, the area of agricultural land is obviously shrinking due to intensive residential development on arable land.

Despite this urbanisation, the rural population is nevertheless growing in the countries of the South (it still accounts for 41% of the total population of the southern and eastern Mediterranean countries – SEMCs) and, due to the simultaneous decrease in agricultural land, farm acreage is shrinking on the whole, although the distinction between a handful of large farms on the one hand and traditional family farms on the other is becoming

increasingly marked. These trends raise the question of the ability of the countries in the South to feed their populations and underlines the need to diversify activities in rural areas.

The population in the southern Mediterranean countries is still young, with 43% under 20 years of age. In the absence of effective economic dynamism, many young people are finding themselves exposed to the risk of unemployment or driven to rebel.

The feminisation of society is a manifest trend in the South, more marked in urban areas than in rural areas. In the cities, women are better educated, more active on the labour market and thus less inclined to assume their traditional role, particularly as far as intergenerational solidarity and culinary practices are concerned. This trend is a contributing factor in the rapid increase in the number of meals eaten outside the home and, to a certain extent, in the decline of traditional dietary patterns.

All of these trends are promoting the exacerbation of inequalities, not only in terms of income and lifestyle but also as regards production activities between North and South, amongst the countries of the South themselves, and also between rural and urban areas.

The geo-economic context

The North-South gap is manifest when it comes to the total gross domestic product of the Mediterranean region. In 2004, the Mediterranean countries of the EU accounted for 87% of total Mediterranean GDP (Spain, France and Italy alone accounting for 80% of that total). The remainder was distributed as follows: Turkey almost 5%, Israel 2.2%, the Maghreb 3.2% and Egypt 1.7%. This gap has steadily widened over time: expressed in per capita GDP in PPP terms, income (in 2004) was US\$ 24,750 in Spain, whereas it was under 4,450 US dollars in Morocco – a ratio of 6 to 1. And there is no sign of convergence between North and South at the present time.

The disparities amongst the southern and eastern Mediterranean countries themselves are striking: the Maghreb is better-off than the Near East; Turkey and Tunisia are the two “richest” countries on the southern shores of the Mediterranean, whereas Egypt and Morocco are the poorest. Taken as a whole, disparities are very marked between the northern and southern shores and within each individual country, and they are growing.

The poor economic performance within the SEMCs is certainly underestimated due to the informal economy. The widening North-South disparities are due in part to the low labour force participation rate and low per capita productivity, but other factors such as the lack of investment in the South, which is connected inter alia with the low volume of foreign direct investments, play a decisive role. The Mediterranean region captures only a very small share (approximately 5%) of global FDI flows. Between 1995 and 2005, the SEMCs received \$111.7 billion of FDI, Turkey and Israel being the main host countries (receiving 22% and 26% respectively). This situation contrasts with that of the CEECs, which received almost twice as much FDI in the period from 1995 to 2003. There has been a major change, however, in the origin of these foreign investments: the share of the European Union and the member States is diminishing (25% in 2006 compared to 50% on average in the period from 2003 to 2005), whereas the Gulf States

are strengthening their position, having become the leading investors in the region in 2006. The United States and Canada are also strengthening their foothold in the SEMCs, as are China, Brazil, India, South Korea, Russia and South Africa. The problem is just as much one of indigenous investments as of FDI, for, contrary to what is generally presumed, savings capacities in the SEMCs are often considerable, but it is the lack of trust among the various actors and the lack of confidence in the future that are preventing financial savings from being converted into productive investments.

The SEMC trade balance was negative throughout the 2000-2005 period, except in the case of Algeria due to the country's oil revenue. When one examines trade partners, the contrast between the SEMCs and the European Union is striking. The SEMCs import much more from the EU than the EU imports from them. On the other hand, other extra-Mediterranean partners (such as the United States, China, etc.) are becoming increasingly important in the region.

There has been no economic integration within the Euro-Mediterranean area leading to the establishment of structures. The multilateral cooperation agreements, particularly those concluded between the EU and the SEMCs, are gradually being replaced by a growing number of bilateral agreements, including agreements signed with third countries, which, in a context of globalisation and liberalisation, are of little benefit to the SEMCs. We would point to the termination of the multi-fibre agreement, for example, and the consequences this has had for Egypt, Tunisia and Morocco, whose market shares in Europe have decreased to China's advantage in particular.

There are few private operators, and those that exist are hardly pioneering. After gaining independence, many countries opted for economies with a strong State presence, which did not stimulate the emergence of a dynamic private sector. Nor did the lack of trust amongst the various actors and the lack of confidence in the future promote the development of the private sector later, when the structural adjustment plans marked the end of a certain form of statism.

The contrast between the northern and southern shores is also striking in the agricultural sector. While there has been a marked decrease in the working farm population and considerable productivity gains in the North, the agricultural labour force has grown steadily in the South and East, whereas productivity has remained low.

Agriculture remains an important sector for the SEMC economies, particularly in Egypt, Morocco and Syria. Two types of agriculture co-exist: alongside a limited number of efficient agro-food industries which have been well integrated into the globalisation process there are innumerable very small family farms.

In terms of agricultural and agro-food trade in the Mediterranean region, the differences are manifest. The share of the EU in world agricultural imports has remained stable but its share in exports has increased considerably over the last 40 years. The SEMCs, on the other hand, moved from the position of net exporters in the 1960s to one of net importers in the 1970s, and their agricultural trade balance has steadily deteriorated since that period, placing them in a difficult situation in a context where the prices of agricultural raw materials have been rising steeply. And finally, although the EU is still the SEMCs'

main trading partner, these countries are opening up more and more to world trade, as is demonstrated by the trade figure for 2004, when they obtained 72% of their supplies outside the European market and 48% of their exports went to the rest of the world.

These analyses show several trends:

- both North-South and South-South disparities are growing;
- the economic situation and the situation of the agricultural sector is deteriorating, particularly in the SEMCs;
- the European Union provides little impetus for the southern-shore countries, and bilateral relationships are increasing to the detriment of multilateral co-operation agreements;
- the region is highly coveted by many actors, who are keen to boost the role they play there;
- in a context of trade liberalisation including the Euro-Mediterranean area, Europe's exports of the staples which it produces competitively (cereals, milk and meat) to the southern shores of the Mediterranean could increase considerably. The impact of such liberalisation on the SEMCs would no doubt be less favourable, but, provided that they refocus on the products which they produce particularly competently (fruit and vegetables, olive oil and sugar), they could gain a considerable foothold in world trade. One of the major challenges from this point of view is to modernise the peasant societies in the South (which presupposes a "doubly green revolution") and to organise the market.

Natural resources

The first factor to be underlined is climate change (an extreme scenario predicts that the temperature of the Mediterranean could rise by 5°C by 2060), which is closely connected with greenhouse gas emissions, 70% of which are to be attributed to the countries in the North. The impact is liable to be particularly strong on the southern shores due in particular to the drop in rainfall, the development of drought-related phenomena and even desertification, and the occurrence of extreme events (such as prolonged heat waves, regular flooding, and so on). Not to mention the rise in sea level, which, according to the global scenarios of the IPCC, could reach the 19 to 58 centimetre mark by the end of the century and could add to the threats to which the coastal zones are already exposed.

Given its climate, its soil, its landscapes and its coastline, the Mediterranean region is one of the most original and one of the richest regions in the world in terms of biodiversity. That biodiversity is now seriously jeopardised by climate change, urbanisation, the intensification of agricultural production, the development of transport infrastructures, and so on. Deforestation phenomena are very symptomatic in this regard, particularly in the countries in the South. Forest fires, the most immediate factor of destruction, will continue to be a real threat in view of the climatic disturbances and

the recurrence of drought in particular. But forests play a regulatory role in the water cycle and are one of the factors preventing soil erosion.

Of the 243 million hectares of agricultural land resources in the Mediterranean region 63% are located on the southern shores but only 39% are deemed to be arable land. This acreage is decreasing under the pressure of urbanisation and the rapid development of tourism, and soil quality is deteriorating due to the effect of wind and rainfall, the intensive use of fertilisers, and irrigation, which is tending to dissolve the mineral salts in the soil. The decrease in agricultural area and the population growth in rural zones are together reducing the average per capita arable land resources. This phenomenon is particularly evident in Egypt, where, moreover, there is marked degradation of soil quality, and the development of new agricultural areas is unlikely to offset the current land deterioration.

The water supply situation is particularly critical. Over half of the world population suffering from water shortage is located in the Mediterranean region; 30 million Mediterraneans do not have access to drinking water. Water resources are distributed very unevenly: 75% of these resources are situated in the north of Europe (Latin Europe and the Balkans), 13% in the Near East (including 10% in Turkey alone), and only 10% in the southern-shore Arab countries. With only 3% of the Earth's fresh water resources but 7% of the world population, the Mediterranean Basin is an arid region where water has become the new gold that must be preserved or captured, particularly since the population is rapidly growing in the South and water abstraction for agricultural purposes is rapidly intensifying in countries that are already suffering from severe evaporation phenomena, a certain degree of decay in water supply networks and inefficient traditional irrigation methods. The situation differs widely, of course, from one country to another, but in Libya, Jordan, Malta and Israel, where per capita water resources are below 500 m³ per annum (the water poverty line), there are manifest signs of growing pressure. And many States such as Egypt, Syria, Israel and Portugal are very dependent on external sources for water supplies, a fact which is a source of tension if not of future conflict.

Fossil energy endowments (natural gas, coal and oil) are distributed even more unevenly amongst the Mediterranean countries. As far as oil is concerned, Algeria and Libya are net exporters, benefiting from a source of income that is hardly eternal. Algeria is also the leading gas producer in the region, followed by Egypt, Italy and Libya. The situation of countries such as Morocco or Tunisia, on the other hand, is obviously much more precarious. The most developed countries, Italy, Spain and France, consume the largest volumes of energy, although France covers its own needs thanks to hydroelectric power and its nuclear power stations. North-South and South-South disparities are thus very marked when it comes to energy supplies, yet energy is also essential for the irrigation systems needed in many southern Mediterranean countries.

In the field of natural resources action is urgently needed in the following five priority areas:

- improvement of the integrated management of water resources and water demand;
- more rational use of energy and greater use of renewable energy sources;

- an integrated land management policy in response to the pressure exerted by urban development, expanding tourism and the growing transport sector;
- the sustainable exploitation of marine resources;
- the preservation of biodiversity and the simultaneous development of drought-resistant crops.

Science, technology and innovation

The North-South gulf is particularly striking in this field: while the per capita agricultural value added in the Mediterranean countries of the EU is \$18,000, it is \$1952 in the SEMCs, and the gap has been steadily widening. One of the major causes has been the industrialisation of the agricultural sectors in the North followed by the shift to the tertiary sector and the organisation of agro-food chains incorporating all activities from research and development through to production and distribution.

This gulf between the northern and southern shores is worsening as regards the development of information and communication technologies as well as biotechnologies, not to mention the knowledge which allows these technologies to be used to maximum advantage. The major objectives in this field are thus:

- to raise levels of education and to develop the skills that are conducive to agricultural modernisation;
- to develop research and innovation;
- to develop the widest possible access to the information system for the general public;
- to organise integrated food chains and at the very least to co-ordinate the actors in each chain.

Although the southern-shore countries have devoted a very large share of their GDP to expenditure on education, the education provided is unfortunately not always of a high standard and there are marked disparities between countries and regions and of course also between urban and rural areas.

The disparities are even greater when it comes to training and research in the agronomy field. In terms of public research effort, France alone accounts for half of the total capacities in the Mediterranean region. Research enjoys less support in the South and is ill-suited to the current development issues; as a result, it is difficult for the research facilities to become intermediaries of scientific excellence in the context of globalisation.

There are several challenges to be met:

- activities must be developed which provide scientific support for the agro-food sector;
- the skills and know-how of trainers, researchers and the various actors in the industry must be interlinked;

- › investments must be effected in research and innovation;
- › ITC and biotechnologies must be developed, as must the actors' ability to use them to best advantage; this will require considerable efforts to match education and training to market needs.

Dietary patterns and trends in consumption

One cannot but point to the extraordinary diversity of Mediterranean foodstuffs, their nutritional and organoleptic qualities, the sociability they arouse and also that of Mediterranean dietary practices, even though they all claim to represent the famous "Cretan model", which is much praised for its various qualities.

There is, however, a clear trend of relative decline in this "Cretan model" and in the spread/imitation of the dominant dietary model of the English-speaking countries. This trend seems to be attributable to several factors: urbanisation, the fact that women have entered the labour market, the fact that fewer generations are living together, and desocialisation, young people's liking for simplified industrialised food, and a general phenomenon of modernisation and a decline in traditions, including culinary traditions.

Fewer traditional products are being consumed in urban areas since needs have evolved but also because the supply of products is being geared to the international market. Mediterranean consumers are still concerned about the quality of food products from the point of view of health but also of taste, flavour, perfume and the symbolic aspect, which is related to the need for cultural and/or religious identity. In northern-shore European countries a demand for traditional products is emerging to which the food industry is responding to a large extent. These trends are limited in the South, no doubt because distribution networks are weak (except in the case of Turkey).

Clear progress seems to have been made as regards food security in the southern and eastern Mediterranean region, although the situation varies widely from one country to another; this progress is due in part to greater dependency on external supplies, with the risk of exchange-rate volatility that this entails. Undernourishment is still a problem in many of these countries, which, taken as a whole, are becoming increasingly dependent on cereal imports: they import large quantities of cereals for seeds and fodder as well as oil products to cover the food industries' intermediate good needs.

Food safety is declining, on the other hand, due to the prohibitive cost of wholesome products for low-income city dwellers, who are becoming dependent on industrialised products and whose diet is deteriorating. In addition to the obesity problems that are already observed, it is to be feared that a number of diseases will develop in the future such as cardiovascular disease, high blood pressure, cancer, diabetes, etc.

It is thus a major challenge to market traditional Mediterranean products, which are known for their qualities. The large-scale retail trade is developing, but it is supporting imported goods rather than local products, whose production is very sporadic.

Governance in the rural and agricultural world

The States in the southern and eastern Mediterranean and do not have a common agricultural and development policy, unlike the countries in the North, which have been joining forces since 1957. However, irrespective of the mode of intervention selected – whether action is concerted or not – the countries on both shores have been making agricultural support and rural development policies an important component of their public policies since 1950.

Europe and the southern and eastern Mediterranean countries have sought – in different circumstances (the post-war context for some, the decolonisation context for others) and using different levers – to raise production levels in order to enhance their food independence and indeed improve their trade balance. The results achieved through support policies involving considerable subsidisation have differed widely from one shore to the other. Whereas Europe has succeeded in considerably enhancing its production performance while enabling the agricultural population to switch to other sectors, the SEMCs, in a state of demographic transition, have been unable to achieve sufficient improvement. As for rural poverty, while it has been appreciably reduced – though not eliminated – in the North, it is still very present in the SEMCs.

These interventionist models in the North and in the SEMCs have been called in question to some extent since the 1980s. In the northern Mediterranean countries the time has come to revise the CAP, its cost and the growing protest it is facing in the international arena marking the end of a model that is no longer appropriate. Since 1992, agricultural policy has been geared less to production and more to quality. And in the SEMCs, the structural adjustment policies implemented have been the reorientation factors. In order to restore budgetary leeway, the States have had to streamline their intervention mechanisms without completely abandoning public intervention in the agricultural and rural field, and some countries, such as Algeria, have devoted efforts to a policy for reclaiming rural land. It is still uncertain, however, whether the States will be in a position to expend adequate financial resources to support this essential sector.

Alongside the States, infra-state actors are conducting effective action in the agricultural and rural sectors. In the North, inclusion of the agricultural profession, which is often a very organised actor, in agricultural governance is an imperative for both States and the EU. More recently, actors have emerged in the rural world which are also veritable partners in regional development.

In the SEMCs, on the other hand, it produced structures and rural organisations had little presence for a long time. But new agricultural and rural organisations (producer and irrigator associations, unions, chambers of agriculture, etc.) are now emerging and developing and gradually replacing the traditional customary structures; these new organisations can be an important factor of change, and their rapid emergence is conducive to the development of a project and partnership mentality, which is also boosted by the advent of new political elites bringing new initiatives. The future of these organisations is uncertain, however, since their status is often precarious (due in particular to organisational shortcomings and lack of funds).

At the supranational level, agricultural and rural development is now an issue in political relations between the shores of the Mediterranean. As far as trade is concerned, there are of course uncertainties in the Euro-Mediterranean partnership. The competition between the European Mediterranean countries and the SEMCs is obviously inconducive to rapid integration. But environmental co-operation would seem to be on the horizon, at least if the context of urgency in the Mediterranean is given serious consideration.

Launching action

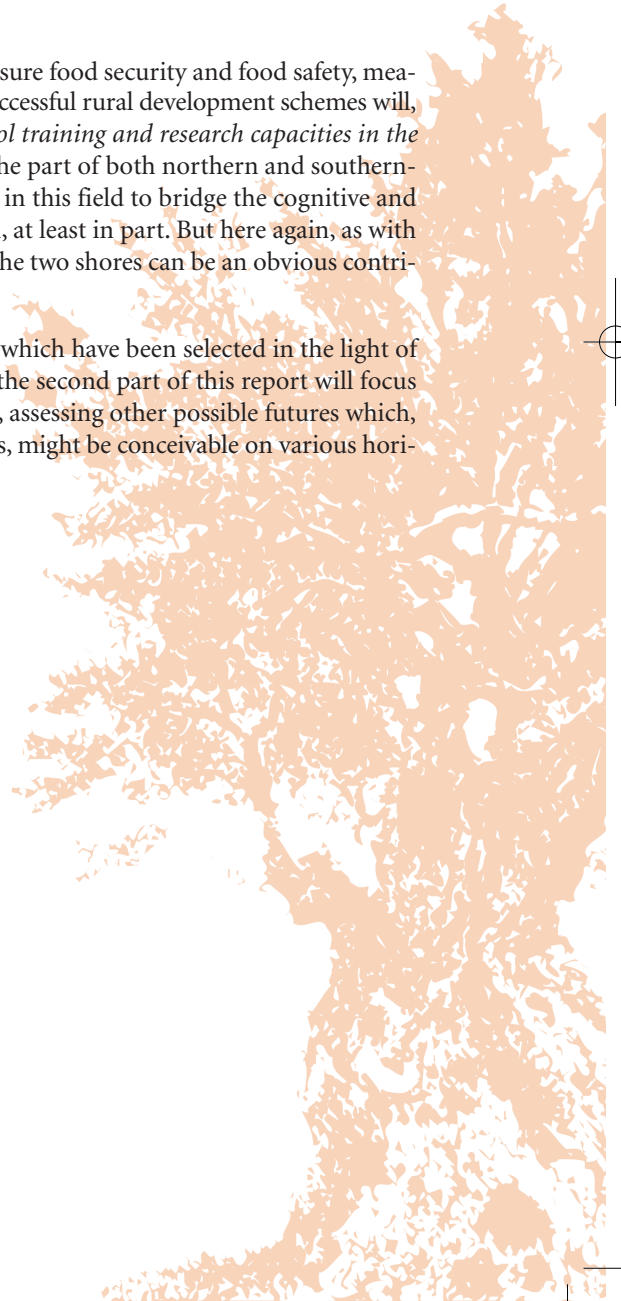
As the focus of the constant intermingling and blending of cultures and the cradle of civilisations, and by the very reason of the diversity of its populations, its cultures, its civilisations, and its landscapes, does the Mediterranean exist otherwise than as the precipitate of all of the problems of the 21st century? Extension of the current trends over the long term yields an ominous scenario, which could even worsen if conflicts multiply. It must be borne in mind that stagnation could set in if the Mediterranean actors at state, infra-state or supra-state level adopt a passive stance on the broader issues underlying the questions of food security and food safety and sustainable development in the various countries. Although they may step up the pace as they move towards an ominous future, now is the time for the Mediterranean actors to envisage a change of course (of which there have been occasional glimpses) towards a model of sustainable agro-food and rural development. That model involves five major challenges.

- The first is to *rationalise the use of natural resources*, which are both scarce and fragile, for it is hardly conceivable that soil and water will continue to be sacrificed as they have been hitherto. Although trend-based forecasts suggest possible alarming scenarios, what has been announced as probable is not yet certain. Assuming that the actors are really mobilised on this issue, it would be rash to imagine that everything will change in the short term. But the Mediterranean region can nevertheless embark on a change of course within a decade, which will subsequently lead to the consolidation of a sustainable model of agriculture.
- *The deterioration of food security and food safety in the Mediterranean region, which has already been confirmed*, must then be curbed. This substantial challenge concerns agriculture itself and agricultural performance, the food industry and its ability to keep pace with demanding standardisation systems, but also the retail trade and commerce, which in certain circumstances can act as vectors in the service of food security and food safety. Through the agricultural policies they implement States are also essential actors in this food challenge, where action also aims to consolidate the Mediterranean diet, which is recognised throughout the world and is a substantive factor of identity for the peoples of the Mediterranean Basin.
- In this geographical zone where producers constitute a large proportion of the labour force it would seem to be of decisive importance to *promote fair pay for farmers*. Behind the actual products there are a multitude of producers whose main difficulty is often that of selling at a profitable price. This presupposes organisational initiatives but also a partnership involving all of the actors in the food chain, from production to distribution. This third challenge of structuring food chains is all the more impor-

tant since, in the new context of globalisation, Mediterranean agricultural products are facing increasingly keen competition, which is damaging for sectors lacking organisation. In this context, the Mediterranean countries could promote food chains which are typical of the region.

- The fourth challenge is to *enable the Mediterranean countries to implement successful policies to promote rural areas*. Promoting food chains means promoting the areas where they operate. The stakes are high in remote areas or enclaves such as certain mountain regions where the range of activities is narrow. More broadly, whereas Mediterranean cities and coastal areas are saturated, greater attention must be devoted to rural areas to forestall rural-urban migration, which would destabilise the South, and/or to ensure the harmonious management of the “desire for country life” in the North.
- Natural resources management, efforts to ensure food security and food safety, measures to develop agricultural products and successful rural development schemes will, of course, require *action to build up and pool training and research capacities in the agro-food sector*. More sustained efforts on the part of both northern and southern-shore Mediterranean countries are required in this field to bridge the cognitive and technological gap between North and South, at least in part. But here again, as with the other challenges, co-operation between the two shores can be an obvious contributing factor in the merging process.

On the strength of these five action priorities, which have been selected in the light of the analysis of the region and of its potential, the second part of this report will focus on exploring the possible and desirable trends, assessing other possible futures which, with certain adjustments, actions and measures, might be conceivable on various horizons and, finally, drawing lessons for action.



2 PART TWO

ACTION PRIORITIES for Mediterranean agriculture and agro-food production in the world of 2020





CHAPTER 7

RECONCILING PRODUCTION AND MANAGEMENT OF SCARCE RESOURCES*

Water, soil and energy are the lifeblood of the agricultural production process. The Mediterranean area, a place of settlement for peoples in transition from hunting to agriculture, clearly underlines human investment in the development of these resources. Hydraulic works from the depths of antiquity, the utilisation of the Nile alluviums and the early use of animal traction bear witness to this ancient search for ways of feeding people and ensuring social harmony.

However, the unprecedented changes sweeping through the Mediterranean (demographic growth, coastal settlement, urbanisation, etc.) and, more generally, of the planet (degradation of the climate, increasing scarcity of energy resources) now call into question the already fragile “soil-water-energy” balance, to the point where the portents for the future look rather bleak. With fossil energy becoming scarce and expensive, how can the agricultural sector and rural areas be developed without at the same time further degrading the soil and water?

On the horns of climatic change and energy shortages

Against a background of environmental urgency, recalled in the last IPCC Report *Climate Change 2007*, but also the looming energy shortage, the Mediterranean is facing a twin danger since its climate and energy supply are both under threat. Neither agriculture, rural development nor food consumption will be spared this gloomy outlook. Agriculture will suffer directly from the rise in energy prices. The most remote rural areas, especially in the South, will be further marginalised by the rising cost of transport. Agriculture cannot be transformed as easily if the energy supply worsens. Conversely, this context will force the Mediterranean countries to make a wholehearted commitment to set their agriculture and rural development on the path to a new green economy of energy saving and promotion of renewable energy sources.

* - This chapter was written on the basis of documents prepared by Nicola Lamaddalena (Ciheam-MAI Bari), Roberta Giove (Ciheam-MAI Bari) and Pierre Blanc (Ciheam-MAI Montpellier).

Clean energy, a major challenge

Renewable energy can undoubtedly solve the twin problem of future scarcity and environmental degradation. In 2007, the European Council put forward the need to base 20% of energy consumption on renewable sources by 2020, but almost all countries are falling behind in achieving this target, with the exception of Germany and Denmark.

Table 1 - Cost of renewable energy

Renewable energy	Average cost €/KWh
Photovoltaic solar energy	0.15-0.55
Thermal solar energy	Depends on type of installation
Wind power	0.03-0.13
Geothermal energy	0.07-0.08
Hydraulic power	0.05-0.11
Biomass	0.05-0.08

Source: *Revue Arpa* (2006); *Nomisma Energia* (2007).

Up to now, renewable energy has not been fully competitive in economic terms. It may become competitive when its environmental and social advantages are matched by the economic benefits or when the negative external impact of other energy sources (greenhouse gases - GHG - in particular) are included in their cost. For the time being, given the production costs from which they suffer, several governments have introduced incentives (financing facilities, subsidies and tax reliefs) to allow a certain return on investment at household, local authority and company level. Of course, this is not without its problems for States which lack the budgetary resources, especially some South and East Mediterranean Countries (SEMC). While increasing renewable energy production depends on support policies, it is above all linked to improving the efficiency of production systems. As this type of strategy, *a priori*, risks isolating the countries which produce fossil fuels, pilot projects initiated by Medrec (the Mediterranean Renewable Energy Centre), formed in Tunis in 2004 under the Medrep initiative (Mediterranean Renewable Energy Programme), and to which major oil producers such as Algeria, Libya, Egypt, Tunisia and Morocco belong, seek to base electricity supplies to isolated rural populations, tourist areas and irrigated zones primarily on renewable sources.

The potential for development of solar, wind and hydro-electric energy in the Mediterranean is considerable. Due to the high level of sunshine, photovoltaic panels and solar panels offer obvious possibilities, and would be way of alleviating the low level of electrification of rural areas. With a low environmental impact and requiring little maintenance, they nevertheless have a still very limited conversion and storage capacity. Studies are under way, however, to improve the efficiency of the cells and control the costs of equipment.

Thanks to its constant technological development, wind power is the cheapest renewable energy. According to the International Energy Agency (IEA) in 2004, its costs had fallen by 30 to 50% compared with the 1990s, which would go some way to explaining its advance. According to studies under the Euwinet project, it has been growing in Europe by some 35%, with 75% of this energy being produced by countries of the European Community. Spain is by far the most committed to this type of production, and among the SEMC, Morocco, Tunisia and Egypt also have areas of major development. Meanwhile, hydro-electric power is one of the most widespread natural energy sources in the Mediterranean Basin, with a real potential for development in countries which have plenty of watercourses. The power stations are often old, but can still be upgraded from the point of view of output and environmental impact. The lack of sites suitable for dams nevertheless limits the development of this energy. Since 1990, Turkey has been an exception with the GAP (*Güneydoğu Anadolu Projesi*, project which is designed to allow socio-economic development in South-East Anatolia). With 22 dams on the Tigris and Euphrates rivers, the country should double its electricity output. Lebanon also has clear room for manoeuvre since work on dam building has been limited up to now, despite the presence of numerous sites in this highly mountainous country.

Pluses and minuses of biofuels

Biofuels are increasingly presented as a panacea in the face of the energy shortage and climatic deterioration. Yet the idea is not really new, since Nikolaus Otto, inventor of the internal combustion engine, had designed it to run on ethanol, while Rudolf Diesel ran his internal combustion engines on groundnut oil.

Bio-ethanol is the most commonly manufactured. It is obtained from fermentation of agricultural products rich in sugar and starch, such as sugar cane, sugar beet, sweet sorghum, durum wheat, soft wheat, barley, maize, certain types of fruit, potatoes and grapes. The product is now widely used for vehicles in Brazil, a country which, in the new energy paradigm, is seeking to play a major role on the international scene relying on its land resources to supply it. As a mixture or even in its ether form (ETBE), it may be used pure or in very high concentrations but then needs a specific adaptation of the vehicle. It will generally be used, therefore, at lower contents between 5 and 10%.

Biodiesel is obtained by extracting vegetable oils from rape seed, soya or sunflowers. Compared with normal diesel, it reduces carbon dioxide emissions by 78% and, because it does not contain sulphur, has the advantage of not releasing any oxides of sulphur. Its only disadvantage is the considerable production of nitrogen oxide which could possibly be eliminated by new technology. The Eurobiodiesel project, financed by the EU, has shown that biodiesel can be used without any problems as a fuel for tractors, buses and cars.

Biogas is by far the least produced. Primarily manufactured in Sweden, it can be used as a fuel in thermo-electric power stations or in means of transport. By methanic fermentation of a tonne of biomass (organic animal matter or sugar-rich vegetable matter), it is possible (depending on the quality and nature of the organic matter) to obtain 70 to 150 m³ of biogas (mainly bio-methane) which can produce up to 190 KWh of electricity.

Lagging far behind Brazil and the United States which are the largest producers of bio-ethanol in the world (some third of world production each), in 2005 the EU contributed some 10% of world production of bio-ethanol (or about 800,000 tonnes). Europe, however, is the largest world producer of biodiesel (75%), production of which is also rising in many regions of the world. The SEMC have not embarked on this energy substitution policy. Agriculture destined for biofuels can be adapted to the northern shore, if it takes account of the impact on the environment and forestry and does not neglect the food aspect. It cannot be applied in countries which already suffer from problems of desertification, land deficit and water poverty or shortage.

The European countries are increasingly promoting the benefit of biofuels to limit greenhouse gas emissions and to minimise energy dependence. In February 2006, the European Commission adopted a strategy which envisages a series of market-oriented measures in the legislative and research fields, designed to encourage production of biofuels from agricultural raw materials. According to the Commission, the increased use of biofuels would have many advantages, in particular reduced dependence of Europe on fossil fuel imports, limitation of greenhouse gas emissions, new outlets for farmers, and new economic opportunities for certain developing countries (European Commission, 2006).

A priori, the production of biofuels can limit GHG. The CO₂ released by their combustion corresponds to that which has been captured from the atmosphere by photosynthesis. However, to this neutral carbon balance must be added the “field-to-wheel” emissions related to the use of fertilisers, transport and transformation of products.¹ The biofuel manufacturing process itself can be highly energy consuming, as the manufacture of fertilisers, irrigation and transformation absorb not inconsiderable quantities. Estimates of energy savings and GHG are very varied. It is known, however, that ethanol made from Brazilian sugar cane is more beneficial in terms of GHG than American ethanol made from American maize. The future of biofuels probably depends, at least in part, on the advantages shown by these estimates.

Other problems have been suggested. Environmentalist associations often point to the deforestation which precedes the growing of biofuel crops in the major biofuel producers (Brazil, Indonesia), as well as the huge needs for irrigation required by such crops. Although other factors play a part (especially recurrent drought, population growth, suppression of export subsidies) there is equally no doubt that turning land to non-food production has contributed to the recent rise in agricultural commodity prices. Experts recently observed that “the current push to expand the use of biofuels is creating unsustainable tensions that will disrupt markets” (Doornbosch and Steenblik, 2007). In this regard, second generation biofuels, based on so-called “lignocellulose” resources (i.e. structural tissues of vegetable organs) seem to offer evident guarantees since they are crop residues (straw, grass) or forestry output. But these branches have not yet reached the industrial stage.

¹ - According to Paul Crutzen (Max-Planck Chemical Institute, Mainz, Germany), Nobel Laureate for Chemistry in 1995, nitrogenous fertilisers would be converted in the soil into nitrogen protoxides (N₂O) in larger quantities than the 1% adopted by the IPCC. Given the high propensity of this gas to contribute to the greenhouse effect, it would considerably add to GHG in intensive production of biofuels. Notably, he published an article on this subject in the journal *Atmospheric Chemistry and Physics Discussions*.

Second generation biofuels

There has been much research into the transformation of vegetable lignin and cellulose (straw, wood) into alcohol or gas. The transformation technologies (enzymatic, e.g. enzymes of the bacteria from termite stomachs, or thermochemistry, combustion, gasification, pyrolysis) are rather complex, hence the delay in their industrial application.

Among second generation biofuels, micro-algae offer the most interesting prospects, both in terms of energy yields and the saving in land. Micro-algae have to be grown with a CO₂ concentration of about 13% the source of which may vary widely (coupling with a coal-fired thermal power station or an alcohol fermentation unit, for example). The overall carbon balance and the sustainable character of the chain thus depends on the source of CO₂ used. Coupling the cellulose ethanol chain with the micro-algae chain thus has a future in terms of sustainable development.

Farmers could have an interest in producing certain plants such as miscanthus. With a very good yield in dry matter which can be transformed into biofuel, this perennial plant is also economical in nitrogen and water and needs little treatment because it has few natural enemies.

While the development of the first generation chains is a response for Europe and its farmers, it might not necessarily be the best understood approach in the South Mediterranean, in particular in the oil-producing countries. This strategy may, indeed, be seen as a way of escaping the energy domination of certain Arab countries while imposing a rise in the price of cereals of which they are often big importers. The prospect of disputes forces the countries of the northern shore and, more broadly, Europe, to accompany these initiatives with information aimed at the South. More probably needs to be done. As with other resources, water and soil especially, Mediterranean cooperation is necessary to escape the old "energy paradigm".

Adapting agricultural practices

The climatic changes and unprecedented trends in energy supply mean that agriculture is not immune to the need to change its practices. In France, the challenge is considerable, since 18% of GHG are produced by agricultural activity.²

To prevent excessive release of carbon, it can be better stored in the soil by not leaving land fallow, correctly ploughing in crop residues, practising tillage pass, converting agricultural land into permanent pasture or by grassing spaces between rows of fruit trees or vines. Conversion is not always necessarily a winning solution. While meadows are desirable because of their better carbon retention, their growth means that the number of animals using them increases, and animals release large amounts of methane. The type of pasture also has an impact on GHG, and the trade-off is not always simple from this point of view. A permanent meadow gives a better GHG balance than a temporary and intensive one which demands more fertiliser. However, an animal will give off less methane if its food is rich, which is more likely with intensive pasture. The research must therefore take into account the entire animal-pasture system, analysed in terms of GHG and energy expenditure.

2 - Inter-ministerial mission on the greenhouse effect.

In the particular case of water, micro-irrigation optimises water consumption and allows substantial energy gains because it only needs low pressure (1 to 2 bar). With variable speed lift pumps instead of constant speed pumps, additional energy savings of around 20% can be envisaged. Far from being anodyne, this type of saving should be promoted in the Mediterranean, because of the high cost of pumping in the majority of irrigated systems there (in Morocco, for example, it accounts for 60% of the total cost of the water).

Food consumption cannot be left out of the equation. If it becomes widespread, the shift towards more beef and milk in food intake can be catastrophic from the point of view of GHG emissions and energy expenditure. While agricultural activity cannot be impugned since its job is to feed people, the western food model which is calorie-intensive and generates large amounts of GHG can, nevertheless, be called into question. The Mediterranean food model, with less animal protein, could be a desirable response in promoting in the new energy and environmental paradigm.

Saving water: a vital challenge

In a Mediterranean region characterised by low rainfall, at least on the eastern and southern shores, the volume and quality of water are under threat. Many coastal countries suffer from water poverty and signs of growing pressure abound in the Mediterranean. The search for a balance between demand and availability, through general short and long-term strategies, is undoubtedly the most important challenge in the case of water resources. Forecasts suggest that, by 2020, the population will increase and that irrigated areas will continue to spread. Against this background, increasing the efficiency of water management is more than necessary, from its distribution to irrigation methods, not forgetting evaluation and controls. Only a multi-faceted approach to achieve this objective will do. Apart from a necessary improvement in methods, it probably means changing social and political attitudes if the resource is to be sustainable. It is in the agricultural sector, by far the thirstiest for water, that efforts must essentially be focussed.

Supporting new forms of supply

The supply policy, based on supply of water from large dams or massive pumping systems in the water table, is the subject of more or less justified criticism, sometimes forgetting that it has brought social and economic progress. Where would Egypt's economy be without the Aswan Dam? Nevertheless, the era of the first water revolution seems to be coming to an end because its limitations are now quite evident, as is illustrated by the overpumping of resources in the fossil strata in Libya, Egypt and Tunisia. Far fewer large dams are being built, even if a country like Turkey, which was lagging behind, managed to build 22 large dams in the GAP project. Structural adjustment policies also undermined the policy in the Maghreb of developing large works which no longer entirely meet the demands of agricultural systems in thrall to vast changes. For example, the development of these systems, conditioned by trade liberalisation, now demands a flexibility in the distribution of water which large water developments implemented by centralised policies do not encourage. This in part explains the development of small and medium-sized water systems based, in particular, on individual pumping installations

Reconciling production and management of scarce resources

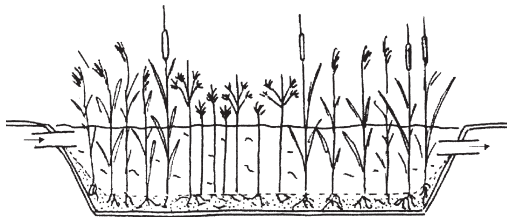
which can use new technology (electrification, submersed pumps...). Meanwhile, it is becoming more and more difficult for public authorities to control water capture, which increases tensions between the actors, and the anarchic pumping practices contribute to the lowering of the water table.

Irrespective of the scale of projects, the supply of water (from dams, transfers or pumping) can lead to environmental imbalances. This is particularly true of the Nile (silting of the delta, disappearance of fish and salination of the river upstream from the dam). In the absence of effective drainage systems, irrigation water dissolves salts which then rises in the soil by capillary action (for example, in Syria). This salination is sometimes more immediate when the pumping takes place in the coastal strata where the fall in the piezometric level leads to penetration by sea water (Cyprus, Gaza, Libya). The supply policy is also burdened by the costs which it generates and which tend to rise the greater the distance between the resource and the users. Before it was decided to suspend the National Hydrological Plan (PHN), the projects for the transfer of water from the Ebro to the southern basins was costed at 4.5 billion euros.

New approaches are open to the Mediterranean, albeit more modest in terms of volumes supplied. The recycling of waste water in agriculture looks quite promising. Already practised in many Mediterranean countries such as Cyprus, Jordan, Tunisia, Egypt and Israel, it nevertheless needs to be improved. From an environmental point of view, this method offers a major advantage: as the majority of the nutritive elements (nitrogen, phosphorus and potassium) are absorbed by the crops, the recycling of waste water to the rivers and lakes reduces the risk of eutrophication, while limiting the use of chemical fertilisers. With the presence of dangerous elements, such as heavy metals, a sound regulatory framework for these methods needs to be put in place. In many countries, the standard applied is so restrictive that it makes the cost of purification prohibitive for farmers.

In the particular case of rural housing where, very often, connection to the public sewerage system is not possible, phyto-purification systems can be used to eliminate waste. These biological type treatments are based simply on the purification capacity possessed by certain plants, such as the common reed. Now adopted in many countries, in particular the United States for irrigation of golf courses, phyto-purification systems are not expensive and only require limited maintenance which can be done by nonspecialist staff. Their operation does not need large quantities of energy. Solar or photovoltaic panels can suffice. If the units are well designed, they give an almost total reduction in the pollutant content and considerable water recovery. Where the basins are not made properly impermeable, the aquifer can be polluted.

Figure 1 - Example of a phyto-purification installation



Among non-conventional resources, the process of desalination of sea water or brackish water also offers interesting prospects. There are already over 12,500 desalination plants in the world, with a variety of operating systems: Multi-Stage Flash (MSF), Multi-Effect (ME), Reverse Osmosis (RO), Nano Filtration (NF), etc. Bearing in mind the high energy requirement of these units and the arid character of their climate, it is not surprising that over 43% of world production of desalinated water is concentrated in the Arab Gulf States. Almost all the available fresh water is produced by desalination plants (the town of Jeddah in Saudi Arabia has the largest plant in the world with production of around 250,000 m³ of water per day). For its part, Algeria is preparing to build two major desalination plants by 2009. The first, one of the biggest in the world, will be able to provide 500,000 m³ of drinking water per day to the whole Oran region. The second, in Oued Sebti, 100 km from Algiers, will produce about 100,000 m³ per day.

The development of this type of technology has allowed the building of increasingly efficient plants and a reduction in production costs to 0.49 euros per m³ of water, although this is hardly enough, as it is still 4 to 9 times higher than the normal price. As can be seen in table 2, the factor which most influences the final cost is energy, consumption of which depends on the degree of salinity of the water and the type of fuel used.

Despite the high costs, this method seems to be effective for countries where the water deficit is worsening year on year. Above all, it has become a challenge for research which must make it more competitive. Researchers at the Lawrence Livermore National Laboratory (LLNL) are experimenting with new technologies which could reduce the cost of desalination by 75% using new membranes. According to Jason Holt, chemical engineer at LLNL, they could, in reverse osmosis processes, be available on the market in five to ten years. The research must also find ways of making the method more sustainable. The use of clean energy instead of fossil fuels, and especially the use of photovoltaic energy and wind power could be a solution in the future. For the time being, however, managers of desalination plants have little interest in investing in renewable energy due to the additional cost it represents compared with fossil energy.

Sea water, Israel's road to salvation

In the early years of the 21st century, Israel embarked on a long-term plan for the construction of several desalination plants along the Mediterranean (see table 3). According to forecasts by the Water Commissariat, desalination of sea water should provide 350 million m³ by 2010, half the country's domestic consumption. In Israel, desalination does not only involve marine waters. Brackish waters are also desalinated and reused in agriculture.

Israel has thus forged itself a world reputation by developing state-of-the-art technology to produce fresh water from sea water. R & D work is now reducing the cost of desalination, while improving the quality of the water produced. Israel has therefore become a world power in water treatment and some observers already think that the country is on the way to becoming the *Silicon Valley* of water technologies. Proof of this is the Ashkelon desalination complex which is the largest and most modern in the world.

Source: Bendéjac (2006).

Table 2 - Cost of desalination in the Mediterranean countries³

Type of installation	Salinity of marine water (ppm or mg/l)	Cost of installation € million	Cost of energy (electrical + thermal) €/m ³	Cost of maintenance €/m ³	Total cost of desalination €/m ³	Impact of cost of energy (%)
MSF	30,000	190	0.58	0.02	0.66	88 %
ME	30,000	170	0.4	0.03	0.51	78 %
RO	30,000	140	0.23	0.08	0.49	47 %

Source: Data from Fisia-Italimpianti gruppo Impregilo, 2006.

Side by side with these desalination methods which, because of their cost, can only be used for drinking water consumption, the use of drainage water is another non-conventional source of water, in this case for agricultural use. Sadly, this often polluted and highly saline water is already used untreated. In Egypt and Syria, it is the chief cause of the growth in the concentration of salts in the soil. Apart from the decline in soil productivity, this water can put food security at risk. For all these reasons, the challenge here is to introduce simple treatments which can ensure a minimum water quality. It should be noted, for example, that Jordan, a country exposed to the most serious water stress in the world, has already resorted to this method with some success.

Promoting technical demand management

All sectors can contribute to saving water. In the domestic sector, merely inserting “flow reducers” in taps can give water savings of up to 50%. Studies in Brazil have shown that all that is needed is to regulate operating pressure during the day, depending on consumer demand (special valves automatically adjust the pressure by means of a control device) to reduce losses of drinking water in aqueducts and damage to distribution networks and inside houses. Without detracting from the importance of these savings, it is the agricultural sector above all which has serious scope for savings, especially in the countries in the South of the Basin where irrigation absorbs some 80% of the available resources. The prospects held out by certain irrigation technologies are encouraging and can very rapidly have positive effects on the other sectors. Reducing water used in agriculture by just 10% can double its availability for drinking or industrial use. At a time when irrigation is still often dominated by water guzzling methods, such as gravity irrigation, the spread of economical methods can lead to considerable water savings. Three irrigation systems predominate in the Mediterranean: sprinkler irrigation, micro-irrigation and subterranean irrigation.

- Sprinkler irrigation simulates the effect of rain by spraying water evenly over the ground. It is applied to crops by mobile, semi-fixed or fixed systems which spray water over a distance of up to 70 metres thanks to pressures ranging between 3 and

³ - The data are available on the website: www.water.treatment.unige.it

Table 3 - The Israeli desalination programme

Desalination sites	Annual water production (millions of m ³)	State of project
Ashkelon	100	In operation
Eilat and Dead Sea	35	In operation
Palmahim	30	Under construction
Hadera	100	Feasibility study stage
Shomerat	30	Feasibility study stage
Ashdod	45	Planning stage
Other	10	Planning stage
Total	350	

Source: Water Commissariat, Jerusalem.

5 bar. This method is only 80-85% efficient. The wind exerts a considerable influence not only on the distribution of the water but also causes the water droplets to break up, thus causing serious losses from evaporation, especially during the summer months. Another disadvantage is that the pressure requires considerable energy. This problem can be resolved, however, in areas where the topography allows collection tanks to be placed high above the areas to be irrigated, thus avoiding the need for pumping stations and ensuring adequate irrigation.

- Micro-irrigation is more economical. It consists of supplying water to the zone close to the roots or where it is needed. This avoids the need to water the entire surface of the land and reduces losses from evaporation. Thanks to the limited contact of the water with the soil, and with the aerial part of the plant, this type of irrigation allows the use of non-conventional water, including waste water. Despite its advantages, localised irrigation is only economically viable in the case of high-value cash crops. It is well suited to fruit trees (vines, olive trees, fruit trees, etc.), horticulture and nurseries, and can achieve much higher distribution efficiency than sprinkler irrigation, over 90% when installations are well built and properly managed with frequent irrigation and volumes of water strictly limited to the needs of the crop.
- Subterranean irrigation through discharge nipples or porous tubes laid 30 centimeters under the ground has numerous advantages. It is technologically simple, it is highly efficient and requires an operating pressure which may be less than 1 bar. However, while the initial investment is rather modest, the system requires considerable maintenance as solid particles or roots can infiltrate the nipples. In order to reduce these problems, tubes made of "Poritex", a geotextile material with special characteristics, are used both for surface micro-irrigation and subterranean irrigation.

Due to the costs involved, the use of any of these systems is not always commonplace. On the southern shore, these installations are prohibitive given the low agricultural incomes of most farmers. In Syria, where sprinkler irrigation costs between 3,500 and

Table 4 - Comparison between different irrigation systems

Characteristic	Irrigation system				
	Poritex	Drop-by drop	Micro-sprinkler	Sprinkler	Surface
Distribution	Linear exudation	Localised drops	Localised rain	Rain	Flow
Pressure (bar)	0.2 ÷ 1	1 ÷ 2	2	3 ÷ 5	-
Difficulty of installation	None	Little	Average	Average	None
Filtration	Simple	Complicated	Normal	Low	None
Wind	Not applicable	Little effect	Perceptible	Perceptible	None
Evaporation	Low	Average	High	High	Very high
Fertigation	Yes	Yes	Possible	Not advised	Not possible
Percolation	No	Little	Little	Average	High
Maintenance	Low	High	Average	Average	None

5,000 euros per hectare, and drop-by-drop between 3,000 and 4,000 euros per hectare, the annual amortisation charge can be the same as the marketable production per hectare. The difficulties of adopting this type of installation combined with the lack of specialist engineers often compounds these economic problems. Nevertheless, some countries have made the change on a massive scale. In Jordan, the decision to modernise the irrigation systems in the Jordan valley was taken in 1990 and the shift from a system of distribution by gravity channels to a subterranean pressurised system was completed in 1996. Without making this country, with its extreme shortage of water, a model to be followed, it seems clear that the Mediterranean cannot do without these types of irrigation. In this field, cooperation between the countries of the South and the North, where these methods are well developed, is more necessary than ever.

Despite the efficiency and economical character of these methods, surface irrigation is still the most widely used in the Mediterranean today, especially by small farmers, as the hydraulic equipment required is basic, to say the least. Starting from the assumption that this form of irrigation which is cheap but wasteful of water will continue in the coming years, a series of improvements have been devised (furrows, levelling of the land, etc). However, they also require an enormous initial investment and constant maintenance and, here too, their use by farmers still requires various forms of subsidy and/or incentive.

The Mediterranean climate, characterised by long dry periods, allows the use of aridoculture and elimination of irrigation by maximising the efficiency of precipitation. Thanks

to a series of soil improvements, evaporation from clay soils can be reduced by 70%. Likewise, the practice of reducing irrigation cycles can improve the efficiency of sprinkling. Rather than organising long watering cycles with copious irrigation of each plot, it appears to be more effective if the watering cycles are more frequent but less copious. The humidity is thus better distributed, which can save 25% of the quantity of water for the same result. Innovations also include the deficit irrigation method which consists of supplying crops with a minimal quantity of water rather than the optimal dose. In countries with low water availability, studies of this type of irrigation have given satisfactory results, especially for fruit trees (e.g. vines and olives). Research in this field should be encouraged, as is already the case in the EU with the DIMAS project.⁴

Genetics can be an important ally. In Tunisia, the genetic improvement of cereals concerned the search for earlier varieties which ripen earlier in the season and thus avoid an excessive period of drought. As they are not so tall, they are also less prone to disease. These varieties (in particular the Khir 92 variety of durum wheat and the Inrat 69 variety, a cross with a local variety, Mahmoudi, and the Cypriot variety, Kyperounda) have led to a real growth in yields and production without, however, additional sowings or irrigation.

Lastly, one should not lose sight of the necessary progress in the efficiency of delivery systems, both for drinking water and irrigation, the first step in rationalising the use of water resources. In some countries, losses from pipes often exceed 50%. It should also be emphasised that micro-irrigation, sprinkler irrigation and sub-irrigation can give rise to losses if the networks are poorly constructed or if they are not properly managed. It must be admitted that, despite the efforts and financial resources employed, the performance of irrigated distribution systems (even pressurised systems) has fallen short of expectations throughout the Mediterranean Basin. The inadequate supply in terms of outflow and pressure at delivery points for customers (hydrants) can impair the uniformity of distribution of water on irrigated plots.

Demand management as core policy

Reducing water loss in agriculture is not just a matter of modernising installations or adapting better methods. Government policies can play a pivotal role in the pursuit of water savings and influence the production choices of a sector which, in the Mediterranean, can represent 80% of water consumption. Unfortunately, according to the WWF, EU subsidies and national governments discourage crops which require less water on the northern shore, such as olives and citrus fruits, while encouraging irrigated crops such as maize and sugar beet. This phenomenon, already a feature of the Arab countries, is aggravated by inefficient irrigation methods. More than ever, it is necessary to look again at subsidies for irrigation in water-starved areas, taking account of the water needs of crops, expressed in terms of “virtual water”.

4 - DIMAS (Deficit Irrigation for Mediterranean Agricultural Systems) is a project being carried out with the collaboration of the Farmers for the Improvement of the Capitanata Region Association (Italy), the University of Cucurova (Turkey), the Agricultural University of Athens (Greece), the National Agronomic Institute of Tunisia (Tunisia), the University of Jordan, the National Agronomic Research Institute of Tunisia (Tunisia), the Hassan-II Agronomic and Veterinary Institute (Morocco) and the Mediterranean Agronomic Institute of Bari (Italy).

In future, decision-makers in the Mediterranean countries must incorporate this notion of virtual water in trade if they want to reduce the pressure on water resources. J. A. Allan has shown that in water-deprived areas, water wars were avoided thanks to trade in agricultural goods and amounted to virtual transfers of water from the exporting countries to the importing countries. The water needed in the production process varies, depending on the type of plant (cf. table 5) and animal species. While the concept may seem quite simple, measuring virtual water is very complex. In plant production, the quantities incorporated (*embedded water*) in a production process differ from one climate to another and from one variety to another. In the animal field, the variability in volume is also very large. The quantity of virtual water needed depends on the climate, which determines the animals' level of water consumption, and also on feed intake. To accommodate this variability, median estimates are taken.

Table 5 - Water needs for certain crops in Apulia (Consorzio per la bonifica della Capitanata)

Crop	Type of irrigation	Period of irrigation	Seasonal water* needs (m ³ /ha)
Artichoke	Sprinkler or micro-irrigation	July-June	6,000
Sugar beet	Sprinkler	March-July or October-June	4,000-5,500
Industrial tomato	Micro-irrigation	April-August	4,000-5,500
Maize	Sprinkler	May-August	4,000-5,500
Sorghum	Sprinkler	May-August	3,000-4,000
Peaches	Sprinkler	April-June	3,000
New potatoes	Sprinkler or micro-irrigation	January-May	3,000-4,000
Green beans	Sprinkler or micro-irrigation	May-July	3,000-4,000
Lettuce	Sprinkler or micro-irrigation	October-November and February-March	1,800-3,000
Vine	Sprinkler or micro-irrigation	April-August	1,800-3,000
Sunflower	Sprinkler	April-August	1,800-2,600
Olive	Micro-irrigation	May-September	1,000-2,000
Soft wheat	-	-	Irrigation de secours

* These values are closely linked to the characteristics of the soil, the method of irrigation and market demand.

Given the highly variable needs of production, countries with water shortages have every interest, *a priori*, in producing dry vegetables and importing cereals and meat. However, as meat generates a high added value and it is primarily the cereals contained in feeds which raise the virtual water of a kilogram of meat, one may well wonder if it would not be possible for an arid country to import cereals and transform them there. This seems to be Tunisia's view.

If the Mediterranean countries take account of this virtual water, the subsequent productive specialisation of each shore and its clear socio-political implications must be monitored. The prospect of a trade in virtual water must be integrated in intra-Mediterranean agricultural trade which up to now has been little marked by the seal of cooperation. More than ever, Euro-Mediterranean populations are duty bound to promote an adequate framework for their agricultural trade. Water is a problem for all Mediterranean peoples, on all its shores. It must therefore be a major theme of the Euro-Mediterranean debate.

When it comes to governance of water, the integrated management approach seems destined to spread since it is not only a way of preserving the resource, both in quantitative and qualitative terms, but can also ensure broader access while safeguarding aquatic ecosystems and biodiversity. The geographical unit best suited to such management is the catchment basin which is a hydrologically closed space, i.e. no flows penetrate from outside and all excess precipitation evaporates or flows towards the same outlet (e.g. a river).

The time is also more than ever ripe to consolidate associations of water users. In many Mediterranean countries, irrigation systems managed by them are more efficient than those managed by central agencies even if the latter still have to exercise overall supervision over the activities. The creation of groups of irrigators does not get rid of disputes between farmers. As, in the Mediterranean, farms served by distribution networks are often small (one hectare or less), a single hydrant serves several farms which may dispute the volume shared. As well as being a challenge at international level, the sharing of water also affects very small areas. Against a background of shortage and exacerbation of disputes, some countries have introduced measures to prevent social tensions. In Apulia, a new system has been tried in the last few years with evident success. In water distribution cooperatives where the water is supplied under pressure, the amount taken by each customer of the cooperative can easily be measured by means of an electronic card which is inserted in the hydrant. Once the allocated amount of water has been delivered, the customer can apply to the manager to obtain a further quantity if, of course, it is available. For the system to operate properly, the role of the managers is, of course, crucial. It should be noted that the cost of this installation is comparable to that of the traditional installations currently in use.

Management of water consumption also involves the application of tariffs to ensure that the actors behave responsibly. Apart from the fact that it allows recovery of the costs of collection and supply of water, several experts emphasise that the most efficient way of avoiding water losses in agriculture is to apply tariffs which discourage excessive consumption and, consequently, maintaining inefficient irrigation systems. In reality, in many cases, this has not always had the desired effect. The policy can, in fact,

Reconciling production and management of scarce resources

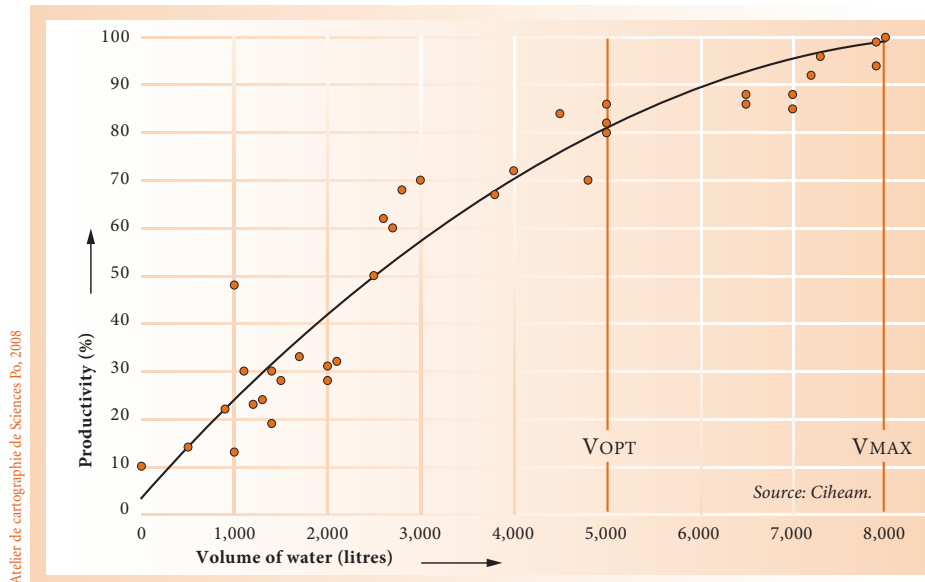
drive farmers to abandon land or, worse still, use water from other sources, sometimes to excess, rather than take it from the cooperative installations. This tariff system in part explains why Spain has some 510,000 illegal wells, Italy 1.5 million (300,000 in Apulia alone), and Turkey 50,000 wells just in the Konya Basin (Isendahl *et al.*, 2006).

Despite this limitation which underlines the importance of a water policy, a system of tariffs should not be abandoned. Tunisia provides a fine example of success in this regard. In that country, the trend is towards a gradual annual increase in the price of water, both in irrigated areas and in community water supply networks. The objective of progressively encouraging water savings is clearly stated. The reduction in consumption is all the more remarkable in that it is not necessarily accompanied by a fall in agricultural production or general activity. This increase in the price of water therefore gave rise to a healthy response in the form of investment to improve the profitability of the use of the resource: more effective irrigation methods, renovated water networks, awareness among various users and changes in behaviour, etc.

In general, it seems preferable to apply tariffs based on volume with progressively rising thresholds. FAO is much in favour of threshold-based tariffs, the threshold volume being the minimum volume allowed to meet the water needs of the crop. This system could be used for water drawn from aquifers related to the maximum low-water volume and the speed of replenishment. With these tariff thresholds, the chief objective is to maximise farmers' incomes and not production. In return, farmers try to make water savings because they offer an economic benefit (Chart 1).

Water geopolitics: the Mediterranean case

Water is becoming scarce in the Mediterranean and sharing it sometimes leads to disputes. Unfortunately, international law does not really provide an adequate framework for the settlement of disputes. Theories on water rights have emerged on the question of the cross-border use of water. It has to be observed, however, that they are obviously projections of national interests. Absolute territorial sovereignty or the Harmon doctrine, named after an American judge called on to rule on the crisis between Mexico and the United States at the end of the 19th century, emphasises the geographical position. In order to irrigate land in the South-West, the United States began diverting the waters of the Colorado. This was condemned by Mexico in 1895, claiming that the user rights of the Mexican farmers pre-dated those of the North Americans. The American Government presented its argument inspired by Harmon that the fundamental principle of international law is the absolute sovereignty of each State, against all others, over its territory. The jurisdiction of the State over its own territory is necessarily exclusive and absolute. Its only limits are those it imposes on itself. As the converse of this theory, one finds that of absolute territorial integrity, whereby each state must allow a river to follow its course. In the Nile Basin, Egypt used this argument to assert its rights over a disputed river. The principle of prior appropriation also originates in North America, since it was conceived to assert the ownership rights over water of the prior user who developed it. Implicitly evoked by States such as Syria, Iraq and Egypt in the name of very ancient exploitation of the waters of the Nile and Mesopotamia, it is also invoked by Israel on the pretext that the first Jewish settlements had exploited the waters of the

Chart 1 - Productivity curve for a generic crop

West Bank aquifers. None of these three doctrines has been enshrined in international jurisprudence. It is on the basis, one may imagine, of their own interests that States opt for a particular legal doctrine. The upstream countries refer to the Harmon doctrine, still called “absolute territorial sovereignty”, while the countries downstream have agitated for the principle of absolute territorial integrity or prior appropriation.

One international right has nevertheless emerged as a compromise between these positions, notably the Convention on the Law of Non-Navigational Uses of International Watercourses, adopted by the United Nations General Assembly on 21 May 1997, reflecting the will to establish homogeneous and coherent legal principles to alleviate the multiplicity of conflicting legal theories. In 1970, the United Nations General Assembly recommended that the International Law Commission should take up “the study of the law of the non-navigational uses of international watercourses with a view to its progressive development and codification”. The principle adopted by the Commission’s lawmakers was that of the “reduced territorial sovereignty principle”. The State is free to conceive projects to exploit water flowing through its territory, but must endeavour not to harm the interests of other riparian countries along the same watercourse and its tributaries. The text also defends the catchment basin approach centred on three basic principles: “utilization in an equitable and reasonable manner” (article 6), “obligation not to cause significant harm” (article 7) and “obligation to cooperate” (article 8). It allows wide scope for interpretation and may encourage differences of analysis. Countries that lag behind in developing their river (Ethiopia and the Nile, for example) can invoke article 6, while others rely on article 7 stipulating the prohibition on causing harm, for example those who have developed the watercourse before the others, such as Egypt, Syria and Iraq, which tend to be downstream.

Reconciling production and management of scarce resources

The Convention sets out other principles such as the obligation to share data and inform about actions which may change the watercourse, for example, in the case of closing of a dam in order to fill it, a principle which is more honoured in the breach. Above all, it highlights the need for cooperation in the case of a shared catchment basin. Indeed, and bearing in mind the very woolly wording, this aspect seems to be the best approach to a solution in the case of disputes between riparian States. As water management is not a zero-sum game, they no doubt have much to gain by managing the same catchment basin jointly and incorporating the needs of each in a truly transparent manner (the riparian countries of the Senegal River have already done this). In the Mediterranean, where rivalries for access to water resources are sometimes keen (as in the Euphrates Basin or the Jordan Valley), this approach is inherently more difficult. However, cooperation encourages solidarity and lays the basis for strengthening political partnerships.

Observing, planning, legislating: three challenges for the protection of Mediterranean soils

Currently, only 13% of the soils of the Mediterranean can be considered suitable for agricultural use, the remainder being shared between pasture, forest, scrub, urban areas, rocky areas, plains and deserts. This situation is the consequence of the rapid changes since the 1950s with, on the one hand, intensification of agriculture allowed by irrigation and, on the other, sometimes massive urbanisation of rural areas which accelerated the degradation of the soil exacerbated by lower precipitation and longer periods of drought. Much land began to be afflicted by a process of desertification, defined as the loss of soil productivity and withering of the plant cover in dry zones rather than the advance of the desert.

Fortunately, knowledge of soil degradation and its complexity has grown. Strategies have been perfected, especially through national initiatives or the ratification of specific agreements between countries (such as the United Nations Convention to Combat Desertification). The need for a coherent approach to soil protection was recently included in the EU policy agenda which introduced the problem in the Thematic Strategies to be developed in the Sixth Four-Year Plan. The realisation of the multi-purpose character of soils means that they can be seen not merely as simple supports for traditional agriculture, but also as filters, barriers against pollution of underground water, conservers of biodiversity and, most important today, places for the collection in organic form of carbon dioxide from the atmosphere.

In developing a soil intervention policy, one must be aware of the extreme spatial and temporal variability, which makes the problem of protecting this resource particularly complex. It must also be borne in mind that with the slow pace of pedogenetic processes, soils are practically a non-renewable resource over a time span of fifty to one hundred years. It is thus urgent and vital to measure the degree of degradation of Mediterranean soils and above all to anticipate the scale. Researchers must provide decision-makers with concise indicators containing the most precise information possible on land resources.

Among the initiatives intended for defence of the environment, the OECD recently defined a series of indicators, "*Driving Forces State and Response*" (DSR framework)

which is easy for policy makers to use. It lists the causes of changes in the soil and the landscape and agro-environmental indicators for rural areas (density of road networks, extension of areas used by organic agriculture). The “*state*” describes the effects of these parameters on soils, and the “*responses*” the actions that could be taken in terms of new soil policies to mitigate and control the “*driving forces*”. The pressures (unit of production per unit of agricultural land employed, average consumption of pesticides) and the “*impacts*” describe the interconnections between economic activities and the behaviour of society which have an influence on the environment in general. New initiatives to develop state, *impact* and *response* indicators relating to soil protection are in the pipeline.

In order to provide decision-makers with better information, a database on the chemical-pedological characteristics of soils is essential. In particular, it would allow a geographical analysis of soil degradation so as to prevent it more effectively. At present, there is no exhaustive soil database for the Mediterranean Basin. The information is available everywhere, but the amount and geographical coverage varies depending on the country or region where it was collected. To promote these databases, therefore, a network of information needs to be created (pedological, hydrological, climatic, etc.) prepared at different levels, from regional level to the Basin as a whole, based on standard definitions so that it can easily be assembled and compared with data for other countries. This database must also be accessible to everyone operating in the sector, simple to manage and easy to update reasonably quickly.

The European Commission and the European Environment Agency (EEA) decided to work together along these lines by developing and setting up information collection centres for each of the major environmental themes. Four institutions were identified to run these observatories: the EEA, Eurostat, the Joint Research Centre (JRC) and Directorate General for the Environment (DG ENV). A new information centre, the European Soil Data Center (ESDAC) will be based on a tried and tested system (Eusis) developed in the last few years by the JRC. It will be linked to other international centres in order to contribute to the World Soil Information Database developed by the International Soil Reference and Information Centre (ISRIC). Using the information gathered, it will be possible to predict probable pedological trends and thus enhance environmental governance. It marks a real qualitative leap forward compared with the European Union and FAO databases used hitherto.

Clearly, land potential needs to be monitored, but the waste of space and thus soils also demands that States should act more decisively in the short term to define land use. Spontaneous and unregulated urbanisation constantly encroaches on a crucial resource. An analysis of land use patterns shows that every year new land is artificialised and very little is returned to its original purpose. Apart from the quantitative constants, the major problem is the irreversible loss of good agricultural land. The more land a country loses, the less its chances of developing the extensive agricultural methods need to produce at competitive prices, reduce the dangers of pollution and conserve the agronomic fertility of the soil.

The anarchic spread of urbanisation by 2020 would increase tensions in the Mediterranean Basin, aggravating the socio-political situation in the region. Reviewing

and revising urban planning tools is an absolute must. The difference in the development of two regions closely related both from the standpoint of natural conditions and level of development, the Italian Ligurian Riviera which has retained its agricultural heritage and the Côte d'Azur which has not, shows that agricultural land need not necessarily be swallowed up by urban sprawl. In the South, albeit with modest success, Egypt shows in the construction of its new towns that it is possible to spare the best agricultural land. Algeria also appears to want to implement such a policy. The fact remains, however, that solving the problem of conservation of agricultural land and periurban rural areas continues to be a matter of urgency.

The crossroads

The analysis of natural resources has shown the challenges which must be faced by the Mediterranean Region. Whatever the resource (soil, water, energy), it is a matter of managing growing shortages. The global scenarios up to 2020 flow from the ability to take this evidently increasing scarcity into account. Bearing in mind the strength and extent of the response, there are clearly many such scenarios ranging from passive attitudes to the truly forward-looking, combining action and foresight.

In the case of a passive posture, 2020 looks pretty gloomy in terms of natural resources. Some 70 million people in the Mediterranean would be suffering from water shortages in 2025 (less than 500m³ per capita per year). The use of non-sustainable resources, i.e. from fossil sources or over-exploitation, would inevitably rise (by up to 30% in Malta or Libya), and the less well-off countries will be hardest hit by structural shortages. Drinking water supplies would be guaranteed for rich, urban populations to the detriment of poor and/or rural communities. As cultivable land becomes increasingly scarce, agriculture will continue to be entrenched in areas already short of land and water. The agricultural sector would also suffer from climatic warming and the proliferation of extreme weather conditions.

In countries with a large agricultural population (Egypt especially), such a scenario could lead to more riots like those which occurred in the 1990s with the agrarian counter-reform or in the Summer of 2007 with failures of drinking water supplies in the villages of the Delta. Already in evidence, the agricultural gulf between the North, still well endowed with resources in 2020, and the South and East very deprived by that time, could grow. Against the background of a globalisation not offset by strengthening of Euro-Mediterranean trade links, it is by no means certain, indeed far from it, that the deepening of the deficit in the South and East will benefit the North, in competition as it is with the United States and countries like China and Brazil which are emerging on to the agricultural scene. It will not be energy output, which is of little benefit to the South and East Mediterranean Countries apart from Algeria, which will reduce the scale of the gulf between the two shores. On the contrary, emerging from a degree of lethargy in this field, the countries of the northern shore, albeit modestly, have already passed an energy crossroads. By adopting first generation biofuels, the northern shore could add to the rising price of food production caused by the displacement of food production from the land.

At the heart of Mediterranean societies, competition for land and water is already in play, between farmers, between town and country, tourism and agriculture, etc. In this very

gloomy scenario, there is no doubt that water and land disputes, both small scale and large, would persist and geo-political tensions could arise against a background of diminishing fossil energy. As for the environmental dimension for 2020, one could expect very worrying points of no return.

However, this scenario, marked by impoverishment, instability and violation of ecosystems, is not inevitable. Given the urgency of the situation, decision-makers could still react and redirect their policies. To do so, they will have to firmly state the new directions of public policies, in terms of alternative supply (desalination and re-use of waste water, renewable energy), rationalisation of demand for water and energy (savings are beyond a shadow of a doubt the best water reserve), and also soil protection in terms of quantity (land) and quality (productivity). Time is short. Better to change course now, the effects of which would be perceptible in 2020 and intensified thereafter. One might then see the emergence in the Mediterranean of a more sustainable agricultural activity yet without diminishing its income-generating role.

In this scenario, which has to be voluntary, there must necessarily be investment in renewable energies, especially second generation biofuels which do not have the same impact on cultivable land (this should become much more apparent in the next ten years). Likewise, new sources of water supplies (desalination, re-use of waste water) will be the focus of particular attention, given that success in the treatment of sea water or brackish water will be conditional on the ability to remove the energy burden, and serious efforts must be made to save water.

While national and international public policies must incorporate these priorities, the actors involved are at different levels: governments, local authorities, consumers, farmers (irrigators' associations, producer groups, etc.), industrialists and scientists. As elsewhere, the mobilisation of the Mediterranean regional political framework should not be overlooked. In 2005, at the proposal of the Mediterranean Commission for Sustainable Development (MCSDD), the contracting parties to the Barcelona Convention adopted the Mediterranean Strategy for Sustainable Development announced at the Johannesburg Summit in September 2002. Moreover, the first field of action adopted as a priority was to improve the integrated management of resources and especially demand for water.

There is no lack of opportunities for cooperation. Research into saving resources will be more effective if the work is shared. The sometimes heavy investment calls for economies of scale which are more achievable if States are partners in scientific research. As to the intangible capital from research, there is no doubt that its development is all the more certain if it comes from networks of teams with a wealth of multiple and complementary skills. Other aspects can be used to mobilise the regional framework: reflection on the trade in virtual water, which should underlie the Mediterranean trade debate, is an obvious example. Likewise, dialogue between States will be a strategic vector in progress towards sustainable management of water resources. These action lines show that a fatal catastrophe affecting Mediterranean natural resources is not inevitable. If group and individual interests are put aside or at least countered by a clear political will, a sustainable development strategy can be gradually put in place.

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CHAPTER 8

ENSURING FOOD SECURITY AND FOOD SAFETY*

The Mediterranean region is today facing a number of major strategic challenges, and food security and safety are by no means the least important. Since the demographic variable is a crucial determinant, the magnitude of the challenge of feeding a population which will have tripled between 1960 and 2020 must be underlined. That population will exert more pressure on fragile natural resources, not only in the North, but even more so in the South, where social and civil vulnerability is a constant threat. In the northern and east-ern Mediterranean region there are 319 ha of cultivated acreage per 1,000 inhabitants and 177 ha per 1,000 inhabitants in the South (Allaya, 2006), and that acreage is dimin-ishing. Providing better quality food for steadily growing populations – such is the equation to be solved if food security in the region is to be ensured.

The Mediterranean countries are having to take up this challenge in a context of growing urbanisation of their societies, which are opening up to globalisation (a process where customs generally evolve more rapidly than in rural life, women are gradually becoming more emancipated, the recomposition of family structures is underway and new social behaviour patterns are emerging such as the desire for consumer goods and for access to modernity in order to keep pace with certain western standards.

Dish antennas and advertising combined with the rise in purchasing power have for several years now been making city dwellers in the southern Mediterranean avid consumers.

Several key agro-economic indicators can add to this general background. To put an end to any preconceived ideas, it must be stated that as regards food output there are very few Mediterranean countries which actually show a deficit in terms of their populations' energy needs; the much-criticised trade balance concerns essentially animal feedingstuffs. The only countries where a human food deficit has been established are Malta, Algeria, Jordan and Lebanon – but this does not prevent them from implementing active food export policies! So the problem of quantities is being resolved. Yet the number of persons suffering from undernourishment is steadily increasing due to the fact that pockets of poverty still remain, that wealth is concentrated in certain population segments or that certain groups which have not been well integrated into a liberal socio-economic system are being marginalised.

* - This chapter has been based on documents prepared by Martine Padilla (Ciheam-MAI Montpellier).

And in addition to this problem of quantities, food quality is a growing concern. Whereas the Cretan diet has been recognised by the World Health Organisation and is described as one of the most beautiful heritages of the Mediterranean Basin, the countries in the region are steadily departing from it. Changing eating habits are a universal phenomenon concomitant with economic development and urbanisation. The change has been progressive in the North but sudden in the South and has resulted in a food quality drift, one of the most convincing indications being the increase in obesity in the various populations. Modern dietary patterns must be examined in depth (but we do not yet have the key), for it is observed that the food pandemic is mainly visible in large urban centres and small rural towns that are focusing on tourism, whereas in small traditional towns and in rural areas fewer people are overweight despite the rich diet.

Against this background, the future of the Mediterranean region hinges on four essential challenges, which must be met if a more favourable food security and safety situation in its various aspects is to be created: the “sustainability” component – in both the ecological and the nutritional sense of the term – must be included in development plans; modernity and tradition – an essential component in a region with a strong cultural identity – must be reconciled; the local market must first be addressed before devoting effort to the international market; and thought must be devoted in both North and South to ensuring coherence between sectoral food safety and health policies.

Including ecological and nutritional sustainability in development plans

Intensifying production while preserving biological diversity

In view of the population growth in the South it would seem imperative to intensify agricultural production in order to preserve a certain degree of autonomy. Agricultural production in the North has resolutely adopted the intensive model, which results in the selection of so-called profitable varieties suited to the various food chains which, now industrialised, have shifted to the tertiary sector and are set up in the rural urban fringe. The necessary progression in agricultural production and the orientation of farming should not be to the detriment of genetic diversity, which is the sine qua non for preserving the future potential of appropriate crops and animal products. It should be borne in mind that the Mediterranean region accounts for only 6% of the territories of the world but contains 10% of the known plant species. Given the intensity and diversity of the fauna and flora of the region it is a duty to preserve them. In the present context in both North and South, production chains are reaching their limits, since they often destroy the environment; the challenge they have been assigned is thus that of making rational choices which will conserve natural resources.

It is becoming imperative to devise a production model and to organise markets in a manner which limits costly losses in terms of food energy throughout the agro-food system. In the northern Mediterranean 10 final calories have to be produced for one single calorie in the mouth of the consumer, and 10 calories of fossil energy are needed for the various operations in the food system. The globalisation of trade is resulting in negative externalities, since it increases foodstuff traffic and what environmental econ-

omists refer to as “absurd” costs. Food transport in England involved 30 billion kilometres in 2002 and the emission of 19 million tonnes of carbon dioxide (Pretty *et al.*, 2005). The large-scale retail trade, which is highly developed in the North, also contributes to a large extent to energy consumption and CO₂ emissions, since it operates in large centres where products are grouped together and then distributed throughout the country. Pollution levels are thus equivalent for greenhouse fruit and vegetable crops and for fruit and vegetables that are flown in or out. In France, 30% of gas emissions are connected with food (depending on the production and marketing methods used) and 22% are connected with road transport (one-third concerning food-stuffs) (Jancovici, 2006). The countries in the South are following suit, whereas they ought already to be focusing on an ecological agricultural and food policy.

Efforts are thus required on the part of all of the players in the food chain but also of consumers. Why not issue nutritional recommendations complete with a guide on the choice of foodstuffs which would give precedence to products that are in season and are produced locally, and foodstuffs which are economical to produce in terms of natural resources? It is known, for example, that a “western” consumer uses 4,000 litres of water per day, whereas a vegetarian consumer uses 1,500 litres (FAO, 2003). The quantity of virtual water required varies widely from one foodstuff to another: 1 kilogram of beef requires 15,000 litres, 1 kilogram of cereals requires 1,500 litres, 1 kilogram of citrus or pulses requires 1,000 litres, and 1 kilogram of tomatoes requires 150 litres. Is it not time to take account of this “virtual water” in the decisions taken on the production and marketing of foodstuffs, bearing in mind that water resources are becoming scarce in several Mediterranean countries?

A healthy food system

Modern lifestyles encourage the use of processed products, which save preparation time, but the processing methods employed at the various stages in the food chain are not without effect on the organoleptic and nutritional quality of the foods produced. Although there has been strong focus on the health aspects of these products over the past few decades, the respect of nutrients has rarely been a crucial issue in considerations and decisions. Harvesting, storage, and processing conditions as well as processing and distribution methods all affect the sensory quality of food. The effects are quite favourable where processing conditions are gentle and well-controlled (high-pressure, pulsed electric fields, vacuum cooking) (Jeannequin *et al.*, 2005), but when processing conditions are severe (high temperatures, extreme pH values, extreme separation, extraction and purification processes, etc.) nutritional losses can be high and new toxic compounds can also be formed (Besançon, 2001).

So why not encourage professionals to undertake to abide by a quality charter which preserves nutrients throughout the food chain as with the national nutrition and health programme in France? Efforts must be made to develop the market as a whole in order to optimise the population’s nutritional intake. The roads to progress are many and varied: plant or livestock breeding, work on animal husbandry methods, animal nutrition or crop-growing techniques at the agricultural production stage; measures to improve the formulation of compound products, creation (by the food industries) of new products of nutritional advantage in all product ranges; reduction of the size of

portions; improvement of recipes and of menus in restaurants and catering trades; inclusion of information of nutritional features in the presentation of products for sale and in marketing and advertising so as to encourage consumers to make healthy choices, etc. And at the same time the various players should act together: in addition to the public authorities, producer and inter-trade organisations in the food sector, various enterprises, consumer organisations, and scientists specialising in nutrition, food technologies and economics must all contribute in support of these commitments.

Spain requests that the Mediterranean diet be included on the UNESCO list

At the meeting of the Council of Ministers of Agriculture of the European Union held in Brussels on 16 and 17 July 2007, the Spanish Minister of Agriculture, Fisheries and Food, Elena Espinosa, called on her peers to support a Spanish proposal for including the Mediterranean diet on UNESCO's Intangible Cultural Heritage list. She stated that Spain advocated that a common strategy be implemented by the countries representing the Mediterranean diet and by all other countries that are in favour of protecting that model. Spain has been focusing considerable effort on this project for several years and is convinced that UNESCO recognition would ensure better international visibility of the benefits of the Mediterranean diet for human health. The initiative aims to underline the importance of diet from the cultural, social, regional, environmental and economic point of view.

Reconciling modernisation and tradition in the interplay between actors

Adapting industries and standards to local contexts

Locally produced general consumer goods have for many years enjoyed protection in return for the jobs created within the framework of an inward-looking policy, which made no provision for a stimulating competitive environment. Firms have been accustomed to this type of support policy and find it difficult to take the initiative of changing work organisation, creating, innovating, delegating responsibilities and encouraging managers and employees to assume responsibility. Furthermore, access to particular markets such as the EU market makes standards and conformity certification procedures even more important than in the past. The strategy is clear: undertakings are finding themselves confronted with a European market that is highly coveted because of its prosperity, the level of consumer purchasing power and the enviable quality of life enjoyed by the various populations. That market could be within reach of enterprises in the South. In the Maghreb, 70% of commercial transactions are already carried out with the EU. Upgrading schemes have been launched to enable firms to embark on the necessary adaptation procedures, to invest in intangibles and to enter the competition battle. The fact that very few firms are certified shows that the national undertakings which adopt international standards are motivated primarily by access to international markets and the fact that they meet the required criteria for competing on those markets. The investments they effect in order to set up quality control systems increase their production costs while the fact that their products are in the up-market range means high prices on domestic markets.

Although standardisation and efforts to improve quality are much advocated, there is still a considerable gap between the declared intentions of the public authorities and the realities of corporate commitment to the process. Industrialised products are very expensive compared to products that are produced by traditional methods. Introducing the additional costs required by standardisation can only aggravate the price differences; typical Mediterranean products are thus liable to be eliminated from the market or to lose their current value. Technology is actually a limiting factor when the industry endeavours to appropriate traditional know-how; moreover, the industry has the financial means for marketing these products. If the agro-food industries were to develop traditional local products this could give them a tremendous advantage on both national and international markets. Turkey has succeeded in transmitting tradition to local industries, whose products are distributed in the major supermarket chains operating in the country such as Migros and Metro.

Rather than plunging blindly into the “western” standardisation race, the Mediterranean countries should think of organising the exchange of information and negotiating with the great powers on appropriate standardisation procedures. Appropriate standardisation at internal market level would be less costly and would take better account of the specific features of traditional products. Partners could meet around an international negotiating table to discuss the minimum required in terms of health standards on the basis of scientific data, irrespective of any economic protection considerations, and in particular to discuss the guarantee of a certain degree of stability in these requirements. The fact that these non-tariff standards are constantly evolving makes it impossible for the South to comply.

The EFSA in Europe since 2002

The European Food Safety Authority (EFSA) is the cornerstone of the European Union for assessing the safety hazards involved in food for both human and animal consumption. It issues independent scientific opinions on all issues affecting food safety either directly or indirectly (including animal health and welfare and plant protection). The EFSA is furthermore consulted on nutrition in connection with Community legislation and also issues transparent and open communications that are addressed to the general public on all of the questions falling within its field of responsibility. The EFSA's risk assessments provide risk managers (European institutions carrying political responsibility, i.e. the European Commission, the European Parliament and the Council) with a sound scientific basis for defining politically oriented regulatory or legislative measures necessary for guaranteeing a high level of consumer protection with regard to food safety.

Promoting food distribution that is appropriate to the context

The large-scale distribution trade has established a position of power in its relations with the food industries in the northern Mediterranean countries, where it often imposes its conditions. Its recent arrival in the southern Mediterranean countries is liable to result in the creation of a two-tier local industry, in which the industrial practices of the firms which have decided to collaborate are disrupted. The repercussions that this would have on the entire food chain would be all the greater since the large-scale trade, led by Carrefour, has undertaken to offer customers mainly local products.

The distribution trade bases its operations on a standardised industry, organised logistics, and large volumes of regular supplies. Not all industrialists are prepared to make such efforts due both to indifference and to the cost of the direct investment in human capital involved. Would it not be a fatal mistake for the economies and societies of the South to simply transpose this European model? The large-scale distribution trade is still inaccessible to the great majority of the population, and its ostentatious aspect can exacerbate feelings of inequality. Standardisation does of course bring health benefits, but if it is applied throughout the country it would mean that firms in the traditional distribution sector, which guarantees jobs and diversity of tastes and know-how, would go out of business. There is a firmly structured network of social relations, and a relationship of trust between customers and shopkeepers is a fundamental element. How will consumers experience this transformation? Chain stores such as Marjane in Morocco or Touta in Tunisia have understood what is at stake and are developing more in the form of local self-service minimarkets. Perhaps this is an opportunity to devise a new form of distribution, which would draw on all the positive factors of modernity while remaining in tune with local sociocultural conditions.

Making the informal sector compatible with formal economic systems

The informal economy is developed both in rural areas and in urban zones, in agriculture, the industrial sector, the retail trade and services; it involves both traditional economic activities and emerging activities that are based on knowledge. In some countries the majority of the population depends on this informal economy as the mainspring of development: "It has been the honour of the poor and the response of the excluded to mass rural-urban migration, the waves of dismissals in the aftermath of privatisation, and the retrenchment policies launched by governments" (Llena, 2001). The activities which play a part in the supply and distribution of food in cities are responding to an endogenous urban trend: the informal food sector is adapting to the diversity of urban demand and, more generally, to the evolution of the socio-economic context in towns and cities. At the same time it has its own impetus as a source of income for the households involved.

In periods of economic crisis the drop in purchasing power as well as employment difficulties in the formal sector promote the development of the informal sector, which contributes to the distribution of low-cost foodstuffs and provides employment and income for certain households living in hardship, thus giving them access to food commodities (Hugon and Kervarec, 2001). Street food and the sale of fresh foodstuffs have brought a solution to the problems connected with working at a distance from the home (in the case of women in particular). Ready-made dishes are offered for sale near factory exits, offices and schools so that it is no longer necessary to return home in the middle of the day. Sales points have multiplied along the busy streets leading to markets, near taxi ranks and bus stations. The informal sector is far from being a social abnormality; it is a response to urban living conditions and to food supply and distribution difficulties and must thus be better understood and given institutional, technological, financial and organisational support as it gradually adapts.

The informal economy governs the daily lives of a steadily growing majority of working people. These people have not been doomed to live in poverty and despair by any law of

nature. Nor does any human law stipulate that the tremendous inequality in the distribution of goods must be perpetuated. Guaranteeing protection by means of national and labour legislation, social insurance coverage, education, training, decent working conditions and the satisfaction of basic needs is not a long-term objective to be achieved by future generations; these are minimum standards which civil society, governments and international organisations should be adopting now.

The informal sector is steadily growing, and any development strategy must include it and take its many different forms into account if it is to be viable: certain production activities (such as craft trades), retail businesses and services provided for categories of the population with very low incomes must be supported, whereas those which have an adverse effect on the economy and society must be eliminated (smuggling, various forms of trafficking, etc.). The informal economy also has its own specific features, which bring comparative advantages such as a very low tax burden or none at all, low labour costs (non-compliance with labour legislation) and in many cases also the fact that activities are not fixed (itinerant occupations and home-work). If they were deprived of these advantages they would be bound to go out of business. And finally, the strategy for developing this economy in the short term must give social considerations precedence over economic arguments, with a view to helping these activities to gradually develop into small and medium-sized enterprises and to operate on the basis of the modern economic fabric. Measures to provide training and access to credit and efforts to convince the various actors of the advantages of employment and entrepreneurship could create avenues which would encourage a certain degree of legalisation.

Bearing the local market in mind while joining the international market

Building up a market for Mediterranean products

There are many arguments in support of measures to identify and preserve the Mediterranean food heritage. It is recognised that not only the various ingredients making up the daily Mediterranean diet but also the combinations of these foods and the way they are consumed have therapeutic and preventive properties. It would certainly be of advantage to identify this heritage and highlight its value by means of quality marks (registered designation of origin, protected geographical indication, organic agriculture or other such labelling) in order to contend with food standardisation and to recover the value added which major international firms are quick to appropriate by exploiting the positive image of the Mediterranean diet/health/naturalness triad.

Products that are connected with a local area come under the cultural domain and are difficult to categorise in standardisation procedures. Is it really possible to unify and protect without impoverishing? What is the historical basis of these Mediterranean products, and how can it be proved, particularly in a region where there has been such marked intermingling of products, know-how and cultures? Historical value, connection with the local area, technical characteristics, and the variants of one and the same product are all issues which must be taken into account in any protection policy. Although these protection measures are justified, they can also create exclusion and cause the loss of a product

name and the impoverishment of diversity, depending on how they are implemented. Regulations on product origin and quality marks seem to be compatible, whereas the RDO, PGI, Red Label, Mediterranean Label and Certification of Product Conformity labels are not interchangeable. But the question of whether the origin of the raw material or the origin of the know-how should be protected has yet to be answered.

If precedence is given to products of Mediterranean origin, i.e. to the region, this would open up a tremendous market, but it would then be very tempting to intensify production in order to create wealth – at the price of exhausting local soil and water resources. It is a well-known fact, moreover, that excessive intensification deteriorates the intrinsic quality of commodities. If the emphasis is laid on the authenticity of foods, Mediterranean industrialists and craftsmen will have to organise themselves rapidly in order to protect their know-how, recipes and specific products by means of patents and labels. For the agro-food multinationals are always on the lookout for market niches to increase turnover, and they use the Mediterranean image to create a market, appropriating the recipes typical of the region.

Informing and educating Mediterranean consumers

The consumer protection movement ensures that consumers are informed and educated and promotes consumer awareness, draws the attention of policy-makers to situations which have been observed or could arise or to the fears of the general public, and helps to ensure that measures are taken to allay such fears, to verify the situation and/or to take preventive action. Since consumer education and information on benefits and ill effects of products is limited in the Mediterranean countries, steps must be taken to promote real education and to support consumer associations, which are endeavouring to develop the socially responsible awareness that is essential to rational choices. Some associations are beginning to emerge in the South, but they often have very close links with the political authorities and thus lack credibility.

Slow Food

Slow Food is an association which was founded in 1989 by Carlo Petrini; it is an international movement which has developed in reaction to the degrading effects of the fast food culture and the standardisation of flavours. It runs taste education programmes highlighting the beneficial effects of the deliberate consumption of local foods and acts to safeguard culinary traditions. The Association has 80,000 members in some 50 countries. It also assists the producers of quality products and encourages solidarity initiatives in the food field with a view to developing environmental responsibility.

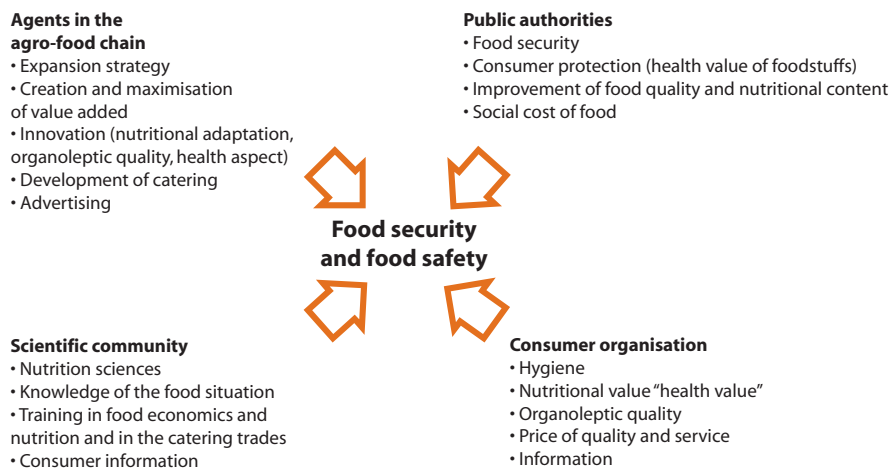
Devising sectoral policies which include nutrition and health

An agricultural policy that is consistent with food security and food safety

The agricultural policies, prices and food subsidisation policies which prevailed for several decades in the South were devised and adopted with a view to ensuring food security,

irrespective of any justification from the point of view of quality. Refined cereals, white flour, imported mixed oils, and sugar were thus often primary items in the national food subsidisation schemes, with which the quantitative needs of a large proportion of the population were covered but to the detriment of nutritional and public health objectives, which are now imperative. Government support must be revised as must the prices of certain products such as fruit and vegetables, pulses, and fish in order to make them accessible for everyone (a new policy on subsidisation? investment aids? nutritional recommendations?). If this is to be achieved the various players must work together, reach a consensus and then act in accordance with their respective roles (see Figure 1).

Figure 1 - Social forces contributing to food security and safety



With this in view, one of the challenges will be to guarantee an ethical and socially responsible approach in production and distribution methods and in marketing campaigns, particularly as regards the content of advertising. Although the latter is still in its infancy in the SEMCs, it has recently inundated coastal towns and cities, which are more and more geared to western consumer standards. Unless it is controlled, advertising can be a contributing factor in the deterioration of food safety. Conversely, if it is geared to a public health approach it can help to restore certain dietary practices, particularly by promoting quality products.

Several forward-looking scenarios

Against the background of this analysis and the challenges that must be met if food security and food safety are to be ensured, what are the key variables and the relevant trends? Very different pictures can be painted of possible future trends according to various models of society.¹ The means for achieving that security and safety will inevitably involve a series of measures focusing on major variables; several key factors are discussed below.

¹ - This forward-looking analysis was carried out in four stages in a series of working meetings amongst experts in the field. To begin with, the principal variables affecting food security and food quality were identified. Different hypothetical

The key variables and how they evolve

Selecting and classifying the variables that are the mainspring of food security and food safety is still a tricky exercise since they are numerous and their prioritisation depends very much on context. As regards food security, Egypt's main problem is tremendous population pressure, whereas the principal problem in Algeria is inadequate production capacity; in Lebanon, civil and political insecurity is the main constraint, while both Morocco and Egypt are having to fight poverty and certain population segments are becoming marginalised or being excluded in the North. While purchasing power, lifestyles and eating habits are recurrent problems throughout the region and ones which must be overcome if food safety is to be ensured, industrialisation models, production and logistic conditions are problems more specific to the northern Mediterranean, whereas cultural models and consumer and producer education are the main difficulties in the South. Hypotheses were formulated for each of the variables as options for possible alternative measures. They are not mutually exclusive; some are more relevant in certain regions than others. Good knowledge of the field and of the context in the individual countries is required in order to formulate these hypotheses – hence the need for experts to devote thought to the issue.

Food security variables

- *Population pressure.* Since the population transmission is now more or less complete in the North and is well under way in the South, population pressure would only be felt in local areas and its intensity would also vary from one place to another. The population forecasts for 2020 are now relatively well established with a considerable degree of certainty. It can thus be supposed that there will be strong population growth in rural areas in Egypt and in the major southern Mediterranean cities due to continuing rural-urban migration. Population growth is expected to be sustained on the whole in the southern Mediterranean countries and in rural areas in the Near East, while a status quo is anticipated in the North and in rural areas in the Maghreb. Small or medium-sized towns will continue to appear in rural areas – a process which is already well underway in both North and South – combined with the concentration of the population in coastal settlements.
- *Poverty.* The hypotheses concerning the development or reduction of poverty are classical: either impoverishment will worsen in rural areas, towns and rural-urban fringes in the South, or the present situation will continue with growing poverty in rural areas and accelerating urban impoverishment, or, the third hypothesis, poverty will, on the contrary, be considerably reduced.
- *Structural inadequacies in the production sector.* This variable is connected with five hypotheses, which are not mutually exclusive. Production inadequacy can be due to lack of interest on the part of workers in the farming profession, which is a difficult occupation that is often hard to reconcile with modern life styles and leisure activities and does not rank high on the social scale. Rampant urbanisation that is eating up

patterns of development were then elaborated collectively with a view to constructing several general scenarios in phase 3 of the process for exploring possible futures. And in phase 4 these hypotheses were verified and demonstrated by means of the Ideos software programme with a view to proposing levers for action and avenues for exploring food safety and food security issues in the Mediterranean region.

the best agricultural land can be a further reason for giving up farming. Unfavourable climatic and pedological conditions can be a third cause and one that is aggravated by excessive human activity, which in turn generates environmental stress (water scarcity, desertification, climate change). Fourthly, the sub-Mediterranean region has not been spared internal conflicts and unrest, which limit agricultural activities: localised civil war in Algeria, war in Lebanon, land in Egypt still riddled with mines. And lastly, the national or international agricultural commodity market is not considered sufficiently profitable to justify the technical investments necessary for intensification; or again, farm holdings are too small to allow of any technological progress.

- *Distribution systems.* Although national production, taken as a whole, is sufficient, dysfunctional problems in the agricultural commodity or foodstuff distribution systems can entail the risk of local or regional food insecurity. We put forward the following three hypotheses: improvement of road infrastructures, the motor vehicle fleet and the cold storage chain; secondly, the emergence of small farmers' markets where producers sell their produce direct, particularly in the countries in the North, and which promote short-circuits and meet the expectations of consumers enamoured with tradition and product freshness; and thirdly, a distribution chain which will become more complex to the disadvantage of producers and consumers and which causes a rise in prices.
- *Government policy options.* Societal choices are expressed in public policies, which are a determining factor in development options and agricultural priorities. Either liberalism and the international market will continue to be regarded as a panacea, in which case agricultural and food exports will be promoted. Or governments, whose hopes of integration into the world economy are dashed, realise the need to return to a certain degree of protectionism in order to guarantee food autonomy. Or they give precedence to the domestic market and embark on effective rural development policies (multifunctionality and modernisation).
- *Ability to compensate for inadequate food supplies.* A country's food security depends to a large extent on its ability to purchase food on the international market where there is an agricultural commodity and foodstuff deficit. This is still a topical issue in several countries in the South. Consequently, either this ability to purchase on the international market progresses thanks to oil revenue or trade alliances, or it deteriorates and the country's foreign debt continues to grow thus seriously jeopardising foodstuff purchases.
- *Civil security and political stability.* This issue has long been to the disadvantage of the southern Mediterranean countries, particularly as regards foreign investments, due to the risk involved. There are four conceivable hypotheses: internal or regional destabilisation mainly in connection with mounting political and community tensions and religious fundamentalism; political unrest, which always limits investments (as is the case in Lebanon, for example); political stability which could be favourable unless the regime is repressive and involves administrative inflexibility and over-cautious attitudes on the part of economic actors; a return to confidence and to entrepreneurship.

Food safety variables

- *Changes in lifestyle and eating habits.* At the present time, the food system is structured around consumer demand; this is very visible in the North, and it is becoming increasingly visible in the South. Consumer behaviour will thus be a crucial issue in future changes in food systems. Man is a social animal, and diet is a vector of social and cultural identity. It is an established fact that people imitate one another within a given society and also imitate other societies; this allows consumption patterns to spread, and the “dominated” imitate the “dominators”. What might the dominant food pattern of the future be? Either there will be an international movement imitating the traditional Mediterranean diet and a “Slow Food” culture advocating the quality, identity and naturalness of foodstuffs in the context of sociability and the sharing of values, will spread, but this will require high purchasing power. Or globalisation will convey the dominant image of the diet of “western” countries, and local economic conditions will provide access to it. This would mean the decline of the Mediterranean diet. Or, as modern lifestyles and the desire to adopt the image of the “dominator” spread, dietary patterns will become radically focused on time-saving, and the fast-food industry will flourish. Or people will return to a sensible or careful diet, as the result of either economic constraints or enlightened intention on the part of both consumers and public authorities. The system will then be able to handle the glocalisation of food (balanced combination of the global and the local). And a final possibility would be the intensification of modernity in our dietary patterns with strong emphasis on modern and industrial health-enhancing foods.
- *Cultural models.* The social forces which can influence the dominant consumption model in a given society include the public actors, those involved in the production, processing and distribution chain, consumer associations and scientists. The approach of these various forces to food will vary according to the weight they carry in decision-making and to the image of the societal norm conveyed. The dominant consumption pattern of a population depends on the interplay of the actors in society who or which convey messages relating to a consumption ideal. Scientists disseminate information as their research and expertise advance and can influence consumers and public authorities in their policies and regulations. As representatives of civil society, consumer associations ensure that consumers are educated and informed and that food safety rules are applied. The public authorities have a duty to protect consumers, which they fulfil by means of quality regulations, measures to provide information, and health controls. They can support certain eating patterns by implementing a food policy (issuing recommendations, granting subsidies, taxing products, etc., as is the case in the Maghreb) or a nutrition policy (issuing recommendations, exerting pressure on lobbies, as has been the case in Spain and now in France). And the agents in the agro-food chain (processing enterprises, distributors, caterers) have themselves clear strategies for expanding their market share and creating value added for economic purposes. They try to influence consumer choices through advertising, by creating items that have appeal or by adapting products. Several different societal trends are conceivable. There can be indifference to food, where feeding oneself is viewed as a secondary function that is vital but does not have any particular connotation of identity or culture. Or the opposite trend can be observed, where people

are aware of their responsibility in the food choices they make; here, consumers are highly involved and choose healthy, sustainable foods that are also the product of fair trade. A further hypothesis is that of the acculturation of food habits, where consumers have no need for identity symbols and are keen to explore. Since they do not all seek to discover the same thing, they are entitled to have a wide range of products at their disposal that are appropriate to various consumption circumstances: products with a strong social identity appeal for Ramadan, quality products for festive occasions, plain, healthy products that are easy to use for everyday consumption, etc. Societal change will thus be either controlled or uncontrolled.

- *Purchasing power that limits access to wholesome products.* Food safety depends to a very large extent on access to so-called healthy products such as fruit, vegetables, pulses or fish. With the exception of pulses in southern Mediterranean countries, these products come under the category of expensive foods or even luxury goods. No incentive policy has been launched by either producers or consumers. There are two possibilities: either a form of food subsidisation is reoriented to wholesome products, or the rise in the prices of these products will persist to the advantage of industrial products whose nutritional content is not controlled.
- *Industrialisation of products and processing methods which either conserve or disregard nutritional quality.* In view of the growing industrialisation of foodstuffs, the quality, safety and nutritional properties of manufactured goods are crucial to food safety. Several hypotheses can be suggested: either industrialists are convinced of the advantage of a nutritional approach and review the quality of staples, the technologies used and the various ingredients, additives and preservatives, or, by contrast, the food industries focus on maximum profit and care little about the nutritional value of the foodstuffs they produce. Intermediate scenarios are conceivable such as the development of “gentle” technologies or the industrialised adaptation of certain traditional products for production on a larger scale.
- *Institutional regulatory framework.* Both the absence of standardisation and product controls and the excessive application of such systems can result in the absence of food safety. Non-interventionism can lead to abusive practices affecting the health and imitations containing undesirable additives. Likewise, excessive standards can adulterate the intrinsic qualities of foodstuffs (as with the pasteurisation of milk for traditional cheeses made with raw milk). We put forward the following four hypothetical future scenarios: product control infrastructures are approved and well distributed geographically; norms and standards appropriate to the local context have been introduced and are complied with; economic actors embark upon the adoption of international standards to boost competitiveness on the world market; standards and regulations have still to be elaborated.
- *Political stance on international dumping.* The southern Mediterranean countries are often helpless when it comes to controlling the quality of the products from the international market that are flooding their markets. They lack the technical tools and/or know-how, it is true, but the main reason – which is much more serious – is that they have failed to adopt a political stance on undesirable products such as GMOs, poor-quality mixed oils, or meat of dubious origin. This laissez-faire attitude may continue.

What is more, a country such as Egypt, which is still receiving structural food aid, or other countries which may receive cyclical food aid (such as Algeria or Lebanon) would not have the right to express an opinion on the quality of that aid, although this runs counter to the food sovereignty principle.

- *Consumer and producer education, information and organisation.* Consumer and producer education are determining factors in consumer choices and demands. Three hypotheses can be formulated: either consumer associations become autonomous, more active, better organised and in a better position to defend consumer interests, or consumer-producers as individuals are better informed and more aware, or there is consumer disinformation and consumers are powerless, unable to protest for lack of structures and law.
- *Effect of the rapid development of the retail distribution trade.* The retailer distribution trade, which works shoulder to shoulder with the powerful distribution groups in northern Mediterranean countries and mainly with small local retailers in the South, can contribute to food safety. Efforts can be focused on improving the management of distribution so as to enhance food diversity, and on including and promoting traditional foods in the distribution systems (as is already the case in Turkey). It is a wager on a virtuous alliance amongst craftspeople, industrialists and distributors. The incorporation of nutritional ethics in the large-scale distribution trade rather than the focus on maximum profit would be a further desirable development. Another possibility is that the large-scale distribution trade spreads without any control. And the last hypothesis, which can be either exclusive or concomitant with the rapid growth of the modern large-scale distribution trade, is the expansion of the informal sector.
- *Quality of logistics.* The quality of logistics is fundamental for preserving the quality of foodstuffs. There are three possibilities: selection of varieties according to their resistance to logistics conditions, but at the price of reducing diversity; optimisation of logistics; supply chain and inefficiency.

Possible futures

Several scenarios can be imagined at this stage with regard to the evolution of societies and diet in the Mediterranean region. Constructing a scenario entails combining compatible options in a coherent system. It also entails setting the dual “ideal” objective of ensuring food security and food safety. We consider that that stage is reached whenever foodstuffs are available, accessible and usable and whenever food is good, clean and fair.

Political autism in the food field

This is the worst of the scenarios that could come about: the fundamentals are inconducive to food security and safety due to disinterest on the part of the public authorities with regard to food matters and the welfare of the population. Self-interest, power and abuse of power for the benefit of the minorities at the helm are the only predominant. In this type of scenario, inequalities are exacerbated and impoverishment worsens. The corruption and individual interests prevailing at various levels can give rise to conflicts, which destabilise public order and the authorities. The ability to purchase goods on the

international market deteriorates due to lack of organisation and controls. Economic actors lack confidence and avoid investment unless they are operating in lucrative sectors that are protected by corruption. Since there are no priorities for managing sustainable development, natural resources are wasted. Product norms and standards are inexistent or inappropriate so that anarchical freedom is preserved and individual interests are safeguarded. In this setup, health and food quality risks are at their peak. The industrial system is geared solely to maximum profit to the detriment of consumers, and total freedom reigns in the food distribution system, allowing the informal sector free rein to make good the shortcomings of the formal sector. Modality and tradition confront each other and compete for market shares. The lifestyle is marked by unemployment and thus entails considerable constraints regarding time management, which is disjointed as the result of job insecurity. The acculturation of food habits and the fact that people have abandoned the Mediterranean diet promote street food and other forms of fast-food catering. In this scenario, food dependency will probably remain high, and the likelihood of achieving food security and food safety will be slim.

The food diktat or modernity “at all costs”

In this scenario, the public authorities embark on liberalisation and globalisation without any “safety net”. The imitation of farming and food practices in the northern countries promotes a two-tier agricultural system, where part of the sector is geared to exports and international standards are imposed and the other part can only just survive. Populations concentrate in urban zones and along the coasts, attracted by business prospects and the proximity of the sea for exports. A sizeable fringe of the urban population and small farmers find themselves on the poverty line. The focus on the imperatives of profitability does not protect workers’ purchasing power and results in the wastage of local biological assets. Since people are forced by necessity to find a means of survival in this individualistic and inegalitarian society, the informal sectors endure and even grow. Pockets of acute poverty and marginalisation may require food aid in order to forestall civil insecurity. Corruption is possible and indeed widespread. All-out modernisation creates economic gulfs and exacerbates the tendency to seek identity in religion. The Mediterranean diet is also in decline as people abandon it in the quest for modernity. In this case, the Mediterranean countries would be faced to a large extent with growing insecurity in terms of both the quality and the safety of foodstuffs.

A harmonious combination of local and international foods

This scenario, which is more favourable than those described above, is consistent with a certain degree of political stability and a substantive blueprint of society. Population planning, measures to improve the education of women and to integrate them into working life outside the home ensures that population growth is controlled. Consumer associations operate freely and are non-politicised, and consumers are educated, informed and active. As the urban/rural split has gradually come to an end effective and harmonious rural development has ensued around small towns. The export commodity sectors have been standardised. The domestic market has not been forgotten: nutritional ethics have been introduced in the food industries (gentle technologies) and in the distribution trade; formal and informal local farmers’ markets sell quality products at sustainable prices. Active government policies no longer promote so many economically profitable products but now encourage foods of nutritional interest. As

regards dietary patterns, as the result of nutritionists' recommendations for a "sensible, rational and healthy" diet the consumption of cereals, pulses and fruit and vegetables has accelerated, the consumption of milk derivatives and fish has increased, and there has been a sharp decrease in the consumption of meat, certain fats and carbohydrates. We would then be very close to the "Mediterranean ideal" similar to the ideal Cretan diet of the 1970s. This would be bound to result in much less pressure on arable land and acreage under crop in that it is animal products which are mainly responsible for this constraint. Fisheries resources are a topical issue, on the other hand. Fish farms could of course be promoted, but since the pollution they cause with their current management methods is well-known, research is necessary on the management of fish farm effluents. Although the consumption of fruit and vegetables is undeniably very healthy, the production of these commodities (with the exception of pulses) requires large quantities of water, and greenhouse production creates considerable environmental problems. Here again, it is imperative to research ways and means of economising water and limiting greenhouse gases in the production of this type of crop. On the other hand, the food security and food safety of the populations would be better assured.

Awareness of responsibility in food matters to save public health

In this scenario, consumers are the hub of the system and play a central role in government decisions. All of the actors are highly involved and establish strategic alliances to achieve the goal of the "health and nutrition of the population". Precedence is given primarily to the local economy. International trade is a possible avenue but is not a priority, particularly if it is engaged in to the detriment of the food security and food safety of the local population. This setup presupposes political stability, firm confidence on the part of economic actors and an entrepreneurial turn of mind. There is a profusion of activities and a decrease in poverty. Standards are adapted to the local context. Consumers and producers are informed and well educated. The impact of the Mediterranean food patterns and traditions has been established with a certain degree of modernity; consumers are even returning to the Mediterranean diet, adapting it to their new lifestyle and new expectations: simplified meals, less fats, less meat and less carbohydrates, diversification of the culinary repertoire through the introduction of new dishes, which are often of Mediterranean origin. Food is still an issue of importance. Even if the international spread of Mediterranean food becomes established, this does not guarantee that the market for the products of the region will expand, since it depends on consumer comprehension of the Mediterranean diet.

There are several possibilities:

- Consumers are very concerned about where foodstuffs have been produced and demand products of Mediterranean origin. This would constitute a tremendous market, but it would then be very tempting to intensify production in order to create wealth at the price of exhausting local soil and water resources. It is a well-known fact, moreover, that excessive intensification and the industrialisation of artisanal know-how to a degree that exceeds the rational are factors which impair the intrinsic quality of commodities.
- Consumers set great store by the structure of the Mediterranean diet, the wide diversity of foodstuffs and the combination of various foods. The origin of production is

thus of little importance, and some producers can embark on the production of new products to satisfy demand – this is how olive-growing prospered in the United States, Australia and Latin America. Mediterranean tree-growing can develop wherever climatic conditions allow. The same applies to pulses or vegetable production, or even greenhouse production. Fish farms multiply. The rest of the world can soon become a serious rival of the Mediterranean region.

- Consumers attach importance to product authenticity and to the specific features of products. Mediterranean industrialists and craftsmen will thus have to organise themselves rapidly in order to protect their know-how, recipes and specific products by means of patents and labels.

The avenues to be explored

In this profusion of possible situations, how are the key variables to be selected on which action should be taken with a view to achieving the objective of food security and food safety? Since precedence is given to the participatory approach and consensus in this context, we have used the *Eidos*[®] decision-making tool. By identifying all of the direct causal relationships amongst the 16 variables mentioned above, this tool takes them two by two and analyses influences/dependencies, thereby examining the most active variables (those where any change will have a major impact on the system) and the most passive (those where direct action would be preferable in order to avoid having to change a large number of other influential variables). The most influential variables concern the level of agro-food output and the quality of the commodities and goods produced, relative poverty and inequalities, and cultural food identity. The most passive consumer involvement in food quality, the quality of industrial products and consumer purchasing power, particularly in the case of quality products that are beneficial for the health. These variables thus constitute six major fields of action for which hypotheses/options will be put forward and action scenarios will be drawn up. A scenario is only attractive, however, if it is coherent, that is to say, if it comprises compatible options. Five avenues are explored here on this basis in order to fully demonstrate the strategic dimension of food security in the Mediterranean region.

1) A comprehensive and concerted policy for food security and food safety in which the main focus is on consumers. This avenue requires good knowledge of local consumer behaviour and preferences as well as measures to raise consumers' awareness of their responsibility in food choices. Consumers are the mainspring of the production system in the broader sense, and their interests are taken into account, since consumer associations have been strengthened. Rational farming would intensify agricultural production. Selective taxation would help to improve purchasing power and thus food security, and consumers would be encouraged to choose quality products by means of subsidisation. And finally, an active policy for introducing quality in the industrial fabric would be promoted.

2) Food quality inevitably involves firms and their commitment. Since food production will inevitably become increasingly industrialised, food safety would be promoted by firms, which are now anxious to ensure quality. The regulations governing the industry would be stepped up, and the production of industrial food-stuffs at prices

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suited to all categories of the population would be intensified. The tendency would be to apply quality procedures throughout the industry, and the dissemination of information on the quality of industrial foods would be broadened.

3) Highlighting the value of traditional products as the mainspring of food safety. Since identity is closely connected with cultural rooting, food safety would be organised around and by means of traditional products. Rational production would be stepped up, regulations would be adapted, and traditional products and/or products closely connected with the cultural heritage would be industrialised for wider distribution at affordable prices. Subsidies could be granted to products whose quality is guaranteed, and aids to supplement the purchasing power of the most needy population segments would enable them to have access to quality.

4) Commitment on the part of actors at all stages of the food chain. In this scenario, emphasis is laid on social ethics, commitment on the part of each actor in the food production chain and measures to protect purchasing power. Producers, industrialists and distributors are involved and can direct the promotion of their quality products to consumers, who are now aware.

5) Government intervention as a guarantee of food security and food safety. The liberalisation of the various sectors would be somewhat delayed, and the public authorities would intervene to a large extent to “impose” a certain conception of food security and food safety. The main lines of government intervention policy would comprise action to raise consumers’ awareness of their responsibility in food choices, stringent regulations imposed on the industries, subsidisation of quality products at the retail level, government schemes to educate consumers, and consumer aids and subsidies.

Food security and food safety are crucial to harmonious development at the local level

The Mediterranean diet must be preserved and modernity accepted at the same time in order to promote both food security and food safety. Food safety is an issue as yet unresolved; it is connected with consumer choices, but also with the fact that actors in the food chain and the public authorities lack commitment. While the overall situation regarding food security in the Mediterranean region is fairly satisfactory on the whole at the present time, the situation has deteriorated as regards food quality and safety. Health aspects are not the only reason for consuming Mediterranean foods; defending regional products can also contribute to the environmental and cultural sustainability of the region, and promoting local products amongst the rural populations in the zone would have an economic impact. It would seem imperative to implement integrated multisectoral policies if ensuring food security and food safety is to be a societal objective in the Mediterranean region.

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CHAPTER 9

SUPPLY AND MARKETING OF AGRICULTURAL COMMODITIES*

Given the history of the Mediterranean region through the ages and its position as a cultural and civilisational crossroads, this geographical zone is a treasure trove of culinary traditions. In the course of these centuries of experimentation and exchange (which was often imposed), a Mediterranean food heritage was gradually formed, which is as singular as it is rich in diversity. This heritage seems to have been made vulnerable, however, by the new population trends and agro-food developments that are underway in the region.

Dietary patterns, like civilisations, do not survive forever. In addition to the inevitable developments in any behavioural pattern over time, which is necessarily a factor of change, Mediterranean culinary traditions could well die out in the current unprecedented context of globalisation, which is tending to eliminate uncompetitive zones. Even worse, the social environment and landscape of the Mediterranean as a whole is jeopardised at a time when, paradoxically, the (western) world is discovering the advantages of Mediterranean food for both palate and health and attempts to imitate these products are multiplying.

There are marked contrasts in the agricultural and agro-food sectors in the region with energies and know-how mobilising the region's agricultural potential on the one hand and considerable inadequacies in terms of logistics and marketing on the other. It is as though the Mediterranean zone were unable to effectively exploit the agricultural and food reserves which could doubtless be revealed if there were more intensive and more mutually supportive co-operation. Yet this is a major challenge for the socio-economic, political and environmental future of the region. It is also a question of the Mediterranean image throughout the world, since the diet and flagship products of the region are powerful vectors of identity.

* - This chapter has been based on documents prepared by Annarita Antonelli (Ciheam-MAI Bari), Omar Bessaoud (Ciheam-MAI Montpellier), Giulio Malorgio (University of Bologna) and Patrizia Pugliese (Ciheam-MAI Bari).

Organisation of agro-food supply in the Mediterranean region: trends and dynamics

Sectors influenced by the industry and the distribution trade

The Mediterranean agro-food sector has for several years been showing degrees of dynamism which vary from one country to another but which affect all segments, beginning with food consumption, which is in fact regarded as the mainspring of the process of change in a given economic system. Consumer preferences change; they are determined by many factors such as the development of the socio-economic fabric and the cultural customs of a given population. Family size, the increasing number of women on the labour market, growing ethnic pluralism, the urbanisation process, income distribution and, lastly, level of education and education in food matters are all factors which considerably affect tastes and attitudes and thus consumption. Consumers are now tending more to choose products which combine satisfactory nutritional content with services which meet the widely varying needs of an increasingly segmented market. These factors affect the structural, organisational and economic aspects of the various downstream sectors in the agro-food chain such as the distribution trade and the food-processing industry, and it must be borne in mind that the system as a whole requires a system of transport and preservation logistics that is often sophisticated and product-specific.

Within the agro-food sector the distribution process is of fundamental importance, a fact which is particularly evident in the northern Mediterranean countries. As information and logistics technologies develop, the trade's position in the agro-food economy grows and marketing levers become increasingly sophisticated, the distribution trade – with all these modern forms of organisation – plays a leading role, guaranteeing product quality and consumer food safety and at the same time exerting influence on the development of upstream industries. In the southern and eastern Mediterranean countries (SEMCs), the pace of change has been slow due to the low level of technological development and to structural constraints – of which land and water scarcity are not the least –, which have also resulted in limited integration and inefficient growth in the agro-food sector; the role played by more intangible factors is furthermore negligible. Scientific knowledge and technological applications such as information and logistics technologies and biotechnologies are in fact a potential component of the competitive asset for corporate systems in that they allow more rapid and more appropriate response to market demands and make it possible to reduce the productivity and income gaps between the northern Mediterranean agro-food systems and those in the South.

What is the state of the agro-food industry?

The agro-food industry plays an important role in the co-ordination and development of the agro-food sector. By standardising processes and processing products it can adapt to changes in demand and can handle constraints of time and distance in the transport of goods while prompting modernisation in the farming sector. And developing consumer demand, growing international competition, the globalisation of markets and the introduction of technological innovations are all determining factors in the dynamics of the food industry, which is becoming increasingly specialised and differentiated.

Supply and marketing of agricultural commodities

It is extremely heterogeneous in the Mediterranean region. Italy, Spain and France account for almost 75% of the turnover of the Mediterranean countries in this sector, compared to only 5% for a large country like Turkey. Several trends seem to be underway:

- enterprises in the agro-food sector are amalgamating in order to take advantage of economies of scale and enhance competitiveness;
- strategies are becoming more differentiated in response to market segmentation;
- firms are investing in advertising in order to build up the reputation of producers' brands and pursue marketing strategies more effectively;
- undertakings are devoting expenditure to R&D and innovation that is geared to improving quality and ICT;
- there is growing competition - both horizontal competition between industries and vertical competition between the food industry and the retail trade;
- opportunities are being created for SMEs: firms in the large-scale retail trade are disseminating strategies for differentiating and developing local agro-food systems.

Despite these common trends, the pace of change and the dynamism of the sector differ between North and South, and performance also varies widely. In order to measure performance, the Ciheam has compiled a synthetic index, which includes labour productivity, value added rates, value added growth and production capacity. The average index is 3, and all of the countries in the South except for Israel fall below that level, whereas the northern countries are above average.

In the northern countries, the agro-food industry is registering steady growth in annual production in terms of volume and value, value added per job is growing, and tangible investments are also increasing. In the southern and eastern Mediterranean countries the industry is hindered by constraints which are slowing down development and impairing the effectiveness of the role it plays in the emergence of a comprehensive agro-food system: an artisanal profile (fragmentation of supply, obsolete plant and equipment, etc.), lack of competitiveness in the case of state enterprises (which in some cases are protected by a position of monopoly), low investment in research and innovation, lack of adequately skilled labour, inadequacies with regard to product quality and standardisation, missing links in logistic chains, high costs and product losses in the food preservation and distribution segments. These difficulties are compounded by other related handicaps such as low productivity in the farming sector, of course, but also the fact that the packaging and industrial equipment sectors are underdeveloped, there is no trade integration amongst SEMCs, and the general business climate is inconducive to efficiency.

There are several signs of modernisation in the sector, however, thanks to the growing presence of large private enterprises. These groups are often the result of state enterprise takeovers (Cetival in Algeria, Poulina in Tunisia, the ONA group in Morocco, Lakah, Orascom and Ghabbour in Egypt, and Koç Holding and Sabancı Holding in Turkey, etc.); their activities are highly diversified and they invest in the agro-food industry

through specialised subsidiaries. Foreign partnerships enable them to take advantage of partners' technical and commercial skills. This type of co-operation is particularly common in the milk and bottled water sector (Danone and Nestlé being the principal firms concerned). In addition to this fabric of national enterprises a growing number of multinationals are also becoming established in the South (either directly or through partnerships or alliances),¹ and local SMEs are also making efforts to modernise, often encouraged by local public schemes.² This dynamism, which is actually a recent development, seems to be confirmed by the analysis of the economic indicators for the 1998-2003 period, where a significant increase in the value added of the agro-food industry was registered in Egypt (+35.4%) and Turkey (+22.4%), as well as a further very significant increase in value added by employment in Morocco (+22.5%) and Turkey (+14.7%).

And the large-scale retail trade?

There have been remarkable structural and organisational changes in the large-scale agro-food retail trade over the past few years. This sector is no longer simply a channel for transferring products from producers to final customers; it now contributes strategically to the creation of value for consumers. This modern retail trade is guided by differentiation strategies, given impetus by advantageous concentration moves and enhanced by the introduction of information technologies, and it now has an advantage over other agents in the system and is even introducing official quality marks for consumer goods. Its leading position, which is based mainly on knowledge of consumer preferences and the resulting consumer confidence, means that it can exert a controlling influence on food supply.

In the northern Mediterranean countries the market share of hypermarkets and supermarkets in the retail systems is steadily growing to the detriment of small businesses. It increased from 63% in 1994 to 70% in 2004 in France, whereas the share of traditional shops dropped from 19% to 16%. In Portugal, it increased by 25% in the period from 2001 to 2005. The number of supermarkets in Greece rose by 16% between 1999 and 2003. And in Spain the growth was even more marked over the same period - the share of the large-scale retail trade grew by 60%. The turnover of these major operators has also been increasing at the same time.

Chain stores in Greece and Spain are supplied by importers, and this is also the case to some extent in Portugal (where the remaining supplies are obtained from wholesalers). Purchasing pools are used in France and Italy. The large-scale retailers have also created preferential import channels, developing direct relations with their suppliers in order to introduce new food product quality actions and thus create a series of private labels under their trade names.

1 - The leading 100 multinationals control 160 subsidiaries in the southern Mediterranean countries (Tozanlı, 2004).

2- This phenomenon is observed mainly in Tunisia and Morocco and, as a result, plant and equipment are being modernised, there is skilled labour on the employment market, product quality is improving and firms are becoming involved in the European certification systems.

Supply and marketing of agricultural commodities

International corporate ownership is relatively widespread in Spain (31% of the chain stores are owned by French firms, 10% are owned by Dutch companies and 6% by German companies). In Portugal, most of the enterprises are of mixed ownership, with French, Dutch, German or Spanish partners. In Greece, 14% of the supermarkets are owned jointly by Belgian and Greek companies and 8% by German and Greek companies.

In the southern and eastern Mediterranean countries there are several (cultural, economic and administrative) constraints which have hindered the development of the modern retail trade. There is a positive correlation, however, between foreign direct investments and chain store development (Reardon *et al.*, 2003). The strategies pursued in the large-scale retail trade are differentiation strategies³ and strategies to strengthen vertical integration processes (Codron *et al.*, 2004).⁴

Reardon and Swinnen (2004) have identified certain effects of the development of chain stores on small agro-food firms, such as the creation of high-grade markets with high value added, which market large volumes of goods. These large and medium-sized chain stores provide an opportunity for SMEs, whose margin for action is no longer limited to local markets, where prices are low and quality controls inadequate. Access to the big chain stores is difficult for them, however, due to the more stringent demands of the large-scale retail trade concerning both product features and transactions (large volumes, stability of supplies in terms of both quantity and quality, efficiency, food safety, etc.). Suppliers are selected on the basis of increasingly stringent criteria requiring considerable investments in the supply industries.

The number of chain stores has steadily increased, rising from 2 to 7 between 2000 and 2003 in Egypt; and in Turkey, the number of supermarkets and hypermarkets increased by 202% and 278% in the 1996-2002 period respectively, while the number of *bakkals* (corner shops) dropped by 26%. Corporate ownership in the large-scale retail trade is also tending to become international, the chain stores in the SEMCs now often being foreign-owned. The level of foreign ownership varies on average between 20% in the case of Egypt and Turkey and 50% in the Maghreb countries.⁵

Industries under trade pressure: the emergence of quality standards

There are two factors which are contributing to the transformation of trade in the region. Changes in consumer behaviour considerably modify the nature of economic and commercial competition, the sources of competitive advantage and the relationships amongst firms in the agro-food sector. New possibilities for differentiating products and services are arising in particular in connection with more sophisticated consumer needs, and this provides a basis for overcoming to some extent the constraint of

3 - In the fruit and vegetable sector, for example, traditional retailers offer low prices and fresh products, whereas the chain stores focus their strategies on other features (such as food and foodstuff safety).

4 - Vertical supply relationships have often developed as the result of the need to market high-quality products at the same prices as those paid in souks and bazaars.

5 - In Turkey, for example, there are enterprises owned by Turkish and French groups (Carrefour, Champion, Dia) or by Turkish, British, German and American companies. In Egypt, on the other hand, there are only two enterprises which are part of an international joint venture (Shoprity and Carrefour). There is very strong international presence (mainly French and Dutch) in Morocco, in both chain stores (Marjane, Metro) and in small supermarkets. There is also very strong international presence (mainly French) in Tunisia (Carrefour et Casino).

competition based solely on price. At the same time, multinational negotiations within the WTO require that trade barriers be lowered and internal support for agricultural policies be reduced, particularly with regard to developing countries. In the light of these factors the new challenges facing agricultural trade in the Mediterranean region can be better appreciated.

The structural, economic and social differences of the Mediterranean countries are resulting in heterogeneity in the levels of quality and standards applied in the various production systems. The liberalisation of trade and opening of markets makes convergence and measures to harmonise regulations on quality standards for agrifoodstuffs imperative.

The northern-shore European countries are devoting more and more attention to food quality and food safety, factors which significantly influenced the recent reforms of the CAP, in which there is now more focus on the environment and consumer protection, and also stimulated the emergence of agencies specialising in food safety. This desire to improve quality is reflected in the development of labels (RDO, PGI, PDO) certifying agrifoodstuffs. In the case of the southern and eastern Mediterranean countries, agro-food policies are geared mainly to output volume and corporate modernisation through intensification and measures to improve price competitiveness. Measures to improve quality have gradually been introduced in the local market and export context. But these countries are still lagging behind in the institutional context with regard to certification and control procedures due to the lack of funding allocated to innovation, export management and steps to develop commercial infrastructures. For establishing quality certification procedures requires considerable specific investments as well as knowledge of technologies and organisational procedures which many SEMCs still lack to a large extent. It also requires better knowledge of the existing standards applied at various stages in the food chain and promoting schemes for training economic operators and informing consumers.

A series of negotiations should be opened on agreements on product conformity assessment and the harmonisation of technical standards and characteristics so as to reduce transaction costs and facilitate the trade liberalisation process. In this way the Mediterranean region could benefit from the development and application of shared certification systems and recognised quality standards and thus lay the groundwork for controlled growth in trade and the coordinated development of the agro-food industry along the North-South axis.

Local system, local area and highlighting the value of Mediterranean products

Quality products, diversification of activities and governance in local areas

In the past few years market dynamics have been marked by substantial growth in the demand for quality products. In France, the trend observed on the three types of market in the distribution sector has confirmed this development: the annual growth rate on the standard product markets, which account for 75% of the retail trade, is just under

0.1%, whereas the health food market, which admittedly only accounts for 5% of the total market, is growing at rates varying between 15% and 20%. And the “authentic and/or gourmet product” market, which accounts for 20% of market share, has an annual growth rate of 5%-10% (Rastoin, 2006; Sainte-Marie et Bérard, 2005). The market share of organic products has been 10% since 1999, a fact which also underlines consumers’ desire for quality. Of the 650,000 French farmers operating at the present time 180,000 involved in one way or another in quality measures (i.e. over 27%). The introduction of legislation and the establishment of producer organisations have given these market trends further impetus in both European countries and the SEMCs. The EU introduced a series of regulations in 1992 on systems for protecting and developing agro-food products (PDO, PGI, TSG).

International cooperation: the Green Corridor and the Green Trade Initiative

The purpose of the Green Corridor, a cooperation programme signed between Italy and Egypt in 2002, is to strengthen collaboration between these two countries in the agro-food sector. It aims both to increase Egypt’s garden produce exports to Italy and, through Italy, to Europe, and to open Egyptian markets to certain Italian products with a view to mutual benefit in the context of market globalisation. The scheme comprises the principle of seasonality and quota restrictions in order to avoid competition between the two countries. The purpose of this idea of a preferential corridor between Egypt and Europe via Italy is to meet the growing European demand for fresh products in connection with the reduction of production capacities in Europe due to the current climate changes but also to the steady decline in the fertility of arable land and increasing labour costs which are discouraging certain producers. The initiative was financed by the Debt for Development Swap Programme, whose funds are used for financing projects promoting socio-economic development and environmental conservation. Italy has thus been the first country to convert Egypt’s debts.

This programme has very recently been developed further in the context of the Green Trade Initiative, which confirms the original vision of the programme on the basis of the results of the pilot project financed by the Green Corridor and highlights the issues of phytosanitary control and traceability of Egyptian products grown for export. The Green Trade Initiative aims more specifically to improve logistics in Egyptian ports, to support the creation of an ad hoc shipping line to meet the demand for larger volumes from Europe and to set up an integrated phytosanitary control system that is efficient and practical. This system is intended to provide a basis for creating one-stop control points (for phytosanitary, customs and other aspects) in the country of origin with a view to accelerating formalities in both countries but also to coordinating and harmonising rules and procedures between the exporting and the importing country.

The objective of the pilot project was to produce and export approximately 3000 tonnes of fresh produce in 18 months through measures to control the entire production chain including the post-harvest stages such as packaging, cold storage chain, internal transport and shipping to Europe via Italian ports while raising the quality standards of Egyptian products and applying the principles of seasonality. The pilot project has triggered a series of private initiatives between Italy and Egypt, which will help to develop the organisation of supplies from small Egyptian producers while improving their socio-economic circumstances.

The various product protection systems

Products bearing the PDO (*Protected Designation of Origin*) label must have been produced, processed and finished in a specific geographical area by processes involving recognised and established know-how. In the case of products with the PGI (*Protected Geographical Indication*) label, at least one of the production, processing or finishing stages must have taken place in the local area, and the products can have an excellent reputation. The TSG (*Traditional Specialty Guaranteed*) label does not refer to origin but aims to highlight the composition of the product or a traditional production method. Other quality marks have been developed around production processes such as the AB (*organic farming*) label and the “*integrated farming*” label. The concept of “*quality label*” is broader and covers any mark on a product that is intended to provide information on the product’s intrinsic quality.

EC Regulation. no. 383/2004 has made the policy for protecting the denominations of agricultural products more transparent. In addition to complementing the legislation in force, this regulation attempts to resolve other issues concerning the risk of obstacles to the free movement of goods on the internal market and the difficulties caused for exporters in developing countries. It opens up prospects of co-operation with farmers and other actors in developing countries by proposing technical assistance in the designing of schemes affecting imports.

Over and above these regulations, quality products are a major component of the policy for modernising agriculture in Europe. Provision has been made in the context of the CAP for aids to ensure strategic positioning through measures to upgrade and develop agrifoodstuffs.⁶

The new European Agricultural Fund for Rural Development (EAFRD) now provides the opportunity of support for enhancing the quality of agricultural production and products, improving the environment and the rural landscape, encouraging tourism in the context of measures to diversify the rural economy, conducting studies, and effecting investments to maintain, restore and upgrade the cultural heritage.⁷

Over 700 products obtained PDO and PGI registration authorisation in 2007 in the EU-27. Almost 600 of them come from Mediterranean countries, i.e. over 80% of the products registered (Chart1), and 15 products including 4 Mediterranean specialties obtained TSG (traditional specialty guaranteed) registration. Cheeses, fruit and vegetables account for half of these registrations, followed by olive oil (15%).

In the organic farming field, the European Commission launched a new European plan of action in June 2004 following an extensive consultation process involving the Member States, the Community institutions, the actors and all of the stakeholders involved in developing this type of agriculture. A new regulation was issued more recently taking

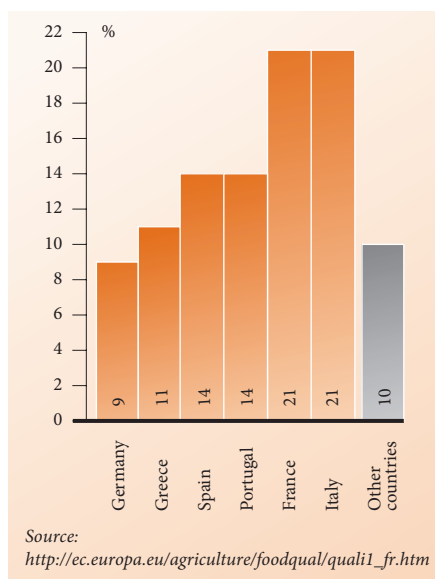
6 - Council Decision of 20 February 2007 “Community strategic guidelines for rural development (programming period 2007 to 2013)”. See French framework law, Title IV, Chapter 1 on agricultural co-operation and the development of agrifoodstuffs.

7 - See EC Regulation no. 1698-2005 of 20 September 2005. The various aspects of the support provided are closely inter-linked, and the supply of quality products accompanies or precedes activities in the tourism sector, for example. The idea is to build up a supply on the Lancaster model, and everything boils down to a process where the supply of recreational activities, tourist facilities, farmhouse accommodation, home catering for residents, etc. is integrated, structured and developed on a joint basis.

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account of recent developments in terms of both principles and needs.⁸ The development of organic farming in the southern European countries in the past few years has been spectacular - it accounted for 50% of acreage in 2005. Fruit and vegetables are the most important category in this sector (accounting for 25% of the total European market in 2005). These products are grown mainly in Italy, Spain and Greece and are exported to the northern countries, which also import supplies from third countries. The world

Chart 1 - Distribution of PGOs/PGIs in Europe, 2007



markets of organic products boomed in 2005, exceeding \$30 billion. The forecasts published in the Organic Monitor (2006) show that demand is now well above supply, particularly in European countries.⁹ The dynamism of the industry is confirmed at world level: organic products accounted for \$26 billion in 2003, and, according to projections, it is estimated that the trade volume will have reached \$71 billion by 2012.

In addition to the official quality marks that have been designed within the European regulatory framework, others are developing, particularly through the large-scale retail trade. In the latter case, an agreement concluded between a distributor and a group of producers and based on specifications guarantees product quality and compliance with good farming practices, the aim being to highlight the value of the product in the eyes of consumers (as is the case with Carrefour's "Qualité Carrefour"

label. This concern for quality is also apparent in the North, where the consumption of fruit and vegetables has increased, an important factor for reducing the incidence of obesity and chronic disease, which is furthermore one of the main objectives of food and health policies in many European countries.¹⁰ The explicit purpose of reforming the Common Market Organisation (CMO) in fruit and vegetables, which was advocated by the European Commission in 2007, is to change from a position of commercial profit to one of quality profit.¹¹

Quality is also clearly sought in the wine sector. Table wines no longer predominate in terms of volume, and attention to quality is becoming a general trend in all market

⁸ - EC Regulation no. 834/2007 and no. 2092/91.

⁹ - Organic products have an increasingly positive image with consumers (this is the case with 8 out of 10 people in France, according to the surveys conducted), and over 50% of the French population consumed organic products in 2006 compared to only 37% in 2003.

¹⁰ - An International Fruit and Vegetable Alliance was formed at the opening session of the 18th International Congress on Nutrition, which was held in Durban, South Africa, from 19 to 23 September 2005. Its purpose is to develop schemes aiming to promote the consumption of fruit and vegetables with a view to addressing problems of obesity and chronic disease related to a faulty diet. Government plans are being taken over by nutrition institutes in order to encourage the fruit and vegetable trade (cf. strategy pursued by Interfel-Europe).

¹¹ - Fruit and vegetable output amounted to 3.1% of the EU budget and 17% of total agricultural production in the EU in 2005.

segments, where official distinguishing marks (designations, indications of geographical origin, vine varieties) and new institutional or organisational rules (ISO 9000 quality certification, ISO 14000 environmental certification and traceability) are the order of the day.¹² The purpose of the reform of the CMO in wine that has been recommended by Brussels is to enhance the reputation of European quality wines in order to regain market shares that have been captured by countries in the southern hemisphere.¹³

This reform recommends that policy on quality and geographical indications be aligned with the provisions of the TRIPs Agreement, that the concept of EU quality wines be promoted and enhanced worldwide, and that the role of the interprofessional organisations be expanded so that they can control and manage the quality of the wine produced on their territories.

Table 1 - Inventory of PDO-PGI registration concerning southern European countries, 2006

Products/country	Greece	Spain	France	Italy	Portugal	Total/ products
Cheeses	20	19	42	31	12	124
Processed meat	-	10	4	28	31	73
Meat (and fresh offal)	-	13	50	2	25	90
Fish/shellfish, etc.	1	-	2	-	-	3
Other animal products (honey, milk)	1	2	6	2	10	21
Oils and fats / olive oil	25	16	-	37	5	83
Table olives	10	-	3	2	1	16
Fruit, vegetables and cereals	22	28	24	45	19	138
Bakery products, pastries and cakes, confectionery, biscuits, etc.	1	6	2	3	-	12
Various non-food products	4	-	2	3	-	9
Other products	-	3	-	-	-	3
Other beverages	-	-	5	2	-	7
Total	84	97	140	155	103	579

Source: EU.

¹² - PDO vine plantations have increased by almost 30% in France in the last 20 years..

¹³ - The European Commission has announced that planting rights will be fully liberalised by 2013 in order to speed up vineyard restructuring.

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Major public and private initiatives have been launched at both the local and national level to improve the institutional and organisational framework for product quality and to develop local products and organic farming. In the southern and eastern Mediterranean countries, the new legal framework and agricultural policies that have been introduced have improved the supply of Mediterranean products, and the acreage dedicated to organic farming has also increased. From the point of view of promoting quality, closer trade relations with European countries, which attach considerable importance to that aspect, is obviously an additional vector for changing practices.

In the context of more stringent European requirements concerning quality standards and safety, the concept of quality is developing as has been the case with the European system of reference concerning good agricultural practices (EuropGAP). Considerable efforts have been made by both public and private institutions with the collaboration of the European countries to implement programmes designed to improve quality systems in various production sectors with a view to maintaining a trade dialogue with the EU. These efforts concern the approval of ISO certification bodies and the creation of quality control bodies for the organic farming sector. This process does not, however, mean that the practice is widespread, since the supply chain within the various production systems is fragmented. More specifically, relations with exporters are less direct and vertical relationships are inexistent.

In all of the SEMCs a clear distinction is made between food products intended for the domestic market and those intended for export. Greater efforts are made with export goods as regards procedures for applying quality criteria and certification mechanisms, which, in addition to complying with minimal health and quality standards, allow producers access to EU markets, where their goods are relatively popular. Some operators in the fruit and vegetable sector or in the food industry in Morocco, Turkey, Tunisia and Egypt have already adopted certification systems, such as EurepGAP and HACCP, involving the use of a traceability system which complies with the provisions of EU Regulation 178/2002.

Tunisia is trying to promote these guidelines in its strategy for developing its export and domestic markets (including the tourist industry in particular).¹⁴ A “Tunisian olive oil” label policy has been launched and a “fruit and vegetable” system of reference has been defined in order to obtain EurepGAP certification.¹⁵ A fund for promoting packaged olive oil has just been created in the context of the 11th Development Plan (2007-2011).¹⁶ In Morocco, in addition to the schemes devised in the rural development strategy for 2020 and those underlined in the various agricultural programmes, regulations are currently under preparation and training courses have been defined with a view to improving quality and diversifying services. An inventory of local products has also been drawn up. The same principles are laid down in Algerian agricultural and rural policies. The Algerian government has invested itself with a standardisation institute

¹⁴ - See Guidelines set forth in the 11th Plan (2007-2011).

¹⁵ - This “fruit and vegetable” reference system comprises 14 chapters and 214 control points, which have to be checked, 49 of which are major requirements that have to be complied with in the EuropeGAP context. The Douala farming enterprise has been certified by EurepGAP, for instance, and this certification enables the firm to penetrate European markets with its certified potatoes.

¹⁶ - 1% of olive oil is packaged (2000 tonnes in 2007). The output estimate for the 11th Plan is 210,000 tonnes compared to 142,000 tonnes for the 10th Plan (2002-2006).

(law 04-04 of 23 June 2004) and has defined the legal framework for protecting consumers (law 89-02 concerning consumption). An inventory of local products is currently being drawn up and a legislative framework governing certification and labelling procedures for agricultural products has been announced. Under pressure from olive oil producer organisations the Ministry of Agriculture and Rural Development issued quality certificates and a commercial label in 2006.

Turkey embarked on an offensive protection policy at a very early stage taking the 1992 European regulations as a model. In the period from 1995 to 2003 the government assigned the Patents Institute the task of applying the rules on geographical indications (GI), and this allowed the country to obtain recognition for 67 protected products including 30 AFI products (nuts). The country now has its own certification bodies for organic products.

The fact that the organic sector is currently developing also demonstrates that the country has switched to a quality strategy, which is encouraged in all SEMCs, and the acreage dedicated to organic farming is growing rapidly everywhere – in Tunisia, Morocco, Turkey, Egypt and, more recently, in Algeria, Lebanon and Syria. Organic farming is highly specialised in these countries – argan trees and herbs and spices in Morocco, olive trees in Tunisia and dates in Algeria. While in Egypt some products are intended for the domestic market (40% of output), in the Maghreb countries foreign markets are the main target of producers and exporters.

Despite these encouraging signs, procedures in the southern and eastern Mediterranean countries are still cumbersome. The legal and institutional framework is still incomplete; systems of reference for good farming practices have not yet been defined and the certification and product traceability instruments and health standard controls are not yet operational – far from it. Since health risk management is inefficient, conflicts can arise between routine practices and the new hygiene regulations that have been defined for the European markets, and, as a result, foreign economic operators impose the “rules of the game” on local producers or retailers. The lack of commercial infrastructures, means of communication and transport, cold storage chains or packaging systems is a further obstacle to the development of many local and regional markets.

Things are not perfect in Europe either, where the legislative framework is complex (growing number of quality criteria, labels and subsectors) and is not unified. The European Commission thus has great difficulty in asserting and protecting its production methods and denominations with regard to the new producer countries. The reforms which the Commission has introduced making agricultural producers the focus of food law and thus making them responsible for the products marketed or supplied to the entire food chain¹⁷ add to the legal burden on their shoulders. Within the framework of the European food law, each farmer must adjust his farming practices according to the possible health hazards involved. Farmers are thus increasingly subject to the organisational legal tools typically applied to commercial firms.

¹⁷ - See food law. Regulation 178/2002 of 28 January 2002 lays down the principles as well as the obligations of the actors in the food chain. It covers both foodstuffs and feedingstuffs. The precautionary principle, the transparency principle, the principle of harmlessness and the principle of tracability (the major principle) are all features of the reform of food law. This regulation is complemented by a series of instruments, which have been in force since 1 January 2006.

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Improving organisational framework

In Europe, the local authorities, consumer associations (drawing on the principles and values forming the basis of fair trade), producer organisations, research bodies and regional authorities have encouraged moves to promote local products and improve distribution methods (short circuits and direct circuits, support for peasant farmer markets – AMAP (associations of smallholders) – local markets, mail-order selling, sales to caterers, specialised retailers and chain stores, and sales for export). Furthermore, the CMO in fruit and vegetables emphasises the need to strengthen inter-trade organisations by means of aids to support efforts to build up producer organisations (aid amounting to € 700 million).¹⁸

Producer organisations and river basin committees have been set up in France within the framework of this new CMO, in which fruit and vegetable wholesaler unions are pursuing supply strategies that are including more and more local products. Agricultural cooperatives involve quality fruit and vegetable producers direct in labelling and product traceability processes. Agri-confiance, an association of 132 agricultural cooperatives in France involving 30,000 farms, has been expanding its supply of quality products to consumers year by year.¹⁹ And France-Bio sells 20% of its products to the consumer direct (on-farm sales, sales at fairs and trade fairs, etc.).

In the southern and eastern Mediterranean countries the handicaps are particularly severe, despite the progress that has been made. In Morocco, producer organisations have developed tremendously in the past few years; there were over 250 producer associations and groups, 37 chambers of agriculture and 6,000 cooperatives in 2006. A producer association has been created in the organic sector (Maghreb-Bio), and new confederations have been set up such as the Moroccan Confederation of Agriculture and Rural Development (Comader) with 35 producer affiliates. There are still major constraints, however (concerning organisation, regulations, institutions and marketing). In Tunisia, in addition to the various federations which were set up in the 1990s, producers in the organic farming sector have set up their own federation, and date producers have grouped together in the GID (inter-trade date group). Industrialists have signed purchasing agreements with agricultural producers in order to process and market the goods delivered.²⁰ Agricultural professionals in Algeria are grouped in 1,300 producer associations and over 800 service cooperatives. The AFI agents are organised at the subsectoral level and operate within chambers of trade and industry and employer unions. In Egypt, there were 5,717 cooperatives in 2002 with a total membership of 4 million producers and an estimated turnover of 25 billion Egyptian pounds (i.e. the

¹⁸ - The purpose of these aids for producer organisations is to offset additional costs incurred by compliance with the very specific rules on animal welfare, environmental protection, labour and employment. Additional support (a Community part-financing rate of 60% instead of 50%) will be made available in areas where less than 20% of production is marketed through the producer organisations and in the new member states in order to encourage the creation of producer organisations. The project proposes further aid, which will be granted for amalgamations and associations of producer organisations.

¹⁹ - The representative public and private actors in the sector participated in the development of Agri-confiance, which is the result of negotiations between the various trades or industries concerned by the labelling and traceability processes.

²⁰ - In 2006, the UTAP (Tunisian Union of Agriculture and Fisheries) encouraged purchasing contracts between the owners of foodstuff processing plants and fresh tomato producers with a view to "strengthening links between farmers and processors so that the concentrated tomato production system functions smoothly, ensuring that there is no loss of tomatoes and that the processing plants are supplied regularly."

equivalent of €4 billion). These co-operatives support production and market agricultural commodities, but they are meeting with difficulties connected with the measures to redefine their role in the new context of liberalisation, State divestiture and structural adjustment. Lebanon now has 600 cooperatives, but since they rarely abide by the spirit of mutual benefit organisations and are often set up because they provide an opportune source of financing, there are major shortcomings in their administrative and financial management. At best, they are service pools but they do not always provide a basis for grouping supplies, and this tends to weaken producers' position in relations with wholesalers. In Turkey, the producer organisations seem to be more closely linked to the government, which provides financial aid as well as support with regard to supplies and marketing.

Although these forms of organisation are more developed in southern European countries, their efficiency is impaired by institutional and economic constraints, which are often common to all Mediterranean countries. Given the fragmentation of the supply chain, the large-scale retail trade still holds a position of power, for example, and can play the role of price maker. As a result, productivity gains are in the downstream industries, and farmers do not always benefit (Lipchitz, 2005; Butault, 2006; Purseigle 2005). In the final analysis, the construction of a new production paradigm based on supply that is adapted to the Mediterranean consumption model raises the crucial question of improving the legal framework and organising producers. Although progress has indeed been made in the organisational field, co-ordination amongst structured and informed actors is still sadly lacking. This is one of the major problems that will have to be resolved in order to contend with competition from products produced in the southern hemisphere and to ensure the future of peasant farming in the region.

Fundamental challenges and hypotheses: players, levers for action, resources and impediments

Organising the industry and promoting integration

Organising supply is one of the principal challenges in Mediterranean production. The analyses and trends that have already been discussed have revealed factors that are important for building up an integrated and competitive supply of agrifoodstuffs in the Mediterranean region.

Between horizontal co-ordination and the concentration of supply

In a market economy that is based on the contractual relationship involved in the trading of products, decisions on the quantity, quality and price of products require balanced negotiations between the various partners involved. The concentration and control of supply in the agricultural sector become important factors for managing relations with the industry and the retail trade and for organising market exchange. Agricultural cooperation and producer associations are two forms of organisation which provide the means both of increasing the volume of products marketed with a view to drawing

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mutual benefit but also of promoting products by means of marketing instruments, choosing the time to sell and the sales mode, investing in research and innovation, and planning supply to match demand. This horizontal concentration also facilitates the administrative link with the public or parastatal authorities as well as consultations with political leaders with a view to bringing influence to bear on agricultural policies, and it also ensures that a structure is set up which can adjust to market requirements and sustain a dialogue with downstream operators through inter-trade agreements.

Agro-food SMEs and vertical relationships: effects on the agro-support industries

Food industry development contributes to the economic development of rural areas and to labour specialisation based on further training programmes and research and development schemes. Measures must be taken to encourage the development of agro-food SMEs, which constitute the basis of the local industrial fabric, in order to facilitate development and integration at the regional level. And in particular, the first-stage processing activities connected with primary products must be promoted in order to build up the value of regional agricultural production more effectively and thus distribute the value chain more equitably. SME growth will supply firms with a network of complementary activities such as packaging, logistics and corporate services – training, communications, and computer sciences are a lever for market competitiveness and the sine qua non for socio-economic development in the region. All of these measures together contribute not only to the satisfaction of consumer needs but also to the modernisation of agricultural activities. Action must be taken to upgrade and promote small enterprises, which can play a backup role by developing competitive traditional products for which there is a demand in the EU countries (olive oil, cheeses, organic crop products, early fruit and vegetables).

For the time being, the fact that the agricultural system in the Mediterranean region is fragmented and lacks coordination whereas industry is concentrated means that the market is haphazard and transaction costs are high. In order to restore efficiency and market fairness forms of organisation must be created with which trading can be coordinated and resources can thus be better allocated. Measures to develop vertical coordination between the agro-food industries and agricultural enterprises or between large-scale retail operators and their suppliers would create a system of contracts which would stabilise supply in terms of both quantity and quality and safeguard the incomes of the agro-support enterprises, which would benefit from better market outlets. And the downstream industries would benefit from a supply guarantee with regard to both quality and quantity, which in turn would promote their marketing investments and thus a certain degree of market penetration.

Developing contractual relationships can encourage agro-support firms to pursue a supply concentration strategy and at the same time to build up forms of inter-company co-operation; producer organisations play a very important role in this context in co-ordination amongst private actors and with the State. By guaranteeing firms a market for their products and forms of horizontal co-operation in the agro-support industries it also makes it possible to preserve the SME structure and encourages SME networking. This in turn encourages the creation of a production and marketing system in which local technologies and skills are used. In this way the small or medium sizes of local

agricultural support firms are, in principle, neither an obstacle to development nor a barrier preventing access to the industry.

The large-scale retail trade and concerted regional development

The differentiation strategies pursued in the large-scale retail trade are being based increasingly on vertical relationships, which impose specific agricultural production conditions on the agro-support industries. Measures to develop direct relationships between the large-scale retail trade and enterprises by promoting contracts concerning quality standards and information transparency could put an end to intermediate and wholesale markets and reduce the numerous intermediate stages. Reducing the number of these stages is not the only issue at stake; it is also very important to change the state of affairs at the pre-marketing and post-marketing stages. As regards the pre-marketing stages, the importance of developing producer organisations has already been underlined. And in the post-marketing stages, the modern retail trade can, through the internationalisation and concentration process, boost economic activities throughout the domestic agro-food industry of each country and can guarantee a more comprehensive supply of products at lower costs for consumers. This movement will have to be supported, however, with concerted rules governing an integrated process of regional development through a production unit supply system and economic activities at the local level. In the southern and eastern Mediterranean countries in particular, specific programmes on aid by retailers could enable SMEs to effect the long-term investments necessary for access to chain stores, which are becoming increasingly demanding with regard to product features and transactions (large volumes, stable supplies in terms of quantity and quality, efficiency, food safety, etc.).

In the sales point supply field, the modern retail trade is turning more and more to foreign suppliers, which offer both the opportunity to purchase goods at low prices and a differentiated range of products for their clients. This policy is being influenced to a growing extent by the availability of substitute markets and/or markets which complement the domestic market, which can supply good products at lower prices and extend supply seasons; this is particularly the case with fresh fruit and vegetables in the Mediterranean region. These are indeed global sourcing strategies. However, while this sourcing shift to foreign markets offers significant opportunities, it also entails high potential risks throughout the distribution chain compared to domestic purchases. These risks can concern possible failure to abide by the various contractual clauses (comprising technical, financial and legal aspects) and, as a result, the modern retail trade can actually tend to give precedence to commercial supply systems that are based on medium and long-term contracts and to entertain strong links with their own international suppliers.

North-South cross-border trade and production relations between enterprises

Inter-regional production and marketing zones must be created and/or strengthened in the agro-food sector in order to develop the production process, achieve economies of range that can boost the production of region-specific goods and win new markets. This requires that enterprises be organised which can cluster the products of the various Mediterranean regions in one single supply chain by means of common production and marketing rules. The advantages which this integration can bring to the

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Mediterranean countries will differ from one country to another, depending on the national circumstances. In the North, the advantages lie in the opportunity for commercial expansion and the additional range of products that this allows. Firms are sometimes obliged to establish sites in southern and eastern Mediterranean countries in order to obtain access to the local market. This can be due to various factors such as high transport costs compared to the value added (in the case of carbonated beverages), or the short shelf lives of certain fresh products (milk products, etc.). In the SEMCs, the strategy of hosting FDI enables countries to benefit from new technologies and thus means that they acquire knowledge, while contributing to product qualification and boosting their own professional potential.

Within this integration process information plays a very important role in the development of relations between enterprises in the different regions. Strategic information in the fruit and vegetable sector, for instance, includes national data, schedules, production zones and production techniques, the leading commercial farms and trade relations. While the role played by information must be developed, the same applies to logistics, which allow efficient control and management throughout the Mediterranean agro-food production chain. Maintaining the cold storage chain, for example, requires using distribution vectors and platforms. Likewise, the land, sea and air transport system, which is deficient in the SEMCs as a whole, has a major impact on the development of trade with the other countries in the region.

Institutions and measures to promote Mediterranean products - defining an alternative model

The strategy for building up a supply of products in the Mediterranean region must focus in particular on products where typicality and quality are the main features. This is obviously where there are excellent opportunities for development or at least for resisting on a market where agricultural trade is increasingly liberalised. First of all, there are several technical or economic factors which suggest that the SEMCs are unable to apply the intensive production model that is employed in the northern European countries throughout their production systems:²¹ the state of their resources and their low endowment of natural resources (water and soil) and technical factors, agrarian structures dominated by small and medium-sized farms, etc. It should be borne in mind here that in SEMCs it has only been possible to develop this intensive-production model on the most fertile land and in irrigated zones, where export crops, techniques and investments (public and private, national and foreign) are concentrated. Moreover, this model is raising new questions in the southern European countries relating to health risks, land use, employment and environmental protection.

Consumers tend to associate product quality with environmental quality, and health quality standards with taste and product authenticity. In European countries quality

²¹ - In Morocco, there were almost 1.5 million farms in 1996-1997, and the average farm acreage was 5.8 ha. Two-thirds of the private operators, and thus of farming families, had holdings of less than 5 ha. In Tunisia (1996 census), farms with less than 5 ha accounted for 53% of the total number of holdings and 9% of acreage. In Algeria (2001 agricultural census), 72% of the total number of farms registered had less than 10 ha (and 55.7% had less than 5 ha). And in Egypt, according to the 1997 census, small holdings with less than 3 feddans (1 feddan = 0.42 ha) predominated in the farm landscape (42% of farms and 26.3% of land). Almost all of these holdings are private family farms (99% of farms and 91% of acreage). The last agricultural census conducted in Turkey showed that 85% of holdings have less than 10 ha.

refers to the specific distinctive flavours of products that are connected with a local area or a traditional production method, but also to biological features and the absence of contamination. As many studies have shown (see chapter 9 “Ensuring food security and food safety”), consumers in the northern Mediterranean countries no longer simply accept what is offered but take an active part in maintaining diversity through their involvement in demand. Some authors predict that products with a strong identity appealing and quality marks (concerning food safety, quality, environment and animal welfare) will carry more weight in European consumers’ purchasing decisions. In view of the health crises that have occurred and the “food fears” that have arisen, urban consumers also need points of reference and confidence, and they show preference for products where the production area and know-how are clearly marked. And finally, in view of the fear that products and dietary practices will become uniform, diet is a powerful identity medium, particularly in European countries.

More broadly, roots, traditions and authenticity are now much sought-after, and many actors endeavour to develop an image that evokes these concepts (Bérard et Marchenay, 2004). Paradoxically, globalisation has prompted actors in rural and agricultural life to strengthen their rooting in the local area, in the region and in reinvented tradition (Hobsbawn and Terence, 1983). While there is a high demand for local product products in Europe, the appeal of what are known as “beldi” or “baladi” products (which can be translated as farm produce or local products) in the southern and eastern Mediterranean countries is steadily growing in urban consumer groups with high purchasing power. The health and taste variables are of growing importance in the purchasing decisions of the middle and upper classes, the price variable only remaining decisive in the working classes with low purchasing power.

In this context where specific local features are being rediscovered the agricultural product qualification process also plays a role in the construction of local areas. This process is a lever of development or a means of resistance given the economic decline of many Mediterranean rural zones. In the context of the common agricultural policy it has brought schemes which have benefited mountain zones and disadvantaged areas, which had many handicaps and were liable to be abandoned. Specific aids (ISM and ICHN),²² suckler-cow premium, sheep premium, agro-environmental measures, equipment), a quality promotion policy (segmentation, policies for developing original local industries) and the diversification of activities in a local development dynamic have enabled many rural areas that were in difficulty to create the conditions for turning regional quality to advantage and obtaining benefit from their resources.²³

Combining specific local product quality with ecological quality and the quality of the landscape and selling the services of an area through the products produced there have now become essential issues from these rural areas, which have gradually discovered the advantage of synergies between products and services which meet the expectations of society (Bélanger, 1999). This has been the aim of the international co-operation experiments which have been set up in the past few years between European countries

²² - special allowance for mountain regions and compensatory allowance for natural handicaps

²³ - Quality policy enables farms that are ill-endowed with production inputs (smallholdings, difficult zones) to keep going. In France, RDO cheese zones are often mountainous areas where production costs are high. Likewise, fruit farms or wine-growing farms with official quality marks (RDO, PGI, Red Label, organic farming) are generally small structures.

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and countries in the southern Mediterranean; these projects seek to link various regions with a view to developing their resources on the basis of a programmatic approach. One of these experiments, the Leader Med project, is of particular interest.

International co-operation: the Leader Med project

Within the framework of the Leader + programme, the Apulia region has launched initiatives linking groups of actors in the southern and eastern Mediterranean and local action groups (LAGs) with a view to initiating a process of dialogue and growth. These initiatives involve Turkey, Malta, Lebanon and Syria. The cooperation project is aimed to encourage the exchange of know-how between European countries and Mediterranean third countries with a view to promoting new “local governance” methods facilitating synergies between local enterprises. Nine Apulia LAGs have been identified as partners as have institutional partners located in the four Mediterranean third countries. One of these groups, the Alto Salento LAG in Italy, has been appointed project leader and is thus in charge of preparing and running the project. The Mediterranean Agronomic Institute in Bari operates as the technical support structure in the Apulia region in order to promote institutional activities and contacts between the various institutions and countries.

Within this cooperation project there are plans to organise an event to present the various regions and producers so as to put the actors in the various areas in touch with one another, to create a catalogue of typical products (agricultural products, craft products, etc.), to create a website and to conduct a study in order to identify the rural development priorities in the partner Mediterranean countries. The importance of the project lies primarily in pilot schemes which aim to develop integrated promotion circuits in rural areas using typical products as catalysts and thus to develop a network of relations between areas and within the various areas which will eventually form an integrated economic system. The case of Syria is an interesting example of these pilot schemes: the Alto Salento LAG and the Idleb community in Syria have drawn up an olive oil itinerary (the Alto Salento Olive Grove Road with its centuries-old olive trees and the Idleb Oil Road). And itinerary has been drawn up in each of these two areas linking agricultural production and natural, cultural and archaeological resources as well as tourist facilities.

Promoting quality opens up a whole area for rethinking agricultural development, departing from systems based solely on the logic of intensive production and providing opportunities for producers to define alternative production models based on other criteria. The strategy of differentiating production and promoting quality enables the economic actors (farms, private companies, co-operatives) to get away from forms of competition that are directly influenced by costs or productivity gaps.²⁴

Organic and mountain products – the epitome of typicality

Almost all of the efforts made in the Mediterranean region to enhance the quality of agrifoodstuffs have concerned export products, a deliberate choice connected inter alia with the objective of correcting the region's agro-food trade balance. More broadly, organic farming and quality marks as well as geographical indications can also be instruments for preserving and promoting Mediterranean agricultural and dietary traditions.

²⁴ - As J.-L. Rastoin and F. Fort put it: “The tension between global and local in the food domain is leading to two trends in the agro-food sector in France and in Europe: efforts by large multinational companies to massify products and mould eating habits, on the one hand, and the move to differentiate products on the basis of the concept of the local area on the other” (Femise, 2005).

Although in the SEMCs the export market is still the main outlet for organically farmed products, interest in developing a domestic market now seems to be growing. One thing is certain: a policy of equality can only be developed if the domestic market is included and collective preferences are also an integral component. There are several traditional products that are usually consumed by local communities which already comply either entirely or in part with organic farming principles. Table 2 gives an overview of the progress registered in each of the Mediterranean countries in terms of products, acreage, legislation, support policies and the state of markets. It also lists the producer organisations in charge of the industry.

In the southern Mediterranean, organic agriculture is introduced essentially by foreign and local private operators, who attend to almost all of the stages in the food chain, from production to the market. They supply producers with all of the necessary inputs and services as well as technical assistance, and they also attend to certification. The studies that have been conducted on the sector show that producers under contract enjoy benefits in terms of both income and less commercial risk thanks to the guaranteed market outlets, yet this does not preclude the validity of the equitable relationship between the contracting parties.

Although organic farming is geared to export in this manner it is nevertheless the crux of sustainable rural development. While there is no doubt that this type of agriculture conserves land resources, several initiatives and/or projects (such as the “organic village project” launched by Rapunzel in Turkey) have demonstrated the interesting potential offered by organic farming for the economic and social development of rural communities. Organic production can help in particular to augment the incomes of women who live in rural areas (as is the case with the production of organic argan oil by co-operatives in Morocco, for example), provide job opportunities for rural youth in which they receive instruction, and promote the collective learning process in producer groups (extension services, group certification and collective market initiatives).

Special attention is devoted to organic farming at the regional level. Sustainable rural development, organic agriculture and geographical indications were mentioned specifically at the first Conference of Ministers of Agriculture, which was held in Venice in 2003 within the framework of the euro-Mediterranean partnership, and these questions have also been included as non-trade aspects in the Roadmap for Euro-Mediterranean Agriculture, which provides guidelines for the trade liberalisation process. Organic farming and geographical indications are also mentioned together in the chapter on sustainable agriculture and rural development of the Mediterranean Strategy for Sustainable Development, which was approved by the UN Mediterranean Commission on Sustainable Development in 2005. Furthermore, sponsors, national governments, private operators, and NGOs, which are interested in opportunities for building individual and institutional capacities and market penetration, are increasingly taking account of the many different potential synergies between organic agriculture and geographical indications.

Producers in mountain regions should be given special attention in the context of the progressive liberalisation of agricultural trade. These producers have to contend with high transport costs, the lack of infrastructures, inadequate technologies and market

Table 2 - Organic agriculture in the Mediterranean region, 2007

	Country	Total acreage	Producers number	National legisla- tion	Policy for sup- porting the sector		Control and certification bodies	Producer associa- tions	Market	
		ha			Financial support	Action plan			Local	Export
Maghreb	Algeria	2.400	61	draft	yes	no	2 foreign	2	non- existent	limited
	Morocco	104.216	n. d.	draft	non	no	2 foreign	2	non- existent	developed
	Tunisia	220.476	515	yes	yes	yes	4 foreign	9	limited	developed
Mashreq	Egypt	13.955	500	draft	no	no	3 foreign 2 local	8	growing	developed
	Jordan	1.024	25	no	no	no	1 foreign	n. d.	non- existent	limited
	Lebanon	2.500	330	draft	no	no	1 foreign (local headquarters) 1 local local	2	growing	limited
	Palestine	641	303	no	no	no	1 foreign	n. d.	non- existent	limited
	Syria	30.493	3.256	draft	no	no	n. d.	n. d.	non- existent	limited
	Turkey	192.789	14.737	yes	yes	yes	7 foreign 3 local	5	growing	developed
Western Balkans	Albania	1.201	93	yes	no	yes	2 foreign 1 local	3	limited	limited
	Bosnia- Herzegovina	488.804	60	yes Fed. BH	yes	no	4 foreign 1 local	n. d.	non- existent	limited
	Croatia	23.670	342	yes	yes	no	7 foreign	30 assoc. 15 coop.	growing	non- existent
	Macedonia	2.101	104	yes	yes	yes	3 foreign	6	non- existent	non- existent
	Montenegro	158.851	15	yes	yes	no	5 foreign 1 state-run	3	non- existent	limited
	Serbia	1.105.608	48	yes	yes	no	6 foreign 2 local	4	non- existent	growing
EU countries	Cyprus	1.979	305	yes	yes	draft	1 foreign 1 local	2	limited	non- existent
	France	552.824	17.477	yes	yes	yes	1 foreign 5 local	78	developed	developed
	Greece	302.264	24.666	yes	yes	no	7 locaux	n. d.	limited	growing
	Spain	926.390	18.318	yes	yes	yes	2 foreign 25 local	36	growing	developed
	Italia	1.148.162	51.411	yes	yes	yes	16 local	6	developed	developed
	Malta	20	11	yes	yes	no	1 local	n. d.	limited	limited
	Portugal	269.374	1.660	yes	yes	no	2 foreign 4 local	n. d.	n. d.	n. d.
	Slovenia	26.831	1.992	yes	yes	yes	1 foreign 1 local	10	growing	non- existent

Source: Al Bitar (L.) and Pugliese (P.) (forthcoming); Al Bitar (L.) (forthcoming).

access difficulties, and they are facing growing competition from production systems and areas where conditions are more favourable. Yet there are tremendous possibilities for improving the livelihoods of mountain people by turning the comparative advantages of the resources of these zones to account and developing a wide range of unique products and services (foodstuffs, beverages, pharmaceuticals, cosmetics, textiles, crafts and tourist facilities). In order to penetrate markets, however, producers in mountain areas must focus on the quality of the unique products their regions have to offer and initiate efforts to have that specific quality recognised on markets. But to do so they will need to have obtained quality marks. Even in cases where legislation defines a form of agrifoodstuff labelling (in Algeria and Morocco, for example), very few products have in fact obtained a label for the following reasons:

- producers are unaware that the law exists, a fact which underlines shortcomings with regard to the circulation of information and extension services;
- the law does not define the responsibilities of the various actors: control and monitoring bodies (whether public or private), producers, consumers;
- the law is outdated and fails to meet the current needs of the actors involved; it has also failed to keep pace with technological changes;
- the law does not clearly define the rules for setting up quality groupings and the conditions for sharing the value added amongst the various actors.

In view of this situation, producers situated in mountain regions, which are often remote enclaves, are ill informed and lack organisation and they find themselves excluded from any initiatives and steps to promote their products. An efficient labelling mechanism should thus make it possible to:

- make an inventory of quality products and their production areas, taking account of the know-how of local producers and of their traditions and history;
- define the objective quality and specific (physical-chemical and organoleptic) characteristics of those products;
- create and organise a quality grouping;
- adapt to market requirements and to changing markets;
- inform consumers about the appropriate quality marks.

Local actors do not always have a very specific idea of quality. In particular, producers who are not members of an organisation are uninformed about traceability, certification and other concepts relating to product quality. The co-operatives' knowledge of these matters is vague, and when they are informed it is generally thanks to the support of a development NGO or to measures taken in the context of international co-operation. While civil servants in the various institutions are perfectly conversant with the concepts of traceability and certification, they often refer to the lack of adequate means and appropriate facilities for guiding producers towards quality production.

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The following three lines of action have been identified as crucial for optimising the strategy for the organisation and development of mountain product industries:

- the general characteristics of these products must be determined as must the criteria legitimising mountain production;
- the various actors must be mobilised in order to set up structures promoting the dissemination of know-how and knowledge, facilitating quality management and promoting operator participation in the action taken in various fields (quality, research, commercial development, communications, advertising, etc.); short marketing circuits should be organised in which empowered operators play a pivotal role;
- the institutions should be urged to provide financial and technical support for emerging collective projects and projects under construction.

This strategy could be adopted with leading organisations that are prepared to undertake demonstration operations, provided that maximum support is ensured throughout the process, from the initial production stage through to marketing. One of the weaknesses connected with any private or collective initiative geared to market requirements (quality, RDO, organic label, etc.) is the mismatch between technical efforts and the efforts made to structure marketing channels.

A great deal remains to be done to initiate the development of quality mountain products. Although the actors are already known, the ways and means of efficient and effective articulation have still to be found. The work which the Ciheam and the FAO have been carrying out since January 2006 in the context of the Mountain Products Project constitute a first level of organisation in terms of qualification criteria for quality products. The partners involved in four Mediterranean countries (Algeria, Lebanon, Morocco and Syria) have been drawing on a dynamic information system in order to compile and build up knowledge which can promote the development of these products.²⁵

Scenarios for quality agro-food supply in the Mediterranean region

Over and above political considerations, the prospect of the intensification of Euro-Mediterranean trade relations and convergence aiming to build up a supply of Mediterranean products is motivated by economic and commercial factors. Given the growing demand for foodstuffs, the seasonal nature of agricultural production, the need to add to the range of facilities in the European food distribution system, the process of relocation affecting specific products, international competition from distant regions (China and the southern hemisphere), and the downward trend in EU production due to the changes brought about by the CAP, action is imperative to strengthen the regional coordination process and to develop trade relations between the EU and the southern and eastern Mediterranean countries.

²⁵ - See website www.cybermontagne.org.

The resistance scenario: defending the Mediterranean model

In this scenario world trends are resisted and a regional Euro-Mediterranean market is built up and regulated. The focus is on the quality and typicality of Mediterranean products, a model based on the Mediterranean diet and way of life is promoted, and the natural and cultural resources which are the region's assets are developed. It is basically the result of a process where domestic and foreign markets are recovered, and the primary aim is to improve the food security and food safety of the local populations. And finally, it contributes to the balanced development of rural areas and promotes environmental protection and biodiversity. In this scenario the aim is to relocalise production taking account of the natural vocations and economic potential of each of the Mediterranean countries, to encourage socially and ecologically responsible consumer behaviour, to regulate trade policies as an imperative, to promote regional co-operation based on the complementarity of production systems and markets and to defend common positions in international negotiations (WTO).

The conditions are united for the success of this scenario. The legislative and regulatory framework is further developed, and strong policies comprise a variety of components: budget support, economic incentives, training, common health standards, integration of the various subsectors, control capacities in the quality sector, cost-control combined with the development of quality products, value added attributed to subsectors with official quality marks and redistributed in part to the agro-support industries, diversification of activities, and the general application of aid policy for compensating natural handicaps. A strengthened economic and organisational context promotes the ability of producer organisations to become structured, facilitates technical innovation at market level (action to promote short circuits, elaboration of an inventory, reinvention of gastronomic know-how, construction of infrastructures, physical investments, access to transport, efficient remuneration systems in the agro-support industries, organisation of services for the population, etc.) and promotes market security through private and public agreements. A jointly elaborated quality system which is shared by all can provide a basis for creating and strengthening forms of inter-regional organisation of production and marketing in the agro-food sector. It also makes it possible to expand the production process over a wider area and achieve economies of range and of scale with which new markets can be won. To achieve this it is imperative that the subsectors be organised and that there be sufficient inter-company coordination through which the products from the various areas can be clustered in one single supply chain and technologies and skills can be transferred along the North-South axis. This in turn will provide a basis for enhancing the various forms of regional co-operation and development between the various countries and the agro-food enterprises.

The scenario of strengthening regional integration in order to build up a Mediterranean supply of agrifoodstuffs based on product and market complementarities produces several results:

- harmonised common quality standards are defined for foodstuffs and for foodstuff marketing;

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- the level of coordination amongst the various actors in the industry is developed;
- the forms of horizontal aggregation between agricultural products and processing firms increase;
- capacities are strengthened for co-operation at both the regional level and on the North-South axis through the creation of associations and networks of economic actors in the agro-food chain;
- public institutions encourage the use of efficient quality control programmes and systems;
- commitments are made towards SMEs in terms of capital and human resources, and infrastructures are constructed by means of incentive measures or public intervention;

One of the avenues to be pursued is to create a joint project with a view to establishing a sort of Euro-Mediterranean organisation of agricultural markets with support and internal market regulation mechanisms, where the point of view of the Euro-Mediterranean region could be expressed in a global strategic approach in the context of multilateral negotiations. In this context, progress in regional integration and development is thus desirable for all of the actors concerned. This can only be brought about if the institutions contribute and policies are adopted that are designed to harmonise standards and enhance human resources training. Over and above the positions of the various countries and the content of the proposals they make, the new agricultural negotiations in the WTO context could be an opportunity for previewing and reformulating certain mechanisms, which, depending on the circumstances, can reconcile the opening of markets with internal support issues. The major subjects of debate in the current negotiations are in fact the revision of the agricultural support system and the question of non-trade concerns, which relate to food safety, rural development, multifunctionality, the agreement on the protection of intellectual property, and typical products.

In the final analysis, the success of the scenario is of course based on the most likely hypothesis of adherence to a collective project, in which there is consensus on the need to reduce the inequalities and development gaps between the populations in the northern and southern Mediterranean region and, at the national level, between modern agricultural structures and small and medium-sized family farms.

The laissez-faire scenario: globalisation with a forced market for Mediterranean countries

This scenario presents a Mediterranean region that is the victim of world economic and agricultural trends because there is no regional stance. It is based on the hypothesis of mismanagement of the alternative model, failure of national and/or regional public policies, and choices which are imposed by the globalised economic system and which dilute the Mediterranean identity. This scenario, where the transition to an alternative model of liberalisation is not well managed, has numerous consequences: exclusion from markets, regional and international competition, marked North-South asymmetry

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and exacerbated dualism where the quality chain in the various countries is controlled by a minority of operators, delegation of the function of decreeing standards and the terms of reference for specifications to the retail sector or to private intermediaries, dispossession of local know-how and relocation of production, limited influence of consumer associations.

Producers in the southern and eastern Mediterranean countries continue to specialise in a limited number of products and target primarily foreign markets to the detriment of local markets. There is persistent use of mining methods in the exploitation of resources entailing loss of biodiversity and the downgrading of local knowledge and know-how. The remuneration of producers in the upstream sector is low, the costs of inputs and certification procedures are excessively high, and supply remains fragmented and controlled by the downstream industries. And finally, the State transfers the function of producing standards to organised intermediaries and the large-scale retail trade for their exclusive benefit.

There are various developments in the European countries on the northern rim of the Mediterranean Basin:

- production zones are excessively large, geographical indications multiply, and it is difficult to monitor producer access to the sector;
- intensive production models (such as the Andalusian model in Spain) are maintained and/or applied throughout the region, and there is scant regard for the sustainability of the systems employed;
- label readability for consumers is reduced due to the proliferation of standards and marks;
- the demand for products is saturated or drops due to excessive costs, the remuneration of quality production in the upstream sector is low, as is the level of corporate integration;
- there is stiff competition on Mediterranean markets, competitiveness is lost, production units are relocated;
- supply is fragmented and there is little coordination between producers and economic actors;
- there is excessive red tape concerning production methods, precedence is given to individual initiatives and to private contracts which subject the agricultural sector to the laws of a non-regulated market;
- conflicts multiply and there is growing competition between the countries in the region due to the lack of complementarity in production systems and markets.

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CHAPTER 10

DEVELOPMENT STRATEGIES FOR RURAL AREAS*

Rural areas have always suffered from competition from towns. While the latter enjoy many attentions and are a centre of political, economic and cultural activities, rural areas find it hard to build an identity and a future. During the last two centuries, the countryside in western countries has been steadily emptied of its economic activities and its population, giving way to a rural desert scattered with ever-larger, more mechanised and more “inhuman” agricultural businesses. Who, in the early 1980s, ever reasonably considered settling in the countryside to earn a living there from anything other than agriculture? In the South Mediterranean, the virtuous circle of industrialisation, followed by a rural exodus and modernisation of farms did not happen. The demographic dynamic remained strong and today we have densely populated rural areas that we do not really know what to do with, which we would sometimes rather forget but which force the attention of governments because of the social instability which they engender: rebellions, migrant flows and extremism. But the world is changing. Both in the North and the South, the next decade could see a shift, if not a reversal, in the rural paradigm which would open up these areas to new opportunities for development.

The Common Agricultural Policy (CAP) has long left its mark on the European countryside, setting development in a support role to the implementation of structural changes in the agricultural world. Routinely attacked in the framework of intra-European and international negotiations, it has seen its structuring capacity lessened in favour of an increasingly independent policy with extended functions. 2008, with a possible mid-term review of the Community budget, and 2013, which ushers in a new six-year budget and programming cycle, are the next stages in this fundamental change in the issues at stake. As a structural tool of the CAP, rural development is gradually becoming a vector of geographical cohesion, driving the competitiveness of rural areas and supporting the sustainability of human activities and rational management of natural resources.

Nevertheless, the weakening of the CAP alone has not automatically led to this rise in rural power. The trend reflects a more profound reappraisal of rural areas in terms of their economic, social and environmental potential to satisfy the new demands of post-industrial societies. The change in the paradigm is real and has to do with the major

* - This chapter was written on the basis of documents prepared by Tahani Abdelhakim (Ciheam-MAI Montpellier) and Jean-Paul Pellissier (Ciheam-MAI Montpellier).

currents which are rocking today's societies and which the Mediterranean sphere cannot escape: the globalisation of the economy which increases competition but at the same time opens up new opportunities; the advent of new technologies with the growing dematerialisation of services and social relations; the assertion of civil society and the emergence of participatory local governance; the rise in environmental perils which is raising international awareness that urgent action is needed.

The rural population in the Mediterranean in 2020

Different definitions of rural

Traditionally, three theoretical approaches are used to define "rurality". (1) *by a negative*: everything which is not urban is rural. Urban is defined in terms of the inhabited space, population density and concentration and diversification of activities. Rurality, therefore, means low density, with little artificialisation, dispersion of activities and communities. (2) *sociological*: rurality is defined in terms of socio-cultural criteria relating to social relationships, the value system, lifestyle and consumption patterns. (3) *economic*: the pattern of economic activity is taken into account in the definition of "rural". It is about areas where economic activities are little diversified and where agricultural activity is dominant in terms of its share of jobs and incomes.

The endogenous and exogenous transformations of rural areas have, to varying degrees, made these approaches inappropriate. The first uses criteria, in particular density, which can only have conventional definitions based on space (from one country to another), time (for the same country) and the desired approach to problems. The sociological approach is no longer valid. Differences in lifestyle and consumption between rural and urban societies tend to become blurred as a result of a process of "homogenisation" in the countries of the North and "coming together" in the countries of the South. The economic approach is also becoming worthless in the light of the internal changes in rural areas. Even if it still provides work for a very large part of the countryside, agriculture is no longer the dominant activity (in terms of employment and incomes) in the majority of rural areas in the countries of the northern shore.

In the face of these trends and the enormous diversity of rural areas, any attempt to define the concept of rurality becomes illusory (Perrier-Cornet and Hervieu, 2002). Conversely, two practical approaches seem to sum up well the situation of rural areas in the North and, to some extent, in the South of the Mediterranean:

- The first puts nature at the core of the definition. Rural areas are characterised by the abundance of nature (open space and largely not built up) and water resources, vegetation, etc.
- The second combines low population density, activities and infrastructure in a given area with low purchasing power compared with urban centres (Wiggins and Proctor, 2001).

The most commonly used approach in drawing up national statistics is the one which takes account of the criteria of density and size of the population (the Maghreb coun-

tries), combined or otherwise with other criteria, employment in particular (France). In certain countries, such as Egypt, a purely administrative decision classifies areas as rural or urban. This shows clearly how carefully “rural” and, conversely, “urban” statistics must be treated. The EU, for its part, adopted the OECD definition (Directorate General for Agriculture and Rural Development, 2006), based on a two-stage approach:

- Firstly, basic local units (such as municipalities) are identified as rural if their population density is less than 150 hectares per km².
- Secondly, by aggregation, NUTS 3 or NUTS 2 local communities are classified in one of the following three categories¹: predominantly rural region if over 50% of the population live in local rural units; intermediate region if between 15% and 50% of the population live in local rural units; predominantly urban region if less than 15% of the population live in local rural units.

This last classification, which does not contrast the terms “rural” and “urban”, but replaces them, suitably weighted, in a shared common territory, the region, is particularly interesting.

Revisiting rural demographic projections

Rural areas in the Mediterranean could still be home to some 32% of the total Mediterranean population in 2020, some 166 million people.² Unlike the towns which will concentrate over 98% of the overall population growth in the Maghreb, they will experience a generally modest increase since average projections suggest only two million more rural dwellers. These projections conceal major disparities between regions and countries and show that the rural component of the population will essentially continue to weigh on the future of the Mediterranean countries. Egypt and Turkey, with 50 and 22 million rural dwellers respectively, will concentrate 43% of the Mediterranean rural population in 2020. Three of the countries of the South and East Mediterranean (SEMC), Egypt, Syria and the Palestinian Territories, will see their population increase by over 14% from 2005 to 2020. The rural population of the Maghreb will probably decline by 2.5% from 30,510,000 inhabitants in 2005 to 29,760,000 in 2020. The rural population of Mediterranean Europe is expected to fall by 11%.

This overall fall in the rural population forecast in the United Nations trend scenarios, however, needs to be questioned. The assumption adopted is that urbanisation will continue due to countries’ economic and social development, with a reduction in the absolute value for rural populations in the developed countries and a similar but relative reduction, allowing for population growth, in the developing countries (United Nations, 2006, p.15). A number of indicators suggest that this scenario should be treated with a degree of caution and possible alternative scenarios should be imagined.

1 - Nomenclature of territorial units for statistics. NUTS 2 have 800,000 to 3,000,000 inhabitants, NUTS 3 have 150,000 to 800,000.

2 - See Chapter 1 “The socio-demographic context”.

The end of the urban mirage in the South?

In the context of liberalisation of the South Mediterranean economies, the number of agricultural producers could decline in the face of international competition in both domestic and global markets. The question then is whether it must be assumed that these populations, as in the past, will come to swell the towns and more particularly, those on the coast. Nothing could be less certain as the towns will already have to absorb the bulk of their own demographic growth and employment opportunities for an under-skilled rural population will still be poor in a sluggish industrial sector and in services, should the latter come to be developed.

Towns, which have long been a magnet, nowadays already have high unemployment rates, a housing crisis with rising rents, growing insecurity and lowering of the quality of urban life. According to UN-Habitat,³ the proportion of town-dwellers in 2005 living in difficult conditions is far from negligible. If one applies the precarious settlement ratio for 2003 to the urban population data forecast for 2020 (which on the face of it is a low hypothesis), 26 million Turkish town-dwellers will be living in precarious conditions. There will then be more urban poor than rural. In Egypt, 16 million town-dwellers will be affected, equivalent to over 30% of the rural population.

The press release for the last UN-Habitat report, *State of The World's Cities 2006-2007*, is even more explicit: "It is generally assumed that urban populations are healthier, more literate and more prosperous than rural populations. However, UN-Habitat's *State of the World's Cities Report 2006/7* has broken new ground by showing that the urban poor suffer from an urban penalty: Slum dwellers in developing countries are as badly off if not worse off than their rural relatives" (UN-Habitat, 2006-2007). In cities like Cairo, where according to national estimates,⁴ 40% of the population live in shanty towns, people disappointed by the mirage of urban life are going back to the countryside. It is probable, therefore, that the rural exodus will not happen and that economically excluded and very poor rural populations will prefer to stay in the countryside or emigrate, especially to Europe, which itself will not be without its problems. The need for a "rural" approach to these changes must then be considered as a strong hypothesis.

In the North, the longing for the country

In the last decades, all the North Mediterranean countries have undergone a decline in their rural agricultural population. Its continued decline is now being called into question by a process of resettlement of the rural environment. The fall in the number of farms seems to be largely offset by the arrival of newcomers from the towns bringing significant change to the nature of the rural population. A recent study by the Interministerial Delegation of Land Planning and Regional Competitiveness (DIACT) underlines the new demographic dynamism of rural areas. While with the phenomena of "metropolisation" of towns, periurban areas are the chief focus, the arrival of new residents also affects more peripheral rural communes and "even rural communes most remote from urban centres are now seeing considerable inflows of new residents: for the first time, the migratory

3 - The United Nations Centre for Human Settlements (Habitat) defines precarious conditions as a deficit of at least one of the following: secure tenure, adequate access to drinking water, satisfactory sanitation and other facilities, quality of construction and adequate living space.

4 - See the Egyptian Daily *Al-ahram*, March 2007.

Table 1 - Precariousness of urban settlements

Country	2003					2020 (with precariousness ratio for 2003)				
	Total population	Rural population	Urban population living in precarious conditions			Total population	Rural population	Urban population living in precarious conditions		
	Millions	Millions	%	Millions	% rural pop.	Millions	Millions	%	Millions	% rural pop.
Albania	3.1	1.7	7	0.1	5	3.3	1v6	7	0.1	8
Tunisia	10.1	3.7	4	0.3	7	11.1	3.5	4	0.3	9
Greece	11.1	4.4	6	0.4	9	10.8	3.6	6	0.4	12
Italy	58.1	18.9	6	2.3	12	55.3	16.8	6	2.3	14
Portugal	10.5	4.8	14	0.8	17	42.8	9.3	6	2.0	22
Algeria	32.9	13.6	12	2.3	17	10.5	4.0	14	0.9	23
France	60.5	14.3	6	2.8	19	60.8	12.4	6	2.9	23
Spain	43.1	10.1	6	2.0	20	38.8	13.1	12	3.1	24
Egypt	74	42.8	40	12.5	29	90.9	49.9	40	16.4	33
Morocco	31.5	13.4	33	6.0	45	36.8	12.5	33	8.0	64
Turkey	73.2	24.7	43	20.9	85	83.1	22.6	43	26.0	115
Lebanon	3.6	0.5	50	1.6	350	4.0	0.4	50	1.8	471

Source: UN-Habitat 2001 figures in Med 2006.

balance of so-called “isolated” rural areas has turned positive (+0.29% per year over the last decade)” (DIACT, 2003).

It is well known that France is much more rural in character than other European countries, and perhaps this new rural dynamism could be merely an exception in an “urban” Europe. Nothing of the sort. A forecast study commissioned by the EU comes to the same conclusion that Europe’s rural regions are demographically dynamic, albeit difficult to analyse. If one considers, as this study does, that a crucial factor in the future of the rural world is its population, many regions are in a healthy state, both keeping and receiving population (European Commission, 2006, p.15). Some whose natural growth rate is negative see their population increase as a result of migration from the towns and urban agglomerations (Ibid, p. 40). This vitality, which can also be found in the economic field, is forging a new image of the European countryside.

The economic and urban shift coastward: is it an illusion?

Both for geo-strategic (ports) and physical reasons (deserts in the South), the Mediterranean coasts are today major centres of activities for all the countries that fringe the Mediterranean in terms of road systems, airports, industry, trade and especially tourism. In the South, the fear that coastal areas will dominate and attract entire national

economies, to the detriment of the hinterland, is justified to the extent that these areas currently benefit from investment and, against a background of liberalisation of markets, are called on to act as a direct interface between global markets and the consumer centres formed by the major coastal towns. In circumstances where the economies of the South are subject to the great international economic currents, this external pressure could lead to a total split between the hinterland and a coastal region where most of the wealth is concentrated and which face outwards beyond the sea. The former, too poor, too unproductive, too uncompetitive and consuming too little to be really interesting would then be condemned merely to subsist.

If this scenario is not to become reality, it must to be taken into consideration and its relevance for countries needs to be evaluated, in order to encourage movement towards more balanced regional development. Let us start by putting the image of coastal monopolisation of economic development in perspective. In terms of the demographic dynamic, the coastal zone is not the irrepressibly attractive region that is often imagined. Towns in the interior have their own dynamic, as shown by the development of the network of towns with over ten thousand inhabitants between 1950 and 1995 (Moriconi-Ebrard and Dinard, 2000, p. 33). With the notable exception of the Maghreb, this network is proportionally denser in the hinterland than on the coast (see table 2).

The projections, in terms of demographic weight, relative changes in that weight and changes in population density (see Charts 1, 2 and 3) show two strong trends: firstly, the general stability of the coastal population in relation to the total population (see Chart 2), which means that coastal population trend is directly related to demographic growth and that the “coastal effect” is weak; and, secondly, the relative stability of the coastal population density in the North and its very strong growth in the South (see Chart 3). There are two reasons for the latter: demographic growth and the narrowness of the coastal strip in the countries concerned.

Furthermore, these data show the diversity of situations of the Mediterranean coastal communities with:

- *northern coastal populations which will change little.* Although in very different ways, their population will tend to decline as a percentage of the total population of the European Union and with an increase in population density for the country as a whole (with the exception of Italy). This pattern will reach as far as Turkey, without exceeding 200 inhabitants per km²;
- *a highly heterogeneous Maghreb,* where the percentage of Mediterranean coastal populations is 70% in Tunisia, 40% in Algeria and 10% in Morocco, and Algeria’s population density is double that of Tunisia and Morocco;
- *a very strong increase in coastal population densities in Syria and Lebanon* but in two very different settings: a Lebanese population the vast majority of which is coastal whose size is related to the overall population increase, and a Syrian population of which only a small minority is coastal and declining in proportion to the overall population;

Table 2 - Trends in the average spacing of agglomerations in Mediterranean “departments” (km)

Zone		1950	1960	1970	1980	1990	1995
Maghreb	Coast	65.7	43.4	36.2	33.1	19.6	21
	Interior	66.0	55.3	47.6	44.4	36.5	31.8
	Difference Interior-Coast	0.3	11.9	11.4	11.3	13.7	10.8
Egypt	Coast	20.1	14.5	12.6	10.7	8.2	7.5
	Interior	9.3	8.0	8.7	8.2	7.9	6.2
	Difference Interior-Coast	10.8	-6.5	-3.9	2.5	-0.3	-1.3
Machrek	Coast	25.1	23.2	22.9	18.8	14.5	12.9
	Interior	35.4	30.6	25.7	19.6	16.3	15.5
	Difference Interior-Coast	10.3	7.4	2.8	0.8	1.8	2.6
Turkey	Coast	47.5	33.9	31.7	25.9	21.8	22.2
	Interior	59.2	51.0	39.0	33.8	29.5	28.9
	Difference Interior-Coast	11.7	17.1	7.3	7.9	7.7	6.7

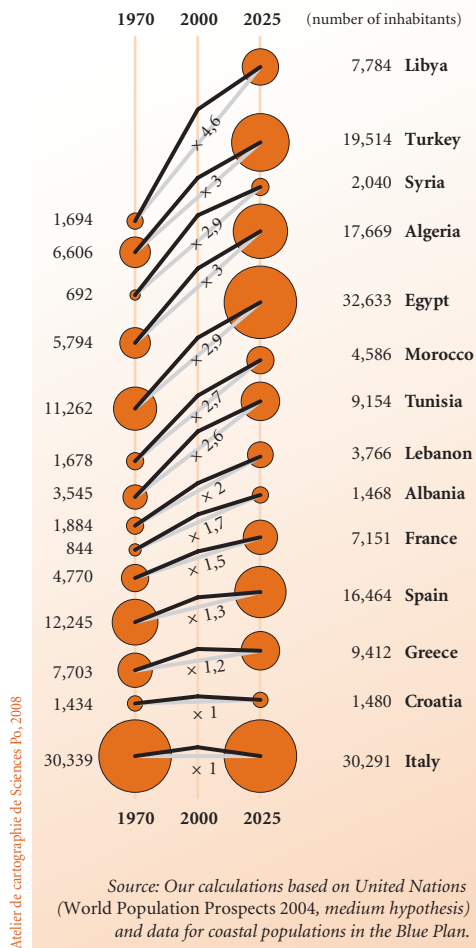
Source: Moriconi-Ebrard and Dinard (2000); breakdown used: NUTS 3 and equivalent outside Europe.

- Turkey which could absorb the increase in its population better than Algeria and Egypt and which will continue to have a relatively low population density;
- four countries, Libya, Tunisia, Lebanon and Greece, where the majority of the population is coastal but for very different reasons: omnipresence of the sea in Greece, desert in Tunisia and Libya, and Lebanon’s small size.

The interior of countries has not been abandoned. It is time to stop exaggerating the importance of the international economy and trying to outdo one another in parroting the idea that “it is the large coastal cities which have benefited and still benefit from this magnet effect” (Mella Marquez, 2006), when it is rather a social construct which well illustrates the role of political and economic forces in the current distribution of populations. Thus, for example, Algeria’s coastal development is part of its colonial history, further entrenched after independence by the choice of development based on the establishment of “industrialising” industries located in the coastal regions (Kateb and Ouadah-Bedidi, 2002).

Rather than succumb to this temptation, it is now time to recognise the existence and value of this interior economy in order to develop its potential. Algeria, with its 40% of coastal population exposed to a major seismic risk, has taken on board the need to strike a balance in its development by launching a grand national regional development scheme (Ministry of Regional Development and the Environment) aimed at purging the coastal strip to control urbanisation more effectively, develop the highland regions and the South, protect communities and economic potential. Combating the rural exodus, revitalising marginal zones, and preserving the agricultural and natural resources of

Chart 1 - Evolution of the coastal population, 1970-2025

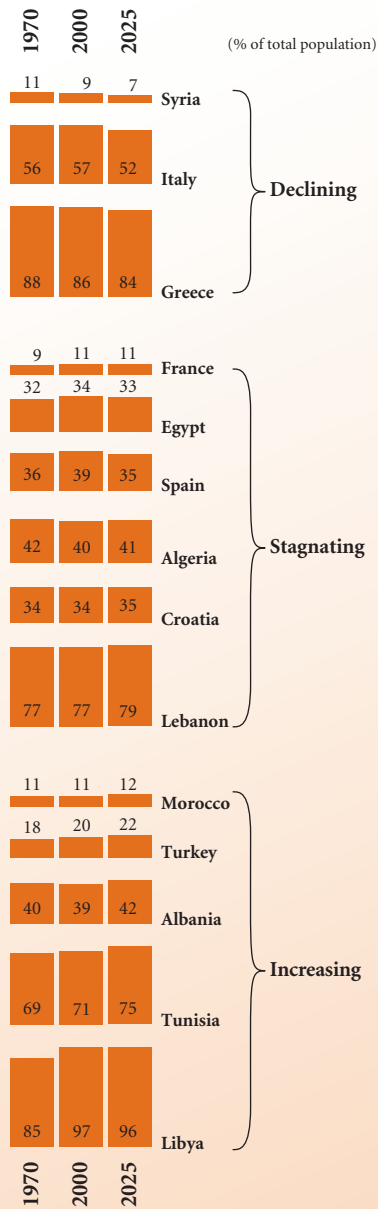


these areas are the objectives of this ambitious policy. It involves developing local resources, making these areas more attractive economically and socially and creating a network of towns and new towns.

The pattern of change in the North Mediterranean countries now shows that this coastal region may reach its limits in terms of population and environmental pressures, which means that the levels forecast for 2025 may never be reached. "In the North, while some coastal areas continue to experience positive migrant flows, other are showing clear signs of exhaustion, even depopulation of the coast. Tuscany, for example, between 1950 and 1980, was very much marked by increasing coastal settlement while, from 1981 to 1991, only 32% of coastal municipalities saw a rise in their population, compared with 40% inland. The causes appear to be the crisis of coastal industrialisation, the halt in tourist development, and planning policies which favoured the centre of the region" (Moriconi-Ebrard and Dinard, 2000, p. 3). In that case, the hinterland become balancing areas. Recognising this reality now would allow the implementation of proactive policies which would have the dual advantage of avoiding pointless destruction of the environment and voluntarily delivering the necessary balanced development.

These various perspectives put the Mediterranean rural areas at the heart of future development policies. Bearing in mind the population burden, it is no longer tenable to think that development will be driven by towns alone, coastal or otherwise. The countryside is no longer just agricultural and neither are its communities still condemned to be a social burden. Genuine rural development policies, with an integrated and autonomous structure, need to be able, in the North, to meet the expectations of populations who voluntarily resettle these areas and, in the South, those who will be forced to build a future there other than in agriculture.

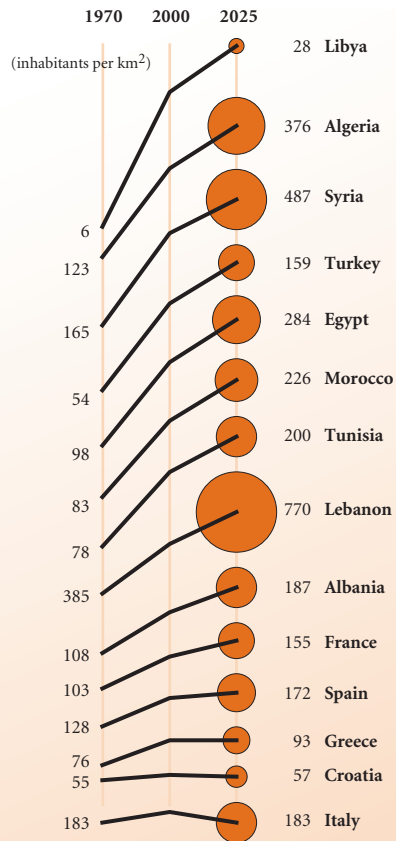
Chart 2 - Evolution of the coastal population, 1970-2025



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Source: Our calculations based on United Nations (World Population Prospects 2004, medium hypothesis) and data for coastal populations in the Blue Plan.

Chart 3 - Evolution of the coastal population, 1970-2025



Source: Our calculations based on United Nations (World Population Prospects 2004, medium hypothesis) and data for coastal populations in the Blue Plan.

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Four key factors in the evolution of today's societies

The “territorial moment”

Globalisation, accompanied by liberalisation of markets, is perceived in economic terms as a major constraint and source of increased risk of marginalisation for rural areas which could find themselves excluded from the major international trade routes. Yet it opens the way to a new production dynamic. For B. Pecqueur, “there would be a ‘territorial moment’ in the global regulation of the economic system (production and consumption) which would allow the end of an industrialised world indifferent to the geographical and cultural context to be managed” (Pecqueur, 2004). It would see the emergence of a postfordian regional economy with a transition to a vertically organised (product-based) production system, and a shift from standard mass production to a flexible horizontal system (based on customer micro-segments) with enormous capacity to adapt to the segmentation of the market and rapid changes in demand.

This development is evident in all consumer goods sectors. In agriculture, demand for “local” products and other “typical” products has seen supply multiply in numerous niche markets. The territorial argument refers here to the idea of product quality and authenticity. Alongside mass production of standardised food products, more modest branches of production, which can be expected to achieve greater redistribution of added value in the region of origin, are being developed. While this trend is still the prerogative of the countries of the North, consumers in the South have always recognised the distinctive quality of certain local products,⁵ and these products, certificated and recognised, are distributed through national outlets. Although they are more readily found in export markets, this is more for economic reasons than lack of interest among local populations. By relying on ethical trade and recognition of the act of production, fair trade products, specifically aimed at promoting products from the countries of the South, enshrine a similar idea of a return to regionalised production.

In fact, the renewed appreciation of local products is merely the expression of a profound reorganisation which is giving regions a role in the building of a dynamic economic fabric which is a match for international competition. While it was predicted that there would be a convergence of behaviour and regional economic emancipation with its cohorts of unbridled delocalisation, it is found that “neighbourhood relations between local actors can play a key role in the competitiveness of economic activities” (Pecqueur, 2007). The reality of this phenomenon now seems to be widely accepted, even beyond the rural economy. Almost paradoxically, globalisation thus creates conditions favourable to the emergence of regions and local economic dynamics. It remains to be seen how far Mediterranean rural areas and the producers located there will be able to take advantage of this.

Alongside this “globalisation effect”, while not exaggerating their importance, particular mechanisms of economic independence unite the Mediterranean countries of the

5 - Hasbaya olive oils or almonds from Hermel in Lebanon, Beni Mauouche figs or Deglet Nour dates in Tunisia, Taliouine saffron in Morocco, for food products; argan oil from the foothills of the Moroccan High Atlas, Aleppo soap in Syria, essential oils in Morocco for cosmetics.

North and South. They find their political expression in the Euro-Mediterranean process initiated in 1995 and, more recently and more practically, in the Mediterranean component of the European Neighbourhood Policy. Intensifying this partnership could contribute to the rediscovery of the region, if, for example, it led to a policy of Mediterranean labelling to foster greater international visibility of local products.

The time for connectivity

While Information and Communication Technologies (ICT) have contributed enormously to the globalisation of the economy and information by allowing companies to communicate in real time and work on a just-in-time basis with ever more numerous suppliers increasingly scattered around the world, they have also opened the way to the dematerialisation of activities and services. Direct relations between individuals and organisations is much easier nowadays. More formalities can be processed via the Internet. The consumer, yesterday “at the end of the chain”, can be reached by the producer of goods. The employee, yesterday tied to his desk, now finds freedom and quality of life in teleworking. Groups and individuals scattered around the world can share and discuss common concerns.

The town, as a place to meet, to conduct business and deal with administrative formalities, has long been a place you have to go. With the new technologies, many activities can now be carried on independent of the place where they originate. The town loses some of its functions in favour of virtual nodes accessible to everyone provided that they have suitable equipment. What can rural regions expect from these new technologies which open them to the world and break their isolation? How should they prepare for this revolution? What policies need to be followed, differentiated in the North and the South, to take full advantage of this new way of relating to the world?

A civil society asserting itself

Against a background of growing recognition of civil society in development processes, the composition of rural areas today is changing and is faced with the evolution of political structures for representation and decision making. Civil society is organising and a new governance is on the march. In the North, its opinion is now explicitly sought by governments as shown by the constitution of a citizens’ panel from the ten European regions asked to express their views on the future of rural areas.⁶ Civil society can even set itself up as an opposition and join in national or international debate. As a partner of international organisations in development activities, it is now, more than in the past, recognised as having the right of observer status, consultation and even involvement in the management of those organisations.

In the South Mediterranean, the progressive organisation of civil society and its emergence as a development actor are also realities, even if it can be assumed that “in the South and East Mediterranean Countries, the legacy of centralisation and authoritarian political systems will continue to influence the forms of intervention and organisation of local actors. [...] The public-private-associative dynamic will still be hampered for a long time by the lack of devolution or decentralisation, by the closed nature of administrations and

⁶ - See www.citizenspanel.eu

the rigidity of administrative rules” (Bessaoud, 2006). Often occupying ground abandoned by the State, it contributes to the evolution of societies (protection of human rights, advances in the status of women, etc.) and development. The building of partnerships with counterparts in the North, in the Euro-Mediterranean framework, for example, confers on it the legitimacy that at times it still finds difficult to achieve at national level and strengthens it, at the same time creating bridges between the two shores of the Mediterranean. “The importance of decentralised cooperation should be underlined, in particular its growing impact on local development, thanks to the intervention of a variety of actors – regional and autonomous governments, municipalities, associations, universities, entrepreneurs, citizens’ platforms – which reinforce its dynamism and its capacity to share projects on both shores of the Mediterranean” (Roque, 2004).

Despite the handicaps of recent or earlier history,⁷ national leaders seem genuinely to realise the importance of intervening with or for the benefit of rural populations, as shown by the current implementation of the rural renewal policy in Algeria or the National Initiative for Human Development (INDH) in Morocco. These overtures must be translated into success, otherwise there is a risk of returning to more conservative positions.

Awareness of the environmental challenge

As reflected in the latest work of the IPCC, environment, its protection, sustainable management and conservation will have an ever more important place in development policies. All the more so in the Mediterranean which is particularly affected by human activities and exposed to the consequences of climatic warming (see chapter 3 “Natural resources”). Due to the variety of climates and soils and its agricultural history, the rural Mediterranean is characterised by the wealth of its agriculture and landscapes. Largely man-made, it nevertheless accommodates enormous biodiversity and unique and extremely fragile natural regions. As areas of production and thus exploitation of natural resources, they are seeing their productive capacity dwindle day by day under the excessive pressure of population, urban development and unsustainable and intensive production methods. Land is lost to the development of towns, erosion, over-exploitation of water resources, salinisation of soils, over-grazing and desertification, etc. Paradoxically, the abandonment of the poorest rural areas, combined with land left fallow and the disappearance of improvement works, which in some cases had been going on for centuries, constitutes a new kind of impoverishment.

Natural spaces face the same threats (Benoit and Comeau, 2005). Many animal and plant species are endangered, the last highly bio-diverse wetlands are gradually disappearing and the coastline is in a critical situation: “the growing pressure of coastal development and economic exploitation of the coast is making any attempt at sustainable management extremely difficult. Of the 47,720 kilometres of coast, 25,000 are urbanised or have already passed the critical limit” (López Ornat and Correás, 2003). What will happen in 2025 when 80% of the population of Mediterranean countries will be concentrated in a coastal belt 30 kilometres deep? Setting aside the most pessimistic

7 - The Arab Human Development Report 2003 of UNDP emphasised the role of historical, psychological and cultural factors in citizens’ participation in social life. In Egypt, the subordination of society to the State goes back to the time of the Pharaohs and reflects the characteristics of societies dependent on irrigation which demanded powerful, centralised States.

scenarios, if forecasts prove to be true, the effects of global climate change will accentuate an already critical situation: rising sea levels, more natural disasters, changes in ecosystems, reduction in river flows. In what way and how energetically will this environmental problem be tackled? It is still hard to say, other than mentioning the initiatives taken in Europe over the last decade. Certainly, rural areas will have to mobilise and play their part in the sustainable development policies which will be adopted over the next two decades.

A major challenge: the regional approach to rural development

Faced with the key factors affecting societies at their core, the demographic weight of rural populations and the diversity of social, economic and environmental situations, how can Mediterranean rural areas be engaged in a new development dynamic? In an increasingly open world, development can no longer be left exclusively to States which, for various reasons, no longer have the means. It must draw on the resources of civil society and be the fruit of collective dialogue and shared learning. It must be able, in an organised and responsible way, to promote this “local” approach which is asserting itself with globalisation, and truly take account of the question of its sustainability, not in an abstract way or by delegation, but through citizenship, incorporating it fully in projects adopted by the stakeholders themselves.

Successfully reconciling economic growth, sustainable management of resources and representation of the various components of society requires a common goal in which everyone feels that they have a stake and which is effective in implementing development strategies. The local territory can mobilise the human and material potential that it possesses in its own way. Living space is something its people know, they take ownership of it, they have a vision of it. It is the confrontation of these visions, in which they convey particular interests, desires, innovations, which fuels the participatory debate and acts a catalyst in mobilising existing tangible and intangible resources for the benefit of local sustainable development. If there are any imperatives in terms of equipment and rules, (regions generally have an administration), there are no prescribed recipes and each region can and must find its own path to development.

The Community Leader programme, launched in 1991 by the European Union, lasting until 2006 and then incorporated in the second pillar of the CAP 2007-2013, showed that a measure of this kind can help to revitalise rural areas. The aim of the initiative was to respond to the challenges facing the European rural world: changes in the agricultural sector following the reform of the CAP, increasingly demanding consumers, environmental pressure, accelerated spread of new technologies, ageing of the population and rural exodus. The Leader programme involved defining and implementing innovative regional approaches incorporating new ways of promoting the heritage, strengthening the local economic environment and organisation of local actors centred on a common development strategy. It demonstrated the actors’ capacity to mobilise and take charge of the future of their region, the value of a decentralised, integrated and bottom-up approach and the enriching character of sharing and transferring experiences between rural areas by setting up networks. Following up on this experience, in

France, to mention but one case, the number of local territories engaging in development has multiplied – local “*pays*”, communities of communes, centres of competitiveness or rural centres of excellence.

Centres of competitiveness and rural centres of excellence

Centres of competitiveness are defined by the Inter-ministerial Committee for Planning and Local Development (CIADT) as “the combination in a given area of enterprises, training centres and research units involved in common projects of an innovative character and having the necessary critical mass to achieve international visibility”.

The ambitions associated with “rural centres of excellence” perfectly illustrate the new economic role that rural areas are intended to play: “Rural areas are reservoirs of growth and excellence at national level. They contribute to the attractiveness and development of France. Their role is essential in the battle for employment and the national commitment to sustainable development. Over and above the measures taken, notably the organisation of rural areas and development of local infrastructure, projects emanating from rural areas now need to be given a new impetus. That is the ambition of the policy of centres of rural excellence”.

The text on the promotion of centres of rural excellence can be consulted on DIACT’s official Website: <http://poles-excellence-rurale.diact.gouv.fr>

Mediterranean rural areas could take this type of approach by extending the initiatives in the North and fundamentally renewing policies in support of rural development in the South. Given the change in production systems, liberalisation of trade, conservation or development of resources, they are more the victims of change than its cause. This situation needs to be reversed, making these regions the masters of their future. In Algeria, the turning point has already been reached, in particular with the Algerian rural renewal policy launched in early 2007. In Morocco, Strategy 2020 also hints at a voluntarist policy towards the rural world.

The challenge for the years ahead is to put flesh on the new rural policies, organise their implementation and explore all their potential. There is an urgency: a social urgency to take regions out of their isolation, and an economic and environmental urgency to change mankind’s relationship with his environment. To succeed, this regional approach must be supported in order to create the conditions for participation of all the actors, public and private, economic and social, to open development opportunities to the maximum, to place all the actors in a position to construct development projects and participate fully in the process. It must also ensure the overall development balance, as the regional approach can lead to competition between regions and unequal development. In this context, certain secondary issues closely linked to the major challenge of regionalisation of rural development are particularly important.

The transition from an agricultural economy to a “rural” economy

In terms of jobs and incomes, agriculture everywhere is declining in importance while aid is being reduced in favour of often more complex support mechanisms less directly linked to production. This trend is particularly pronounced in the North. Farms there

account on average for only 10% of the rural population and a new economy, based on tourism and services to the new residents, is developing. Farmers are no longer the only users or managers of the land. The new rural population is composed of neo-rural dwellers, retired people, residents working in urban areas or in commerce and/or services. In the South Mediterranean, agriculture is still an important activity, but no longer provides the necessary jobs or sufficient income due to the change in agricultural structures and population growth. Multiple activities are developing in farming families, often in the informal sector. In addition, the return of a population driven out of the towns, chiefly by unemployment, is irrigating rural areas with often young and skilled labour.

For the most agricultural and most productive rural areas, the race to be competitive by optimising the factors of production continues in the North and is accelerating in the South with the establishment of the Euro-Mediterranean Free Trade Area. Rural areas will continue to exist but they are likely to shrink in their extent while incomes will improve even further. Rural employment directly generated by this activity will also probably decline, and crops could be developed in favour of species or varieties better adapted to the environmental constraints or the effect of the opening of new markets (such as biofuels). They will benefit primarily from technical progress which will allow optimisation of the use of the resource, both for economic and environmental reasons⁸: intensive “precision” agriculture, introduction of automation, new farming practices (leaving land fallow, association of crops...), use of new varieties, whether or not the result of biotechnology, etc. Very closely linked to the food distribution and marketing sector, they will no doubt adjust to consumer demand. However, these areas will not be immune from problems. While the industrial concentrations feed the surrounding economic and social fabric, intensive agricultural production is emptying the countryside of its populations, often leading to the disappearance of services and a degradation in their habitability.

Outside these areas, agricultural activity is now no more than one element of the rural economy, and its share is steadily declining. In the North Mediterranean where this diversification process is most advanced, the rural economy is today largely determined by the towns. The countryside is “consumed” in a variety of ways by neighbouring or distant urban actors:

- *Consumption of the land.* The phenomenon of “out-of-town” residential development initially affected the immediate environs of the towns. With rising living standards, settlements subsequently extended further and further, eating away the neighbouring countryside and swallowing up villages and market towns. For these new populations which prefer a residence in a rural environment for its quality of life and cheaper property, the town is the dominant centre of economic and social activity.
- *Consumption of space for leisure activities and tourism.* Originally, it involved mass tourism which took over the most picturesque areas with the well-known consequences: urbanisation of the coasts, pollution, competition for water, etc. In contrast to this tourism, green tourism, which reflects the new aspirations of town-dwellers

⁸ - “Environmental pressure from agriculture will continue to lessen because of new technology (precision farming), driven by two incentives for a more exact use of inputs: compliance with environmental regulations and cost savings.” (European Commission, November 2006, p. 18).

with a thirst for nature, seems better integrated and more respectful of the countryside and its inhabitants. Not without its environmental effects, this type of tourism has little direct economic fallout in terms of visitor numbers. At the same time, it makes a considerable contribution to the new social image in which the rural world offers the visitor a world of nature and space.

- *Consumption of nature.* The protection of natural spaces and species is the last element of this external takeover of the countryside. It can take several forms. Even when they are not held responsible for the degradation, resident populations are judged incapable of ensuring the conservation of the natural heritage, which then becomes the subject of specialised management with the development of protected reserves or the proliferation of seed and gene banks to conserve biodiversity. Local populations are still all too often excluded from economic strategies to develop this heritage.

In a few years, we have moved from an “agricultural” image of the rural world, based on food security and later the conquest of export markets (“countryside as resource”) to a countryside which crystallises the new aspirations of urban populations which long for the environment, the natural heritage and quality of life (the “lifestyle countryside” and the “nature countryside”). This longing for the countryside is well described by Jean Viard and Bertrand Hervieu (Hervieu and Viard, 1996). The rising power of local communities, the growing regionalisation of public policies and the settlement of neo-rural populations who mean really to live in a rural environment opens new channels of development for European rural areas.

In the South Mediterranean, the dependency on agriculture and the uncertainty surrounding the consequences of the liberalisation of agricultural markets are strong. The theoretical model of total liberalisation and a general requirement to compete envisages a considerable reduction in the number of farms and a massive rural exodus. The “traditional” response which consisted of employing the labour from the rural world in the industrial or service sectors has little chance of working in the SEMC. The fear is that the towns will be unable to cope with this influx of new populations. The question then is to embark on diversification of economic activities in rural areas which both leaves room for agriculture and encourages economic integration of populations excluded from agriculture. With this in mind, alongside more sectoral rural development policies (equipment and infrastructure, hydro-agricultural development policies...), people are beginning to explore new opportunities and experimental policies. In Algeria, for example, a micro-credit policy is designed to help young people to create their own businesses in rural areas (artisanal businesses, services, etc.). A rural renewal policy launched in early 2007 also seeks rural development for and with the resident rural communities. Generally speaking, this is still a long way from the processes seen in the rural areas of the North, where diversification is part of a pattern of multi-functionality and satisfaction of social demand, based on clearly identified sectors such as tourism and services, and enjoys aid and support policies such as the successive Leader programmes.

The implementation of regional rural economic development strategies first involves evaluating local potential. In the agricultural sector, it must concern production (what products? Old or new? What production methods? What processing? etc.), marketing methods (short circuit and reconquest/reorganisation of local markets, urban outlets,

access to foreign consumers, etc.) and marketing strategies. In this regard, it is worth pointing out that the agro-food industry, especially in the North, is increasingly concerned with the regional origin of its products. In the South, the concentration of debate on export markets has made people forget the importance of the domestic agricultural economy. With the notable exception of Morocco, volumes of agricultural products consumed account for 98% of domestic production, and domestic demand for agricultural products in the SEMC has risen by 20 to 50% over ten years depending on the product (Rastoin and Szedlak, 2006, p. 2). This trend is likely to continue in the years ahead. In these circumstances, a reassessment of domestic agriculture should be one of the major pillars of regional rural development policies, with emphasis on strengthening trade chains, aids to investment, land security and development of services.

The liberalisation scenarios leave the SEMC little to hope for beyond meagre growth of their traditional exports of fruit and vegetables (of the order of 1 to 2%), chiefly because of existing and future constraints on production (water, land, cost of transport, etc.) This should calm the fears of European producers concerning South Mediterranean products. To conclude, the real competition is not between the Mediterranean countries but rather the competition that products from both the North and South Mediterranean will face from like products from other countries (Chile, United States, China...). The countries of the region have good reason, therefore, to unite and consolidate the positive image and identity of the "Mediterranean product". Bearing in mind the pattern of consumer demand and the constraints faced by Mediterranean farmers, this image could be developed on the basis of local, sustainable and quality agriculture which can make the variety of Mediterranean products profitable (extension of varieties grown, specification of commercial products, diversification of transformed products, quality labels...)

The introduction of the regional and the place of rural development policies into thinking about the future export capacity of the Mediterranean can have other advantages, such as:

- bridging the current gulf between domestic and export markets;
- allowing a larger number of producers to access the international market by expanding the range of exportable products;
- stimulating domestic consumption of these products due to their positive image and the inclusion of their production in the local economy.

This revolution in product identity must be a companion to the changes in the Mediterranean agricultural world. As with the other sectors of the economy, Mediterranean production must have intelligence, innovation, technology and marketing at its core. Quantity must no longer be the sole criterion of sustainability. Indeed, it cannot be.

Alongside agriculture, economic diversification must promote structured activities for the region so that it ceases to be a consumer commodity and becomes a place to live. Between the extremes of a rural dormitory linked to the town by fast transport and the

constitution of suburbs with a set of commodities, services, supported by their own development dynamic and connected both to the nearest town and the hinterland, there is a range of possible improvements for which it is not so much the number of residents that is important but rather the nature of their relationship with their surroundings. The same goes for tourism. Everything suggests that this major social phenomenon of the last fifty years is likely to grow in the next decades. Exploiting it to the maximum for the benefit of local economies could be a cornerstone of the future development of rural areas, provided that a “regionalised” supply is developed around these expectations: better mobilisation of the heritage, personalised treatment, small reception units, farm accommodation. However, tourist activities and quality products are not a panacea. Innovation must explore other paths which, for more remote regions, could involve development of the social economy or the community economy in order to combat poverty. Contrasting with this, attracting “high tech” companies which wish to offer their employees a pleasant place to live can be a legitimate objective for regions which have a recognised rural and natural heritage. As each has its own potential, it is up to the local stakeholders to develop their particular approach.

The State and advisory bodies have a key role to play in establishing a climate propitious to the success of these initiatives, by adopting regulatory texts which secure economic activity (in the field of property rights, usage rights, recognition of intellectual property...) or by promoting these initiatives (in the form of credit, aid to business start-ups, various tax reliefs...) and capitalisation of experience (through training and sharing of experience or dissemination of good practice). Given that one economic activity draws in others, it also means creating economic virtuous circles. Local economic potential is real, provided that one does not focus on a given economic model (productivist agriculture, export markets, wholesale distribution...). The diversity of agriculture and production, the wealth of “humanised” and natural landscapes, the climate, the existence of a varied cultural and historical heritage, an often highly developed crafts sector, knowledge and know-how are all trump cards which are only rarely played, and even more rarely for the benefit of the resident population. This new approach to regional economies, therefore, means that values and perceptions must be overturned.

A countryside that is attractive and integrated with the town

Rural areas, especially in the SEMC, are still in the main disadvantaged, not to say impoverished, and as such are “backward” areas. Existing efforts, in particular the Millennium Goals, must be pursued so that all rural populations have the necessary facilities in terms of water, electricity and services. These places, like towns, must also be the target of modern investment, especially in new technologies. It would be self-deluding to imagine that attractive rural regions could be developed without such resources. Cut off from the world in the past because of the poor road network, they cannot remain disqualified in the future because of deficient virtual economies and information networks. Initiatives by governments, donors and non-governmental organisations to reduce the “digital divide” must be integrated in national rural development policies. At present, the statistics show that the SEMC are still lagging behind in this.

Apart from strengthening rural amenities, the underlying challenge of articulating the rural and the urban cannot be escaped. The process of occupation of space in the

Mediterranean countries is characterised by accelerated urban growth and an enormous increase in the population density of the coastal regions. At the same time, we are witnessing a growing metropolisation of towns and expansion of periurban rural areas which are becoming prime areas of articulation where the dynamics stem both from complementarity and competition. In the countries of the South, the spread of homes destroys already limited agricultural land resources. On the other hand, agricultural activity persists, and even increases, to supply the towns. Other activities of transformation, artisanal businesses or services are established there, enjoying more favourable conditions in terms of rents, price of land, while remaining very close to the town. In the countries of the North, the residential function is crucial, with a dual approach: development of related services and commercial activities and the concern to maintain as “natural” an environment as possible. These areas become magnets for certain activities which do not require immediate proximity with consumers or which use the new communication technologies.

With the enormous development of these intermediate areas, the rural-urban articulation, which for a long time operated as a kind of frontier between the two worlds, is now changing radically to the point where urban geographers themselves tend to consider that the town does not exist and that it is being replaced by “metropolised” areas which are neither rural nor urban but relate to the territory and its habitation through all the populations present. “Metropolisation (in the territorial sense) thus completes the urban project by putting an end to the longstanding distinction between town and country. [...] We will now deliberately use inverted commas with the word town to mean that the territories are now understood as constituting vast archipelagic assemblies linking “town” and “country”. [...] If they have the means, the inhabitants move frequently and have access to the same goods and services everywhere. At any point in the territory, wherever they live, they share the “same” metropolitan culture which is neither country nor rural” (Ferrier, 2005). This shift to the metropolisation of large towns highlights the urban-rural relationship to the point where the existence of both is called into question. At the same time, it leads to a rediscovery of the relationships between areas in the depths of the country and urbanised areas, the importance of small and medium-sized towns in the economic dynamic of rural areas and the relations, or lack of them, between a town and its hinterland.

Research carried out in some Mediterranean countries, for example in Greece, shows that the development and functioning of small urban centres can help to sustain, or even develop, the rural area surrounding them or, conversely, cause its disappearance. Through a system of “polycentrism”, it creates a mesh of rural areas, maintains the links between the rural and the urban and moderates the process of concentration and agglomeration. The example of the small Greek town of Mouzaki shows the articulation that can exist between a town and its hinterland and the gains to be made from this mutual recognition of the two spaces. It also sheds light on the complexity of the regional development process which, in this case, is built on a synergy of formal and informal dynamics where townspeople who originate from the villages play a prime role.

“[...] In Mouzaki, the development process was not started through a project but was essentially the consequence of a development movement of the diaspora itself, transforming a depopulated highland to a space to be used (secondary residence). For this reasons, the initial development, which corresponds to the period when the highland hinterland benefited from the movement, can be characterised as informal. Local society itself seeks to exploit its own human potential and the intangible resources which characterise the way its socio-cultural and productive system works (relationships, networks, know-how). The diaspora was the chief consumer and ambassador of the development and economic revival of the micro-region. It is interesting to note that during this period, financing under structural policies and the CAP was limited to infrastructure (roads, etc.), modernisation of agricultural businesses and financing of training seminars by the European Social Fund. No financing was specifically envisaged for integrated local development projects.

The strengthening of the links between the “mother-territory” and the diaspora by developing secondary residences encouraged the transformation of socio-cultural relations into a network with an economic dimension. It was in fact these networks which allowed local businesses not only to control the emerging market but also to create competitive advantages compared with neighbouring urban centres.

The general interest in the highland region has developed a positive climate for micro investment. This contributed to the take-off of a market essentially involving the construction sector (landscaping, building, hydraulic works, electricity, furniture, window and door frames...). Later, the movement had implications for other sectors of activity (week-end tourism, demand for local products), thus providing new outlets for local producers and traders of food products and drinks. Finally, through informal networks, local businesses control activities grafted on to the development of secondary residences, thereby injecting considerable capital into their region. This trend has strengthened the diaspora's relations with the small town which, little by little, has become the centre of the entire movement [...].”

Source: Goussios, 2006

The question of regional cohesion

Since the creation of the European Union, the question of regional cohesion has become central. Initially based on the political concept of the union of European nations, it has progressively taken on an economic dimension. The market economy, even in its neo-liberal version, demands a re-balancing in favour of the least competitive regions, whether to allow them to enter the competitive race or to prevent them becoming marginalised. Two main types of measures are implemented to achieve regional equity: direct aid and subsidies to maintain levels of income and public services in disadvantaged areas, and measures to offset the effects of heterogeneous mechanisms for regionalising economic activities. This policy will be of great benefit to rural areas, especially in the countries of southern Europe, faced with the need to modernise their agriculture and considered to be structural laggards.

The assertion of the regions, and more generally local communities, marks a dual change in the perception of regional cohesion. On the one hand, cohesion policies are called into question because of their cost and their results which are judged to be rather meagre. What we are seeing, therefore, is a progressive localisation of regional policies: “Regional policy has thus begun a paradigm shift from a top-down, subsidy-based strategy to

reduce regional disparities into a much broader family of policies designed to improve regional competitiveness. [...] [with] less of a focus on exogenous investments and transfers.” (OECD, 2006, p. 14-15). On the other hand, a “separatist temptation” is appearing, where regions demand the right to manage more and more of their own affairs, at the risk of undermining national unity (as in the case of Catalonia in Spain or the northern regions of Italy).

In the countries of the South, little or no account has been taken of the inequality of regional development, in some cases structural, but often considered to be inevitable, except in the case of crises which imperilled the central government or national unity. Under the constraint of a general lack of resources and means, and in the pursuit of efficiency and optimisation, resources are concentrated on regions where the “returns” are highest. The poorest regions only receive just enough aid to keep social tensions in check. The question is whether the policies being drawn up today, with a local approach and regionalisation of development, decentralisation and devolution or more or less extensive powers to the local level, will be able to restore a balance between the regions, or at least allow each of them to embark its own development spiral. This approach is based on two powerful assumptions:

- 1) Every region has within it the seeds of its development. This is the wager of regionalisation which is to assert the capacity for regional self-determination. “Thus, in social terms, the gaping inequalities (within and between States) and the ensuing security dysfunctions must no longer be dissociated from endogenous solutions of societal production which invent goods and services based on the subsistence of poor inhabitants and allow the continuity of societies [...]. It is all as if the “regional” stakeholders knew or, wherever they could, initiated the numerous spatial actions which are satisfying and optimum in pragmatic terms and at any time,” (Ferrier, 2005).
- 2) The region is capable of mobilising these resources to its own advantage and enter the market economy. In this regard, nothing is a given. For the regions, it means staying in the race, maintaining a dynamic of building and renewing their economies, which allows everyone, successively or simultaneously, to position themselves.

Regional development strategies are underpinned by support strategies to increase the likelihood that they will be put into effect. In order to play fully their role of development promoter and guarantor of equity, States and partners are asked to pay constant attention to local initiatives, to be flexible in the solutions to be provided and to provide “complicitous” support. The principle of subsidiarity must be continually invoked, upwards and downwards, and the arrangement adopted must be closely dependent on the national and local situation. It must be able to evolve over time in parallel to the capacity of old or new institutions and forms of local government.

Consolidation of institutions and local governance

Divergences in the representation of the region, difficulties of expression of certain social groups, internal conflicts in competing for resources, inter-regional competition to produce goods and services or to attract businesses, relations with States and supra-national bodies, cohesion between regions..., these are all areas which demand strong

institutions and good governance able to integrate the various levels of government, dialogue and decision-making.

Regulation of social relations is essential for living together, and the importance of institutions, including in the field of economics, is beginning to be recognised. Research on this subject is growing. One study analyses the respective contributions of institutions, geography (climate and natural resources) and economic integration in the make-up of average incomes by country. It shows conclusively that institutions are paramount in increasing incomes, while the effect of the other two is weak if not negative (Rodrik, Subramanian and Trebbi, 2002). What institutions do we mean? While there are no rules on the subject, well-known principles can be applied: representation of populations, expression of minority groups (ethnic, social...), recognition by populations of the legitimacy of institutions, etc. The articulation of institutions from international to local level in relations of mutual respect, subsidiarity and complementarity is particularly important. Not all institutions fulfil the same function and not all have the same scope. It is on the interplay between them that the newly emerging social organisation is built.

Throughout the whole Mediterranean sphere there is a proliferation of local institutions. In the North, there is a burgeoning of institutions which can often barely manage to work together and in the South, a civil society which is seeking ways of positioning itself in relation to a central authority which still dithers over which way to go. The Mediterranean rural sphere clearly lacks institutions and rules, whether in the economic field of property and real estate, user rights and management of natural resources or the expression of social diversity. The challenge, therefore, is to establish institutions for coordination and negotiation where they do not exist, strengthen all regional institutions by giving them real powers and responsibilities, create an institutional fabric to foster complementarities and synergies between production, research and training. Strong institutions presuppose people able to make them work. Training local populations to assume their responsibilities in local bodies and in their relations with supralocal institutions is of great importance. The education deficit in rural areas is a major obstacle here, as is the persistence of social or gender inequalities. Access to information and networking of the actors are also essential in this process of building local governance.

“Good governance” must be able to transcend certain social representation which is self-evident, such as representation of the rural world. Nowadays there is a primacy of the town. Rural areas are at best seen as spaces “to consume”, at worst places where it is not good to live. Metropolisation would simply be a new form of conquest or annexation by the towns of an “inert” rural space. One of the challenges for future regional rural development policies will certainly be to restore the balance between the two spaces, to go beyond the urban conception of these regions. Recognition of their own dynamics and developing their new potential (new markets, new social expectations, rebuilding the town-country articulation, tackling growing environmental threats, etc.) are necessary to the emergence of endogenous development strategies which are truly regional and rural. “The specific dynamic of rural spaces is not susceptible of interpretation solely in terms of the impact of urban evolution on the rural world [...]. The transformation of minds and functions in the rural space, the establishment of new social forms and professions without necessarily abolishing agricultural activity, the development of local

activities, and a new spatial organisation of rural growth starting with small localities integrating rural activities in the global economy, all these are evidence of the development of local mechanisms, both institutionalised and individual, as the initiators of endogenous dynamics not contemplated by initiatives of an urban origin” (Thomsin, 2001).

The challenge is real since the trend today, deliberately or by default, is to exclude rural populations from the process of drawing up regional development strategies. The North, despite a genuine culture of representation and participation, is not immune. Surveys conducted by IAMM in the framework of diagnostic analyses of regions shows that farmers are poorly represented in bodies responsible for development such as regions, multi-functional inter-municipal unions and other centres of competitiveness or excellence. In the “Haut-Languedoc and Vignobles” region of the Department of Hérault, while 77% of farmers surveyed are members of a professional body (trade union, professional group, chamber of agriculture, cooperative, etc.), only 30% participate in an institution responsible for local development (region, regional natural park, municipal council, community of communes, etc.). Over 50% of them consider that their interests are not well represented in these institutions, 33% do not feel concerned and only 10% say that they are satisfied (Ciheam-IAMM, 2006).

Some scenarios for the future of rural spaces

Based on the various factors in the development of rural areas and the challenges facing them presented in the preceding chapters, it is possible, by way of conclusion, to imagine various paths for the future.

A first underlying scenario suggests a residual rural space which continues to suffer from the effects of processes and policies which do not directly concern it. Changes in the rural world depend largely on exogenous mechanisms and rural policies are “follow-my-leader” support policies or corrections. In this scenario, two main elements which will be crucial in the evolution of rural regions can be envisaged:

- the economic capacity of urban areas to receive rural migrants;
- the weight and force of environmental policies.

In the South, with the much trumpeted liberalisation and its effects on agricultural production, one can predict:

- a reduction in the number of farms;
- little development of economic alternatives in rural areas;
- worsening unemployment and poverty with or without a rural exodus to the towns and growing social and economic exclusion of rural populations;
- centralised management of protection of the environment and natural resources with a strong risk of failure.

In the North, civil society will continue to play a role in the evolution of rural areas but with an “urban bias”, the possible effects of which could be:

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- management of the rural space for the benefit of towns with a rural space subject to the demands of urbanisation and urban leisure;
- strong pressure on agricultural activities which are under-estimated and under-valued as a factor in the construction of rural regions;
- continued reduction in the number of farms and agricultural development based on the “entrepreneurial” model of agriculture and concentrated in the most productive areas.

Two alternative scenarios can be derived from the underlying scenario. The first, which could be described as a “blocking” scenario, reflects the impossibility for rural areas to bear the pressure of a development which is exogenous to them. For the countries of the South, this scenario envisages:

- rising social instability and insecurity and increasing migration to the towns and abroad;
- proliferation of conflicts linked to regulation of human pressure on the environment. As this poverty scenario associates degradation of natural resources with the process of survival of resident populations, it will be difficult to counter these practices through negotiation.

The crisis in the rural space could be reflected in the North by the “disappearance”, at least in perception, of agriculture and farmers from the rural development process. While some rural regions will be able to profit from their “urbanisation”, they will still not form “whole” regions, rather living second-hand off a development model which only regards them as a back-up for urban spaces. It may be supposed that in this context, competition in the use of the resources will grow, with trade-offs more and more often unfavourable to the farmers.

The last scenario presents a rural world which builds its own legitimacy and manages to offer diverse and balanced development options which allow for the complexity of its social and economic fabric. This scenario can be developed if proactive policies are put in place which, based on a vision of these rural spaces, helps to implement them. It also supposes a legal framework with sound institutions and processes of governance. This scenario is not a utopian one, since it builds on the trends already seen in outline today, both in the North and the South. It carries within it the major changes which give it all its “modernity” and give hope that more account will be taken of sustainability in the processes of production. At the same time, it is these very changes which will make achieving it a sensitive process, both in the North and the South.

Nothing is predestined and these considerations as a whole show that the future of the Mediterranean rural regions is not yet written. There is therefore a need, not to say an urgent need, to deepen our understanding of the changes at work, avoiding the trap of preconceptions and the obvious. In this spirit, a Mediterranean regional approach to rural development is certainly one of the factors which could contribute to the building of a renewed vision of its rural spaces.

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CHAPTER 11

STRENGTHENING AND CONSOLIDATING EDUCATION AND RESEARCH CAPACITIES*

Agriculture is and will continue to be central to the economic and social development of the Mediterranean region. Agricultural and rural activities are at the heart of many challenges, including: the rationalised use of increasingly scarce and depleted natural resources; guaranteeing food security, in both quantitative and qualitative terms, for ever-increasing populations; putting agricultural products on the market that comply with local and international requirements; and overcoming urban-rural and coastal-inland divides by putting in place strategies for the development of rural areas.

It is becoming vital to strengthen and consolidate education and research capacity in the agriculture and agro-food sector and more generally to develop a knowledge-based economy (KBE). Knowledge has become a key factor for countries' economic growth and competitiveness. Although it is of course incontrovertible that material resources continue to be important for wealth creation in most sectors, including agriculture and the agro-food industries, knowledge is becoming increasingly important, particularly when agro-food industries integrate modern manufacturing and distribution processes. Scientific and technological innovations will make it possible to make optimum use of available, local and human resources and so improve the production, processing, distribution and consumption of agricultural and food products and ensure the food security of populations.

New competencies will need to be created, developed and mobilised in order to meet the requirements of the innovations and technologies on which the economic development of countries depends. Consequently, increased spending on research and development¹ has become a prerequisite for increased growth and productivity. The organisation of agricultural higher education and research provisions is also a critical factor for economic progress. Unfortunately, these are not always of the required standard – in the South or the North – and there seems to be a need for reorganisation around priority subjects, strengthening and redistribution of tasks. Considerable efforts

* - This chapter is based on documents written by Vincent Dolle (Ciheam-MAI Montpellier) and Abdelhamid Bencharif (Ciheam-MAI Montpellier).

1 - Total R&D spending as a proportion of GDP in 2003 was: 0.6% in Tunisia; 0.79% in Morocco; 0.8% in Italy; 1.2% in China; 1.9% in the European Union of 25 Member States; 2.8% in the USA; 3.15% in Japan; (4.75% in Israel). In France, domestic spending on R&D rose from 2.35% of GNP in 1992 to 2.48% in 2004.

will be needed in terms of training, in order to promote new actors and producers of knowledge that is relevant and stimulates more responsive and practical research and training provisions.

In this chapter we will examine some of the main issues and consider ways of tackling them. This means promoting the reinvigoration of provision for the production of scientific and technical knowledge in order to reverse the trend that is currently being seen in the South – although not only in the South – of exclusion from the knowledge economy. Evidently, the weakness of education and research provision, especially in southern and eastern Mediterranean countries (SEMCs)², is hampering innovation and putting companies at a competitive disadvantage – especially companies in the agricultural and agro-food sector. Free-trade agreements no longer allow the economic exploitation of the almost unique advantage of the low cost of labour in SEMCs in order to promote agricultural and agro-food development.

A number of different scenarios can be envisaged, depending on the degree of commitment displayed to facing up to the challenges of reinvigorating the education and research system. By expounding the different variables, we will present four scenarios. In the most optimistic, we envisage the targeted policies for intellectual investment and research and education programme planning that are vital for reinvigorating knowledge generation and innovation, so crucial for competitiveness. Ideally, Mediterranean countries will cease to be bystanders and become more active participants in globalisation, through the construction of a Euro-Mediterranean research and higher education area for sustainable rural and regional development. Mediterranean countries will therefore have to make substantial investments in order to promote the region's human capital³ and create a culture of genuine dialogue and partnership based on the principles of establishing contract-based links and "networks". This will also require strong policies to motivate teachers and researchers in order to reverse the trend towards isolation and disinvestment in institutions and sometimes in higher education and research actors.

Methodology

On the basis of analysis of the capacity for science, technology and innovation in the agricultural and agro-food sector in the Mediterranean, which identified a North-South divide with regard to the knowledge-based economy, eight experts took part in a forecasting workshop to identify key variables and intervention areas with regard to education and research. Their methodology comprised of first listing all the variables and characteristics of the situation revealed by the analysis; a moderator-led brainstorming session produced a list of 34. Next, the experts identified all the direct causal relationships between the variables, taken two by two; this yielded a complex system characterised by a multitude of relationship networks, generating a dense web.

Software was used to analyse the identified relationships for influences and interdependencies in order to allow the key variables to be identified from this complex web. This analysis made it possible to determine: the most active variables that, if altered, would have

2 - Private sector participation in R&D is 6% in Morocco, 53% in France and 70% in Japan.

3 - This issue has not yet become of major concern in the region. The first ministerial Euro-Mediterranean conference on high education and research was held in Cairo in June 2007, twelve years after the Barcelona declaration ; the next will take place in 2009.

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the greatest impact on the system; and the most passive variables, which must be acted upon directly because so many other variables would have to be changed in order to influence them indirectly. The analysis produced an “influence-interdependency matrix” which focuses on the key variables:

- › The five most active variables were: insufficient attention by decision-makers to the requirements; ineffective institutions of governance; a lack of intermediary bodies; weak local pressure from competition.
- › Two quite active variables were: the isolation of universities and economic actors; poor appreciation of knowledge.
- › Four moderately active variables were: lack of R&D; lack of resources for educators; mismatch between training and requirements; lack of retraining and ongoing learning.
- › The most passive variables were: low value placed on international cooperation; poor diffusion of ICTs; ineffective modes of acquisition of technical knowledge; poor access to advance technologies (this was the most passive variable of all).

These key variables reveal fields or domains that can be used to steer the system in the desired direction. The experts chose five of them that will serve as a basis for continuing analysis (identification of hypotheses and options and the development of scenarios):

- › creating new competencies and new capacity for adaptation;
- › improving the relationship between training and employment;
- › mobilising cognitive resources by means of national and international networks;
- › acquiring knowledge and technology and disseminating knowledge;
- › building the operating conditions that will promote the realisation of the preceding variables.

New competencies and new expertise

Adapting education to the challenges of tomorrow

In the current context of globalisation, the opening up of markets, the establishment of the Euro-Mediterranean Free Trade Area (MEFTA) and the emergence of increasingly competitive economies, new operators are appearing in the agriculture and agro-food sector. The integration of Mediterranean countries' economies into the global economy will mean that training requirements will become greater and more diverse. In order to be able to adapt swiftly to this new world order, make the most of the opportunities and improve their performances and competitiveness, all economic agents in the sector must have available to them the best qualified human resources and must make use of analysis instruments and relevant, proven and effective decision-making tools. In this new context, the higher education and R&D systems of all Mediterranean countries must contend with three major challenges:

- › The emergence of a virtually global labour market will result in extremely fierce competition with ever-higher qualifications requirements. A highly educated working population is a vital prerequisite for the adoption of new technologies in the economy as a whole, and thus for an increase in overall productivity (OECD, 2006).
- › The information society will gradually change the nature of work and the organisation of production. Adapting to the new technological tools and new working conditions

will require skills to be continually updated. The information society will also bring about important changes with regard to knowledge acquisition processes and teaching methods, which will have a profound effect on teacher-student relationships.

- The permeation of an innovation culture will become crucial as the rapid development of scientific knowledge and the production and diffusion of technologies leads to the emergence of a new “knowledge and technology” society. This “scientific revolution” will permeate all sectors of the economy, including agro-food and agriculture, and will require considerable research capacity and perpetual creativity.

The development of education, training and research systems must therefore take into account the speed of these changes. Increasing globalisation, the growing importance of information communication technologies (ICTs) and the pivotal role of knowledge in the development of societies will greatly influence the organisation of the education and training of the future. In Europe, it is estimated that up to 30% of the economically active population will be directly engaged in the production and diffusion of knowledge. A high proportion of other workers will need that same knowledge and capacity to respond in order to benefit from the new trends (European Commission, 2005). The jobs of tomorrow will primarily consist of exchanging and processing knowledge. Societies will be “learning societies”, entirely engaged in assimilating the constant flow of new knowledge. The demand for knowledge will be far greater and more changeable. Education will no longer mean training to carry out a specific type of activity, which risks being rendered obsolete by scientific and technological advances. Demand for education will be stimulated by the need for training to be continually updated.⁴ Thus, professional training courses undertaken by participants throughout their lives will in turn be forced to change.

Preparing for new jobs and professions

The year 2020 is not far off: in terms of education and training, today’s students will be the economic actors in their professional sectors within ten years. Consequently, there is a strong obligation to plan ahead so that they might have the best possible chance of being adapted to their particular professional world.

Agricultural education must have three characteristics that require particular competencies: it must assist the production of living things, it must prepare students to work in a “strategic” sector, and it must be anchored in the local area. The unique nature of agriculture and food is first and foremost imposed by the very nature of the production process, the products and their destination. Agricultural production relies on biological cycles and the products created aim to meet needs that are primarily physiological and social, and then economic. Agriculture is set apart by the uncertainty as to whether the anticipated product will be obtained and continues to be characterised by considerable and constant risk, which has tremendous effect on the extremely volatile agricultural markets. It is also a very special strategic market for nation States. Given the many pro-

⁴ - What will work look like in fifty years? Among the major changes, we note the need for highly qualified jobs in many domains, implying a profound change in initial teaching, in particular at university-level, along with the need to train the engineers who are in increasingly short supply (Attali, 2007).

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tections that agriculture enjoys, it is hardly surprising that it has not yet become entirely globalised. Agriculture, “is also a cultural, public health, environmental, even political matter, because the State authorities regularly assign specific functions to this sector: notably food self-sufficiency and land management” (Bouet and Bureau, 2001). Lastly, agronomy is a “science of places”. Agricultural education must adapt to the local area. Consequently, it is vital that training establishments have local roots: one of the necessary conditions for this kind of active learning is the active involvement in training courses of other rural actors operating within the same locality.

Educational establishments now have multiple objectives, but this has not always been the case. The first agricultural higher education establishments, colleges and university departments were set up with the specific purpose of training engineers and technicians in the use of “modern methods” in the interests of increasing agricultural production. Today, agricultural education no longer exclusively trains students for agricultural professions; it has had to respond to the new requirements imposed by changes in agricultural and agro-food production systems and invest in new training niches, up- and down-stream of the function of production that used to be the “heart of its profession”. Like agriculture itself, which no longer has feeding people as its sole purpose, education is no longer strictly “agricultural”, but must also meet the expectations of society in terms of protecting the environment, biodiversity, food quality and food safety of products, integrating farmers into the global society, maintaining the countryside, presenting rural areas to the best advantage, carbon storage etc. Its function has become broader and more complex, gradually expanding to include new professions related to product processing and distribution and business management. The curriculums of the various agricultural education courses must therefore also incorporate the emerging challenges related to the current issues raised by this vast field of activities.

The complexity and specificity of agricultural education in France

Agricultural education is vast and complex and can be viewed in a variety of ways (Marshall, 2004):

- as a system of training bodies of varying status and with diverse missions;
- as families of professions and qualifications for which it prepares students or the knowledge that it imparts;
- as teaching, education and management methods;
- as a set of public policies.

Agriculture and agro-food production draw on a broad spectrum of economic sectors and require a wide range of skills. Agricultural education and training refers to all courses of agricultural instruction, regardless of the level or duration of the course, ranging from long-term degree courses to short-term work experience and continuing education (FAO, 1997). In general, international cooperation bodies (FAO, World Bank, *Coopération Française*, etc.) distinguish between four levels of intervention, which may intersect:

- Agricultural higher education, referring to instruction leading to a university degree or a technical qualification of an equivalent level.
- Vocational Education and Training (VET), which is delivered in tertiary education establishments below university level, and trains people to carry out a specific vocational activity by means of a dedicated training course. The term “professional training” is sometimes used, which can refer to training of various kinds at various levels

(including vocational higher education): initial vocational training, advanced vocational training, ongoing professional development training, and vocational training for the unemployed and job seekers.

- › Professional development training, which refers to any instruction delivered during employment. Like initial training, it responds to the specific training needs of each client.
- › Mass Vocational Agricultural Training, which refers to “national vocational provisions allowing sustained access to vocational training to a large number of agricultural producers who must be able to respond to technical issues of production and farm management whilst also providing information on the environment and the tools for knowledge acquisition” (Fusiller, 2004).

The perimeters of knowledge that will be useful for the professions of tomorrow are moving away from agriculture in the strictest sense of the term and towards an agriculture-food-environment mix (Conseil général de l’Agriculture de l’Alimentation et des Espaces ruraux, 2006). Diversification of the range of agricultural instruction available must therefore include four large “families” of professions or professional sectors: agricultural production and agricultural suppliers; the agro-food industries; land use planning and protection of the environment; and rural services. The expanded training provision for these professions corresponds to several key profiles of the jobs of the future (Ciheam, 1999): project manager (farming, new products, agro-industrial investment, natural resources, professional organisations, etc.); production engineer (agriculture and agro-food industry); developer (knowledge transfer, services to businesses); marketing specialist (technical/commercial, sales); supply chain and distribution logistics expert (creation of new products, management of innovations, services, specialist skills etc.).

Agricultural education must also expand its training provision to meet new economic, social and environmental challenges, such as in the domains of: analysis and regulation of agro-food sectors; quality, hygiene, food safety and traceability; food and health; protection of the environment; ethical questions relating to the life sciences; the non-food use of agricultural products, etc. School and higher education systems will therefore need to deliver training that goes far beyond the elements of production and takes into account changes in all the complementary subsidiary and service professions, including the skills to be able to contract out the more traditional skills of the operational vocations.

Promoting new skills and capacities

Mastery of current and future professions and the ability to assert oneself in the professional environment will require more than strictly scientific and technical skills. In future, workers will need – in addition to knowledge of their activity domain – broader skills, such as interpersonal skills, in order to be able to tackle complex situations, respond to change, appreciate cultural specificities, work in teams and networks, etc. For education, the major challenge will therefore be to get learners to embody values, knowledge, expertise and action, and to educate them to know and think, whilst not forgetting to educate them to act.

Consumer food products have undergone quite a few changes in the course of the technical and commercial operations by the variety of economic actors that have contributed

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to their production, processing and distribution at the various stages of manufacture. As agro-food systems are modernised, the number of these functions, exchanges and circuits is increasing. The opening up of markets as a result of globalisation and the development of new technologies have made agro-food systems even more complex. Education must prioritise systems training and interdisciplinary approaches that take account of the interdependence of factors in agriculture and the integration into agro-food systems, in order to explain the reality in all its complexity. In professional situations, it will become crucial to be able to make a swift analysis of complex situations.

In most types of work, the requirement for communication, for team leading and to hold positions of responsibility have become stronger. All prospective studies of jobs and qualifications and training requirements agree on this, and emphasise the importance of acquiring interpersonal skills not only for service jobs but also for administrative and technical jobs. Lastly, it is becoming vital to train managers who are open-minded and curious, capable of developing an overview and of solving specific problems effectively, but who also have intellectual humility and are comfortable with the interplay of knowledge and action.⁵ Training courses and teaching modules must be more explicit about their learning outcomes and the skills that students must acquire.⁶

Employment trends in the agricultural sector in France

The French employment organisation for the food and agricultural sector *Association pour l'emploi des cadres, ingénieurs et techniciens de l'agriculture et de l'agro-alimentaire* (APECITA) registered 14 339 jobs and 15 693 applicants in 2006, which corresponded to an increase in both supply (+ 13%) and demand (+ 3%).

In 2007, two thirds of job opportunities were still with five types of employer:

- > agro-food industries (13%): service positions relating to production (quality, logistics, buying), manufacturing and commerce;
- > agro-supply companies (14%): commercial positions, experimentation and research;
- > farms and specialised production companies (12%): production jobs in viticulture and horticulture, livestock and crop production; commercial and distribution companies (12%): commercial positions in agro-supply and agro-food.
- > agricultural professional organisations (12%): advisory positions and conductors of research and experimentation.
- > service companies (especially computer sciences), land-use planning companies, environmental companies and bodies offer a less significant number of jobs, but their number grew noticeably between 2005 and 2006.

Trade and collection companies are hiring. The study showed that 21% (3019) of all jobs registered by APECITA were with trade and collection companies. A closer look shows that commercial functions accounted for 80% of these. Next came jobs in agro-distribution companies, then agricultural professional organisations.

Sales companies have the wind in their sails. The biggest category of jobs (5424) was technical/commercial. After laboratory research jobs, came those in advice and animation (31%).

5 - Analysis by Michel Petit (former director general for agronomic research, World Bank, Associate Professor Ciheam-MAI Montpellier), on the education of generalists: *Young Professionals* at the World Bank, or of others such as members of the Indian Administrative Service.

6 - This recommendation is now an explicit quality assurance criterion for institutions adhering to the Bologna process.

The same trend was apparent in respect of administrative and management roles, which essentially recruited engineers. There were 1134 education and training jobs advertised for engineers and BTS holders. However, jobs in agricultural production fell slightly (-3%).

Source: Apecita, *Tendances de l'emploi*, 2007; www.studyrama.com, based on the APECITA study.

Enhancing international openness

The international openness of education courses has become an imperative, especially as the Euro-Mediterranean Free Trade Area (EMFTA) gradually becomes established. The internationalisation of markets will have important effects on the whole of the agricultural and agro-food sectors, and thus on training – in particular the training of management staff, who will have to build stronger relationships with partners in other countries. The international nature of training refers primarily to course content, which must enable students to:

- understand the significance of the internationalisation of the agricultural and agro-food economy;
- tackle the issues raised by the implications of internationalisation for public policy and the strategies of the companies they will be working in;
- have access to the innovations that are vital for them to be able to conduct their activities;
- achieve mobility in training courses, research and jobs.
- communicate in several languages – especially the languages of the Mediterranean region – and be better able to appreciate and adapt to different cultures. This means teaching students not to be “destabilised” by cultural differences, to grasp and solve the difficulties of working in multicultural teams and multinational corporations, to be able to negotiate with foreign partners, carry out international marketing studies etc.;

In addition, education and training systems will need to include complementary activities and provision for:

- curriculums to be adapted and upgraded to meet international standards, in order to improve their clarity and interconnectivity. Advanced courses will, wherever possible, be designed in South-North and South-South partnerships. The establishment of quality assurance procedures (Dollé, 2007) will enable courses to be upgraded in line with recognised teaching practice and curriculums to be based on approved modules of transferable credit;⁷
- the construction of partnership networks between the education establishments of Mediterranean countries in order to promote compatibility between national systems for masters level and engineering qualifications;

⁷ - European Credit Transfer System.

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- Euro-Mediterranean mobility in order to encourage student and teacher exchanges and sharing of teaching experiences;
- integration into individual training through apprenticeship courses incorporating periods of work experience abroad that allow alternation between temporary work placement and a more academic training course. The work placement periods must be recognised and adequately credited on the courses;
- the creation of international masters programmes and doctorate schools in Euro-Mediterranean partnerships;
- the consolidation of resources to support education and research at national and regional levels;
- more generally, reform of the governance practices of public higher education and research institutions and establishments.⁸

Together, these provisions will help to bring about great improvements in the performances of networked and consolidated national higher education systems. These objectives are common to northern and southern Mediterranean institutions (European Commission, 2006), which could work together in the same direction. In a recent communication, the European Commission identifies the many challenges that must be met for the modernisation of European universities, which are far from realising their potential... "Europe needs universities capable of developing their strong points and of differentiating their activities on the basis of these" (European Commission, 2006).⁹ In extremely diverse ways, international openness therefore connects the agricultural education provisions of the two shores of the Mediterranean in a single dynamic of generating knowledge for development.

Improving the relationship between education and work

The appropriateness of education for the workplace: a new challenge

Ensuring that training courses and the skills they teach are appropriate to the workplace will require mechanisms to be put in place that can anticipate changes in professions, in order to allow the creation of training courses that are regularly adapted to meet the requirements of the workplace. In developed countries, a variety of approaches and tools are used to predict trends, identify skills requirements and put in place training courses to meet the demand. Experience has shown that this can improve employability and thus reduce failure rates, but does not however entirely resolve the issue of employment. In France, however, as in other European Mediterranean countries, burdensome vocation-

⁸ - Reform of the governance practices of institutions and establishments is directly dependent on the reform capacities of States being able to develop from poor and ineffective governance towards established democratic practices of governance.

⁹ - With 4,000 establishments, more than 17 millions students and a staff of around 1.5 million, including 43,000 researchers, European universities have massive potential but this is not being fully mobilised and utilised for more growth and more jobs.

al training courses have not always led to jobs, leading Jean Vincens to lament that “there is not always proper correspondence between initial education and position held, as much in terms of level as of speciality” (Giret, Lopez and Rose, 2005).

Although these methods have recently been introduced in SEMCs, they are rarely used. The objective of the provision for technical and advanced agricultural education established after independence was to train managers for the public sector and a variety of quasi-State services. In many SEMCs agricultural education is failing to meet the new challenges fully, because it tends to be: out of touch with professional organisations, business and the expectations of society; split between various ministries (agriculture, higher education, schools, vocational training....) and partitioned by level; unconnected to research institutions and supported by cooperation activities that, although numerous, are fragmented and isolated.

Although difficulties with graduate employment permeate all the agro-food sectors, it is in agriculture that the problem is most acute, as it is in agriculture that other problems persist, such as access to education by the majority of young people in rural areas and the poor levels of education among farmers that prevent them from using modern production methods (El Bakkari, 2004). Most Mediterranean countries have initiated projects to meet this new challenge, often in the framework of provision for international cooperation projects, with a view to developing lasting partnerships between training institutions and the world of work, and of making training courses more vocational in order to improve graduates' employability.

Rehabilitating vocational training and developing continuous education

Training of all types and at all levels needs to be made more vocational, because it all leads to employment. The perception of vocational training is changing: although in the recent past it was seen as a way out or as an option for those failing at school, it now represents an attractive option for responding to the challenges of employment and economic development. Vocational training can be strengthened in a number of ways, such as sandwich courses, or long or short vocational training courses designed in conjunction with professional sectors and business. In some cases, it may be desirable to encourage the creation of business chairs within colleges or universities. Continuous education has thus become an essential tool for keeping up with the perpetual technological changes and allowing knowledge to be constantly brought up to date. It also benefits the social promotion of human resources, in northern as well as southern Mediterranean countries. Most of these countries have launched public policies to strengthen the legislative framework for this type of training with the aim of ensuring that it becomes popular once again – and prospers.

In Europe in particular, a broad consensus has developed between EU Member States on the subject of “life-long learning”, a principle integrated into EU education programmes (European Commission, 2000). These provisions should be extended in all the countries of the Mediterranean because they help to maintain economic competitiveness and the capacity for professional insertion that is an excellent way of combating social exclusion.

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The vocational training policies developed by Mediterranean developing countries to bring their agricultural sectors up to standard attach a great deal of importance to ongoing training. Ongoing training is generally targeted at management staff in government and in business but can also apply to many students leaving schools and universities who wish to supplement their initial training and are seeking post-graduate training in order to help them integrate better into the job market. Various kinds of training should be promoted in this framework: short specialised courses; long courses leading to diplomas; and a combination of the two, on the basis of transferable credit modules.

“Life-long learning” can also support the “validation of acquired experience” (VAE), a diploma that should become increasingly important in the career development of individuals, particularly officials. The provision for VAE, combined with continuing professional development modules, is new in Mediterranean countries and needs to be developed. This could become an objective for regional cooperation to develop standardised methods for recognition and validation. Universities and higher education establishments that develop their activities in this area could easily capture social changes with regard to training and put in place real provisions for “cross fertilisation” between continuing professional development and initial training (Hetzl, 2006).

De-localised training in Algeria: the MBA in Agri-business

The objectives of the Master of Business Administration (MBA) in Agri-business programme were to design, produce and run training courses for high-level management staff destined for agro-industrial companies and the agro-food sector in Algeria. Training is organised jointly by the International Centre for Advanced Mediterranean Agronomic Studies – Montpellier Mediterranean Agronomic Institute (Ciheam-MMAI), the World Trade Center Algeria (WTCA) and the Algerian Higher Institute of Management and Planning (ISGP).

The training course focuses on the globalisation process and its impact on the strategies of agricultural and agro-food companies as well as on how the sector operates. The specific nature of agriculture and food necessitates the adaptation of management tools because, here especially, the burden of public policy, consumer pressure, and the biological nature and seasonality of products have a decisive influence on the strategies of the actors and the regulation of the sector. In Algeria, continuous education is provided by a variety of public and private institutions, which offer training activities relevant to all economic sectors. It is important that management training is adapted to managers’ specific fields of activity and is based on an appropriate curriculum that integrates new education technologies.

The course takes place at the Algerian Higher Institute of Management and Planning and takes the form of fifteen transferable modules, each comprising five days’ (thirty hours) teaching per month and being worth four credits. The course therefore has a total teaching time of 450 hours, or 60 credits, and leads to a post-graduate diploma. Candidates must then submit a thesis in order to obtain the MBA. The three organisations expect to transfer all of this training to Algeria. Eventually, some of the modules that are already being taught at Montpellier MAI will be transferred and taught at the Algerian Higher Institute of Management and Planning. The first year group began the course in January 2005: of the 15 applicants who registered, 13 obtained the necessary 60 credits and were awarded the post-graduate diploma in April 2007. The experience gleaned from this first group has made it possible to strengthen and secure the places of the second group, which is just starting.

Source: Cooperation agreement between Ciheam-MMAI, ISGP, WTCA.

Promoting public-private partnerships, more training for management

Staffing cuts in the public sector are prompting students to choose options that will prepare them for work in the private sector. Partnerships with the private sector are vital for reforming courses and anticipating changes in the job market.

Professional organisations and companies in the agricultural sector are directly affected by education, in particular by vocational training. It is therefore important to envisage a more shared management of education, with more active involvement by the private sector in the conception and implementation of training courses. To date, relations between the private sector and the public sector that is supposed to provide these services are still poorly developed in most Mediterranean countries. In future, connections between the private and public sectors must be promoted from training, such as through work experience, or joint training that brings together the two sectors and the students in continuous professional development. This closer cooperation must not contradict the public nature of the missions and responsibilities of universities, which could thus assert more strongly their economic function and their desire to actively contribute to the utilisation and diffusion of the scientific and technological knowledge that they generate.

How can we help students to become better adapted to the private sector? For example, by allowing them to acquire basic management skills in all agronomic disciplines: laboratory and research management, management of training institutions or company management. Such training should enable the creation of a basic business culture among students, researchers and university staff and higher education and research institutions. It would also be useful to include teaching on management of intellectual property rights, team management, project management, the development of quality management systems in professional masters or research programmes, or in doctoral seminars... more generally, any activity that creates dialogue between the private and public sectors should be encouraged.¹⁰

Establishing a skills-based approach in training provisions for engineering

Students must henceforth be taught skills that correspond to the requirements of their intended job market. Training courses will be evaluated not only on the basis of the acquisition of knowledge and skills, but also on the basis of the jobs that they can secure. This approach constitutes an important change of concept for teaching curriculums. A skills-based approach (SBA) ensures that courses make better provision for the skills requirements that become the point of reference and objective of training courses. Syllabuses are developed in conjunction with professionals who define their requirements in terms of skills and fundamental knowledge. The provisions to strengthen the system for orientation and support can also be developed in partnership in order to help graduates find jobs. Recent experience with advanced training for agricultural technicians in the horticulture and agro-tourism sector shows that there is an interest in this kind of provision.

¹⁰ - The private sector and companies play an increasingly important role in the domains of agro-food technologies, genetic resources and biotechnologies.

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Matching training with work and a skills-based approach

1. Souihla Institute of Technicians Specialising in Agriculture (ITSAS) in Marrakesh begins to reap the rewards of a skills-based approach

A skills-based approach (SBA) was initially introduced for horticulture technicians (2003). This required in-depth, ongoing and long-term work. First, Souihla ITSAS organised a meeting with professionals in the horticulture field in order to analyse the work situation; this was a crucial step in the development of the training syllabus for horticultural technicians, in order to be able to anticipate changes in skills, output, performance and adaptability. In this meeting, professionals described the work situation and identified the skills required; no less than 26 skills were identified. On the basis of this detailed professional input, trainers at Souihla ITSAS created and developed the training syllabuses and accompanying documents: the teaching guide, the guide to assessment, the pedagogical and material organisation guide and the work experience guide...

The academic year 2005-2006 saw the establishment of another training programme using the skills-based approach – this time a course on cow, sheep and goat dairy farming techniques. As well as establishing a pilot for the use of a skills-based approach in agricultural training, the ITSAS team will also, from 2006-2007, carry out information, awareness-raising and support sessions for the benefit of other agricultural training establishments in the framework of a project to make SBA usual practice.

2. ALEF: a project to improve the training and employability of young people

Advancing Learning and Employability for a better Future (ALEF) is a bilateral cooperation project between Morocco and the United States that aims to improve the learning and employability of young Moroccans by improving the quality and relevance of initial education and vocational training in agriculture and tourism, in order to better prepare young people for study, the world of work and life in society. In order to obtain these objectives, ALEF has developed and realised initiatives in close cooperation with two technical partners – the Department of Education, Research and Development of the Ministry of Agriculture, and the Department for Training and Cooperation of the Ministry of Tourism – as well as with the advisory partnership of the Secretary of State for Vocational Training. These objectives were based on three strategic principles:

- defining the basic skills and fundamental knowledge requirements of employers;
- improving the quality and relevance of the vocational training offered to future technicians and workers in the two sectors, agriculture and tourism;
- strengthening the orientation and support systems designed to help graduates find work.

The ALEF project, which began in December 2004, corresponds to the Moroccan Government's and USAID's wish to bring the agricultural and tourism sectors up to date.

Source: *Information letter Maroc des compétences*, 3 October 2006.

Improving employability

In the South, the concept of employability¹¹ acquired particular resonance in the 1990s because many agricultural education graduates, who would traditionally have been recruited by the public sector, were finding it harder and harder to find work. Successive structural adjustment plans have led to jobs in the public sector drying up,¹² whilst training has not been sufficiently orientated towards the needs of a private sector that

¹¹ - Employability is the objective expectation or probability of an individual looking for and finding a job.

¹² - See for example the provision of voluntary departures in the public administration in Morocco in 2006 and 2007.

is incapable of absorbing the excess, and jobs requiring qualifications sometimes remain unfilled. Consequently, a growing number of young people with qualifications began to find themselves unemployed, and those who had excelled on vocational training courses had difficulty finding a job in their field... Although employers were happy with such candidates' technical skills, they lamented their lack of initiative, autonomy and self-confidence as well as their difficulty in valuing these same skills (USAID-ALEF, 2006). These difficulties were worst for higher education graduates, who had previously tended to be employed in the State sector. This disengagement therefore led to an increase in unemployment,¹³ with unemployment rates sometimes rising in line with the level of education. In order for individuals to be able to enhance their employability, they must have the skills (including those needed to compete on the job market), aptitudes and general attitude (i.e. autonomy) and expertise necessary to find work (clarity of professional activity, research method). The major challenge for training and higher education systems therefore becomes developing all of these skills in order to equip graduates to find employment and adapt to the world of work.

Constructing a Euro-Mediterranean research area

Extending institutional initiatives to rationalise the provisions in the North

Consideration is being given on several fronts to the changes that will need to be made in the domain of agricultural science and technology in order to be able to rise to the challenge of feeding populations on various timescales. In 2002, on the occasion of the World Summit on Sustainable Development, the World Bank and the Food and Agriculture Organisation of the United Nations (FAO) launched a consultation process on a proposal for the international assessment of agricultural science and technology for combating hunger, improving living conditions in rural areas and stimulating economic growth in the coming decades. Since then, a number of consultations have been organised in the course of regional meetings. In August 2003, the steering committee for the consultation process issued its report (IAASTD, 2003) which defines the objective, field of activity, mode of governance and resources used in this evaluation. Provisionary documents show some proposals that could affect the Mediterranean region, despite the fact that regional work is not conducted at the Mediterranean level.

Other national or regional initiatives have been launched. In February 2005, the National Committee for Evaluation of Research (CNER, 2005a) published a report carried out at the request of the Commission for International Agricultural Research (CRAI)¹⁴ on the relationships between the national and international systems of agricultural research, which emphasises the benefits of restructuring coordination in order to sustainably

including in higher education and agronomic research, eventually compensated for by the mobilisation of external contractual skills.

13 - J. Metge indicates that in Morocco, according to a 1997 survey, the rate of unemployment among higher education graduates was 30.5%, whereas among technical education graduates it was only 15% and urban unemployment was evaluated to be 16.9%. In 2003, the rate of unemployment among the university graduate population aged 20-24 was 12.3% in the EU of 25 Member States and 1.6% in the United States (Eurostat et OCDE).

14 - Body for coordination between the public structures for agronomic research and their ministries with regard to relations between the French national system and the international agronomic research system.

Strengthening and consolidating education and research capacities

improve the impact of agricultural research on development. At the same time, CNER supported the establishment of an agronomic centre in Montpellier, where the local research community from national public establishments would work in a more integrated manner than in “conventional universities” (CNER, 2005b). This centre would be an experiment in decentralisation and deconcentration of the research system, with the establishment of networks, consolidated provisions open to the international arena and particularly the Mediterranean. In 2006, the network for advanced technological research on “agronomy and sustainable development” was thus given the seal of approval. A centre for research and higher education in agronomy and sustainable development was also set up at Montpellier. These examples of the establishment of skills centres, the identification of priorities, structures and the establishment of the critical mass, may guide the establishment of further such provisions in the Mediterranean.

Supporting initiatives for North-South convergence

In the face of a Europe that is attempting to catch up with North America by organising a European Research Area (ERA), the Mediterranean is beginning to promote the networking of its research capacities. This means, on the basis of the real needs of each country, considering the establishment of a Euro-Mediterranean research area on food agriculture and environmental research. The opening up of the big Euro-Mediterranean market in 2010 makes this all the more necessary. In March 2006, in the framework of preparations for the 7th Framework Programme for Research and Technological Development (FPRTD), Ciheam organised a forum, held in Rabat, on the prospects of forming such an area. The forum allowed mutual points of interest to be identified between Europe and the Mediterranean in agriculture, food and biotechnology research. The 7th FPRTD can indeed contribute to the construction of a scientific culture and of a research area in the Mediterranean and must create the political framework for a new strategy for international scientific and technological cooperation in the region.

Seventh Framework Programme (2007-2013) “Towards a Euro-Mediterranean Agricultural Research Area”, Rabat, Morocco, March 2006

On 6 and 7 March 2006, Hassan II Institute of Agronomy and Veterinary Medicine (Rabat, Morocco) hosted a forum on the prospect of forming a Euro-Mediterranean agricultural research area, in the light of the European Union’s Seventh Framework Programme for Research and Technological Development (2007-2013). This event had been organised by Ciheam with the support of the Directorate-General for Research of the European Commission and in collaboration with the Moroccan Ministry of Agriculture, Rural Development and Maritime Fisheries and Ministry of National Education, Higher Education, Staff training and Scientific Research. During the two-day event, a statement was drawn up: “the European Union’s Seventh Framework Programme for Research and Technological Development (FP7) must create a new political framework that can facilitate a new strategy with regard to international scientific and technological cooperation, based on what has been learned from the activities carried out so far in the framework of the European Union. Creating the conditions for the emergence of common reference points on production conditions, food safety, respect for the environment, engendering a shared culture of innovation and development, thinking about Mediterranean food

safety in terms shared by all: these are the objectives that could serve the scientific community. [...] The European Union's Seventh Framework Programme for Research and Technological Development must be seen as a potential jump-start for the formation of a scientific culture and a Mediterranean research area.

It was agreed that the broad strokes of this strategy, so far as agronomic research is concerned, should contribute to:

- making the European Research Area more attractive to the best scientists and becoming a centre of reference for them;
- allowing researchers to access knowledge and technologies produced elsewhere in the world;
- developing scientific and technological activities that are useful for implementation of the Union's development aid policies;
- mobilising the scientific and technological capacities of the European Union and other third party countries in initiatives responding to problems that were important to the community as a whole, such as those relating to food safety, environmental safety, health and poverty-related diseases. This concerns the countries of the southern Mediterranean and Europe. It means mobilising the structures, instruments and human resources already available in order to attain the broad objectives that the programme targets."

Source: "Recommendations and conclusions" (Ciheam, 2006).

For researchers on both shores of the Mediterranean, the research priorities and questions that are strategic for development are today clear and pressing. Cooperation between researchers may make it possible to find solutions adapted to the regional context. In fulfilment of a recommendation of the Sixth meeting of the Ministers of Agriculture of the member countries of Ciheam in Cairo,¹⁵ several meetings have been organised with a view to pooling the efforts of the agricultural research structures of the countries of the Mediterranean region and constructing a process of coordination, the exchange of experience, the establishment of joint projects and the gradual elaboration of a shared vision. In July 2007, a project for the coordination of agronomic research in the Mediterranean (ARIMNet) was launched in response to the call for cooperation projects within the framework of FP7; the objective of the project is to improve coordination between national research provisions in order to improve investment in the identified common priorities.

More broadly, the declaration adopted by the first Euro-Mediterranean conference on higher education and research that took place in Cairo in June 2007 emphasised¹⁶ the disparity between the results achieved by countries of the region in terms of education, higher education and research, and proposed that higher education, research and innovation constitute priority areas for Euro-Mediterranean partnership and set itself the objective of creating a common area for research and higher education. A consensus is therefore emerging about the importance of modernising higher education and research policies, strengthening institutional capacities, and developing programmes of common interest and mutual advantage. Several ways of strengthening this dynamic in the agronomic sector are emerging.

15 - Initiatives entrusted to Ciheam in the framework of the Sixth meeting of Ministers of Agriculture of Ciheam member countries, Cairo, 2 December 2006.

16 - First Euro-Mediterranean Ministerial Conference on Higher Education and Scientific Research, Cairo Declaration, 18 June 2007. See extract in text box.

*Strengthening and consolidating education and research capacities***Cairo Declaration - 18 June 2007***Towards the creation of a Euromed Research Area*

1. Supporting Institutional Capacity Building, including human and research infrastructure development;
2. Enhancing the participation of the Mediterranean Partner Countries in the Framework Programmes while taking into account their particular needs, as well as areas of mutual interest and benefit between EU and Mediterranean Partner Countries;
3. Promoting innovation in the Mediterranean Partner Countries and enhancing exploitation of the RTD outputs by society and industry;
4. Favouring mobility of researchers;
5. Enhancing participation of the Mediterranean Partner Countries in the "People" Specific Programme of FP 7.

Sources: First Euro-Mediterranean Ministerial Conference on Higher Education and Scientific Research (www.euromed-erconf.org).

Redefining the role of national structures, sharing methods, working in networks

All forms of scientific cooperation in the Mediterranean presuppose an ability to share common problems and approach them from a regional perspective as well as a genuine intention to exchange information and knowledge. From this point of view, the current dynamic is encouraging because it shows that there is stronger and stronger interest in building networks between researchers and agricultural research institutions,¹⁷ establishing scientific centres and operationally meshing scientific resources.

In order to go further still and establish a common policy for agricultural research in the Mediterranean, new frontiers will have to be imagined for research on sustainable rural development. It is impossible to envisage a solution that comprises of "it all in the North", with all research being carried out in well-equipped rich countries;¹⁸ the ineffectiveness of a straightforward transfer of innovation from the North to the South has already been demonstrated. Neither is "it all in the South" in terms of research for development, with more fundamental research being carried out in the North, a viable solution. Agricultural research is becoming more generic as a result of the development of concepts and techniques that cover all the sciences and technologies of the agricultural and agro-food domains. Local approaches and case studies will be unable to meet the challenges of research for development, given the development of technologies and concepts in life sciences and the internationalisation of issues (climate change, emerging diseases, globalisations of economic trade etc.). These are new institutional challenges that must be tackled through the establishment of partnerships and alliances, and the redistribution of attempted and negotiated tasks in order to avoid duplication, but also to avoid dead-ends or a lack of investment that jeopardises the provision in its entirety.

¹⁷ - See various projects and initiatives connecting for example the institutions of the North and South of the Mediterranean for the fight against bayoud disease and various ravagers of palm trees in the South and North of the Mediterranean, resistance of cereals to aridity, etc. benefiting from European funding.

¹⁸ - The crisis in agronomic research and the changes in the international system in the CNER report on agronomic research of February 2005 (CNER, 2005a).

The generation of the knowledge necessary for the development of the region must be supported by a solid dynamic of exchange and networking. European research is already developing on this basis and efforts must be made to promote the meshing of Mediterranean researchers and to securely tether these networks to their partners in the North, especially to European networks. Cooperation of this kind is all the more vital because, in order to function, research networks must obtain the minimal critical mass of researchers focused on clearly identified issues. There will therefore be some work to do in terms of the identification and regional distribution of tasks to be undertaken in consultation with funding providers. This will involve making choices and investment priorities on the basis of the real potential of each national public institution and avoiding duplication in each country of teams that are too small, poorly visible, unable to attract or retain good researchers and thus to capitalise and produce knowledge useful for activities.

Lastly, the consolidation of institutions around a few priorities, without each attempting to do everything, must be accompanied by some specific measures to allow the establishment of visible and recognised centres of excellence. This will mean, on the one hand, redefining the rules to make them more motivating for researchers, creating emulation between researchers and laboratories and adapting evaluation systems to the reality of the professions being exercised. On the other hand, public policies incentivising R&D and enhanced protection of intellectual property rights must be put in place in order to encourage innovation and create channels for lasting collaboration between research and businesses.

Investing for the development of technology priorities

The reorganisation of research provisions in the manner described above will make it possible to focus efforts on a few sensitive priorities. Synthesis and analysis work is in progress, the conclusions of which could serve as the basis for work to identify intervention priorities. The objective here is not to take up the various lists of research topics that are to be strengthened or engaged in (IAASTD, World Bank, 2007) but to state which are the most important – areas in which significant results could facilitate the transition from growth in agricultural production to rural and territorial development.¹⁹ Seven research topics seem to us to be of interest to the Mediterranean and respond in part to the issues raised in the previous chapters. They are:

- climate change, aridity resistance, water-saving production systems, access to water resources for agriculture and rural areas, the “right” to water;
- production systems that make better use of the management of biological and ecological processes, incorporating local empirical knowledge and reappropriating the process of social innovation (Chevassus-au-Louis, 2007);
- agricultural conservation practices, sowing under vegetative cover and crop and animal husbandry systems that are energy efficient and have a controlled environmental impact, allowing the sustainable management of rural areas;

¹⁹ - See Euro-Mediterranean Forum on Agronomic Research, Rabat, March 2006; preparatory seminars for the ERAnet méditerranéen, European Forum on Sustainable Development, Berlin, June 2007, etc.

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- production systems ensuring better food security,²⁰ particularly in cereals; the quality and identity of Mediterranean products that provide value to local areas;
- the evolution of buying habits, eating habits, their impact on nutrition and human health, access to safe and diverse foods;
- emerging animal diseases in the North and South of the Mediterranean, the use of biotechnologies, better valuation of ecological resources, biodiversity, the contribution of epidemiology;
- the development of public policies restricting the processes of exclusion,²¹ bringing together policy regulation with the public and dynamic activities of civil society, creating jobs and incomes and a rural sector.

Long-term investment in these issues, with networked research teams equipped with sufficient resources pooling their techniques, databases and support services, is a prerequisite for the construction of centres of excellence that are visible and recognised and diffuse their knowledge.

Infusing knowledge, promoting innovation

Developing systems for knowledge diffusion

It is important that these efforts to make national and regional systems for agronomic research and training more effective are supplemented by a real policy of knowledge diffusion. A knowledge diffusion policy would have the role of making available and creating value, among teachers, researchers, professionals and the public, scientific and technical information that they need in their everyday activities. More precisely, the efforts of the international community must focus, over the coming years, on the following objectives:

- making the research potential of European and Mediterranean research networks clearer and more operational;
- developing instruments for the dissemination of the information gathered and produced by the networks;
- investing in tools for access to documentary data;
- compiling specialist databases on various subjects;
- systematically storing in electronic form the productions (reports, articles, miscellaneous publications etc) to make them more directly accessible;

²⁰ - The recent combination of freak weather (spring and summer 2007) and average harvests in the North of the Mediterranean, the constant pressure on demand for cereals in Mediterranean countries (Egypt and Morocco) and the big reduction in the harvest in Ukraine and Australia, weigh heavily on the stocks that are in August 2007, just 2.5 months... the lowest level in 25 years (The International Council of Cereals estimates that world production will not exceed 614 million metric tons in 2007 compared to consumption of 617 million tons).

²¹ - The process of exclusion is not new in agriculture, what is new is the rapidly increasing speed of exclusion, without other sectors having the capacity for absorption at the same speed.

- promoting the creation of forums allowing researchers and users of research to work together in real time;
- supporting the initiatives of members of Mediterranean research networks with regard to organising regional and international scientific conferences; more generally, facilitating the mobility of researchers at the national and international scale, with the establishment of provisions for reinsertion in return for mobility.

Today more than ever, constructing a common coordinated policy for the management of “knowledge” in the domain of agriculture and food is a major challenge. Such a policy must be the natural extension of research activities. Concerted efforts between the partners involved at the various levels in research activities must make it possible to construct this “collective intelligence” that is vital for development in the Mediterranean area that is based on greater solidarity.

Appropriating technologies and stimulating innovation

In general, SEMCs continue to perform poorly economically compared to European countries. The internationalisation of their economies raises the fundamental question of improving productivity and competitiveness for all the elements of the agricultural and agro-food system. In agriculture, the appropriation of the advances enabled by the double green revolution highlights the need for better diffusion of agricultural and technological knowledge. For companies involved in the processing and distribution of agro-food products, it is vital to find solutions that facilitate the appropriation and transfer of the technological innovations that are the key to adapting better to competition and ensuring competitiveness.

The fact that technologies, management and organisation techniques conceived in industrialised countries have been acquired does not mean they have been appropriated. “Science and knowledge do not always stimulate social benevolence, just as the diffusion of scientific knowledge does not always generate a dynamic of invention or technological innovation” (Zghal, 2002). The appropriation and economic development of knowledge depends on certain preconditions that are not always present in the countries of the South. In other words, a dynamic of innovation and long-term progress does not automatically result in the diffusion of scientific knowledge (which depends on a number of institutional and sociological factors). If it is to be usable and fruitful, newly acquired knowledge must be “sown” in a fertile environment, able to assimilate that knowledge and ensure that it has a multiplier effect.

The challenge for the countries of the South lies not just in access to knowledge, but also and above all in the adaptation, appropriation, internalisation and ability to make use of it. This presupposes a capacity for learning on the part of the various actors concerned, which appears more than necessary today in the light of the rapid advances seen in the domain of the new technologies (ICTs, biotechnologies, nanotechnologies). This genuine command of knowledge requires significant cultural changes in order to overcome the “difficulty of ensuring progress in the long term” and to engage with modernity. That is to say, “which has made it possible to generate the knowledge and expertise necessary for the creation of lasting value over time, which allows an organised group of human

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beings to appropriate this knowledge and expertise, to develop them and draw from them specific applications, even if they were conceived by others” (CRD, 1998).

Promoting the development of ICTs and facilitating their accessibility

As we indicated in the chapter “Science, Technologies and Innovation”, the impact of ICTs on the economies of SEMCs is still limited. In future, they could be used as levers in various areas of development and play an important role for economic growth and in the diffusion of knowledge and expertise. The use of ICTs is an opportunity for the countries of the South to “catch up” with the countries of the North, to the extent that they can “contribute to the gradual disengagement with traditional activities that are not of great added value and unleash an adjustment in the industrial fabric towards intensively knowledge-based activities” (Chettab, 2004). One might go further still and confirm that their impact could be even greater than in developed countries: the poor development of other means of communication, the scarcity of documentary resources and the inadequate availability of information make these technologies of far greater marginal usefulness in the South than in the North.

A territorial network based on ICTs could be a major source of intellectual capital, and of competitive advantage. As this intellectual capital is localised, it constitutes a key factor in the development of innovation and agricultural and agro-industrial production within a territory. In particular, territorial economic actors could, by forming networks, compensate for the limitations of their small size by taking advantage of the economies of towns, i.e. by positioning themselves “virtually” close to other actors and training and research centres. Thanks to an ICT network, the dynamic of geographical externalities is thus strengthened and extended to a wider area than was traditionally the case for clusters and centres of competitiveness of other similar structures.

It goes without saying that the advantages of ICTs are only really seen if they are used in conjunction with organisational innovations that allow the economic development of knowledge and business skills. In order to be competitive, the agro-food sector requires a network structure that is supported by the genuine collaboration of all the actors involved in the production and circulation of products. The complexity of production and commercialisation activities makes it necessary to have recourse to multiple sources of knowledge and contributions that make it possible to raise and resolve a problem, conceive a project, or manage an innovation process. Consequently, economic performance is increasingly becoming intrinsically collective. From this perspective, an organisation that stimulates the maximum level of cooperation and coordination of actors along the supply branches gives its territory the best possible chances with regard to efficacy and competitiveness.

Promoting technology parks and competitiveness centres

Two lines of argument can be used to justify the need to create agro-food technology parks in southern Mediterranean countries: the urgent need to become more competitive in the marketplace and the economic divide between the North and the South; and the need for innovation provision that is able to organise cognitive resources and allow the real transfer and assimilation of knowledge, and ensure a multiplier effect at local level.

It would seem that it will only be possible to overcome the inadequacies and limitations identified with regard to “knowledge management” and the needs identified are only really covered through the pooling of skills available at the territory level, or over even larger areas. The scarcity, dispersal, and isolation of skills and their dependence on external centres for consideration and conception makes it necessary to establish coordination and innovation-promoting mechanisms that give priority to the “meshing” and mobilisation of local skills. It means gradually building a skills centre that will come to meet the challenges of appropriating and assimilating knowledge.

The example of the agro-food technology park and Bizerte competitiveness centre (Tunisia)

The strategic study of the project made it possible on the one hand to confirm that there was an opportunity to create an agro-food technology park in the short term and on the other to specify the missions and design the architecture of this future park. The opportunities offered by the project were validated by three lines of argument.

The first line of argument concerns the *prospects of the agro-food markets*: one notes the concerns related to the increase in competitiveness on the domestic market and doubts about the competitiveness of Tunisian businesses in export markets; the sector is nonetheless considered to be key. This prompts business leaders and governments to emphasise the *urgency of increasing competitiveness and thus the need for adapted tools*.

The second line of argument in favour of the creation of a technology park concerns the *intervention priorities* proposed by people surveyed. These are concentrated on five main areas: strengthening Institute of Applied Agriculture (IAA) agricultural relationships; improving quality; the management of human resources (underdevelopment in terms of the organisation, animation and training of human resources can negatively affect companies' performances); innovation; the development of exports.

The third line of argument concerns the *relevance of the project*. Among the arguments used directly in support of the idea of the technology centre, we wish to retain the benefit of a mesh of businesses and support bodies in a network framework, that can alleviate the problems associated with dispersal, duplicated use of resources and existing bodies, all whilst taking advantage of synergetic effects.

On this basis, the future technology centre was assigned five major objectives: to help, to educate, to put in touch, to innovate, and to raise awareness. In order to achieve these objectives, the study suggested establishing, on the Bizerte site considered to be the “hub of the network”, six complementary areas of competence: a technology hall that would comprise experimental “pilots”; a maintenance workshop and analysis and quality control laboratories; an information monitoring, study and advisory unit; a specialist training centre in partnership with existing institutions; a hothouse to promote business start-ups, an activity park that would receive businesses; all of which would be organised around an animation cell.

The Society of Bizerte Competitiveness Centre, established 29 September 2006, falls within the framework of a new strategic vision of public-private partnership. It is an anonymous company, with strong participation by the private sector (banks, businesses, Bizerte economic activity park). The association with the private sector complies with the wishes expressed by those surveyed in the strategic study. Bizerte competitiveness centre is an integrated space that incorporates: the agro-food technology park spread over 45 hectares, situated at Menzel Abderrahman; new industrial areas with a total surface area of

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150 hectares; and a network of regional, national and international partners. The preparatory studies had also shown that there was a strong expectation of international cooperation. On 12 January 2007, two cooperation agreements were signed concerning the establishment of the services technology park.

Cooperation with the competitiveness centre Q@limed of Montpellier would primarily concern the establishment of a monitoring unit and an ongoing professional development curriculum. These activities will be taken in hand by Ciheam-MMAI. In the case of Avignon Agroparc, the activities planned concerned the promotion of innovation, the transfer of technology and the establishment of a support space and services for start-ups.

A. Bencharif (Ciheam-MMAI) and J.-L. Rastoin (Montpellier Sup Agro).

Possible futures, a desirable future

The objective of strengthening and consolidating training and research capacities in the agricultural and agro-food sector is ambitious but vital in order to attain the objective of creating a favourable environment for the agricultural and agro-food sector in the Mediterranean. The conclusions of the analysis of the challenges involved as well as the results of the workshop²² demonstrate the importance of intervening in the five domains touched on here, with various possible paths of development. These paths are as many and various as there are possible interventions. Several hypotheses have been developed, on the basis of the possible intervention options that have been considered and the changes that are desirable, in accordance with two key areas. The first is that of international cooperation, organisation in networks and the realisation of project-based activities on the identified priorities distributed among the actors of the future Euro-Mediterranean research and higher education area. The second concerns the implementation of national policies to strengthen institutions, the facilitation of their adaptation to the rapidly changing context, and the forging of new public-private partnerships.

Several scenarios can be envisaged that combine a dynamic of the renewal of national policies, to varying degrees, and a process of international cooperation that either does not exceed its current limits or is entirely reinvigorated. We have retained only four scenarios: the first confirms the current trends in a regressive manner; in two other, intermediate scenarios, the dynamic of international cooperation or national policies have weaknesses that are not overcome; whereas the last corresponds in our opinion to the desirable future in which there is a real dynamic of progress.

A regressive scenario: “continental drift”

The conditions for international cooperation are not developed, the dynamics of knowledge transfer and innovation fail, due, in particular, to the lack of national policy on training, higher education and research. The imbalances are exacerbated, the institutions of the South then of the North wither, the agricultural and agro-food sector undergoes globalisation, there is a migration of skills, local expertise disappears, divisions increase, the northern and southern shores of the Mediterranean drift further apart.

²² -See box entitled “Methodology”, p. 304.

The centre in the North and the dependent peripheries in the South: “hub and spoke”

There is good international cooperation between some countries of the North and the countries of the South that are beginning to renovate their institutions, but it is too sectoral and leaves the agricultural and agro-food sector behind. Teachers and researchers in the South find it increasingly difficult to access knowledge and the research conditions that would allow them to produce results of significant impact. Their overall production and the visibility of teams declines; their dependence on the North increases.

The Euro-Mediterranean system struggles to build a real area of development for higher education and research. The hub remains active but the peripheries in the South stagnate, imbalances persist, the institutions of the South capitalise little and remain dependent on the North. Their development is increasingly dependent for funding on international sponsors who are reluctant to invest in the sector.

Disconnected “Souths”, some resisting but all losing momentum

In this scenario, several States in the South opt to strengthen public-private partnerships. They put in place policies to incentivise R&D and gradually manage to form competencies adapted to their development needs. In the absence of a sufficiently renewed dynamic of cooperation, many priority research areas are inadequately tackled. South-South networks are reorganised and function; some regional approaches are federated.

Skills centres emerge but are unable to consolidate without integration and balanced trade in a wider area. Competition increases, isolated provisions become less competitive. Without recognition or visibility, they become disconnected from regional and international systems and are unable to take advantage of a dynamic of international cooperation that they are unable to join.

The scenario of progress: “the conveyers of knowledge get organised”

In this scenario, scientific issues are debated and elaborated in partnership, and the innovation process involves local actors. Mediterranean Europe succeeds in getting its partners in the North to show an interest in the problems of the South. Education and scientific research partners that are diverse but organised in networks build centres of excellence in partnerships that become visible and recognised; they participate in federated international structures. There is clearly a shared desire for high quality scientific production with steps guaranteeing the traceability of research products and the reliability of results.

Knowledge deemed useful for development is acquired, and is diffused in an area that is organised and attractive, while skills and expertise increase... the agricultural and agro-food sector occupies a stronger place in national policy and in partnership agreements and the Euro-Mediterranean area benefits from globalisation.

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3 PART THREE

GLOBAL SCENARIOS
for Mediterranean
agriculture





GLOBAL SCENARIOS FOR MEDITERRANEAN AGRICULTURE



The future: an open book

A scenario is not intended to describe what the future will be. The future is always open to a variety of possible scenarios the probabilities of which are unequal depending on the time scale and some more realistic than others in terms of geographical scale. Each scenario merely illustrates a possible future rooted in trends which, in some cases, are heavily entrenched and difficult to reverse in the short and medium term, while others may be subject to modulations and discontinuities, attributable as much to the dynamics of the system itself as to the strategy of the actors who drive it. The spectre of future scenarios need not be only a disturbing one. Scenarios are by no means an inevitable fate. They are meant to alert us to unwanted developments before they become unavoidable. Likewise, optimistic scenarios can confirm trends already at work, provided that the will to drive them is there.

How can we see the future of the Mediterranean?

The Mediterranean suffers from certain handicaps despite having many advantages thanks to its extraordinary natural and cultural heritage and its traditional capacity for innovation and enterprise and, ultimately, its capacity to play a precursor role in the progress of humanity. The increasingly scarce and valuable fossil fuels possessed by some Mediterranean countries may be beneficial provided that they are not exploited by a minority for individual gain and the proceeds are invested wisely in implementing a development strategy. It should also be stressed that these fossil fuel sources are not sustainable.

This is all the more important given that the present phase of strong economic growth recorded in some South and East Mediterranean Countries (SEMC) is largely “imported” (mainly due to the take-off of international demand and thus the price of energy). While this growth is the beneficiary of world markets and is a “windfall”, it is still necessary to put it to good use in these countries to establish at least two conditions to make them self-sufficient: greater productive investment to allow local businesses, which can create jobs and support growth, to grow and flourish, and fairer redistribution of the wealth necessary for the emergence of a middle class and stronger domestic demand.

In the vital area of water, a scarce resource, unequally distributed and too often of poor quality, two possible developments arise: either the situation continues to deteriorate, especially from the effects of demographic growth, and the risk of heightened tension between countries, or even within countries, cannot be ruled out; or people realise the gravity of the situation and the need to change the course of events. In the latter case, different initiatives could be adopted to avoid waste, including in the agricultural field

where water-saving crops and more efficient irrigation systems would be progressively given priority. Such actions would undoubtedly set the Mediterranean on the road to more sustainable development.

The Cretan way of life and its food model, developed in past times based on specifically Mediterranean agricultural products offer exceptional virtues, especially from a health point of view. The “Mediterranean diet” could very soon be recognised as an intangible cultural asset of humanity. However, eating patterns in the Mediterranean are moving away from this traditional model. Is the trend, with its consequences for people’s health, therefore inescapable? Probably not and, here too, it is worth asking if it can be modulated or even reversed, and by whom and with what resources. A pure and simple return to yesterday’s lifestyles would be an absurdity due, among other things, to demographic growth, the phenomenon of urbanisation and the necessary emancipation of women. It would be more conceivable to invent a new way of living which could better reconcile tradition and modernity, while ensuring that it did not only concern people on high incomes. Therein lies the whole complexity of ensuring both quantitative and qualitative food security in the Mediterranean.

Putting the question in these terms means finding a solution to prevent quality Mediterranean products becoming excessively expensive, and ensuring that efforts are made to increase their production and improve their marketing, including, for example, by building partnerships with major wholesale distributors who nowadays appreciate inclined to social and environmental responsibility. Seeking a convergence of interest with that sector is not to minimise the quite crucial role which traditional family farming or local ecologically responsible producers can play. Given the current socio-demographic trends, however, relying on them alone would not do enough to feed the whole Mediterranean Basin.

We have for some time been witnessing a staggering rise in the price of certain basic agricultural products (cereals, milk, meat) the repercussions of which on the price of food are beginning to weigh on the most vulnerable sections of society, both in the poorest regions of the planet and also the least advantaged groups in the developed countries. The effects of these price increases, destabilising for many individuals, are already making themselves felt in several areas of the Mediterranean and deserve explanation.

In 2005, the world population, then estimated at 6.6 billion, had increased by 25% compared with 1990. It is expected to reach 7.6 billion by 2020. The vast bulk of this growth is concentrated in the developing countries and emerging regions, China and India in particular, and primarily affects towns and periurban areas. This trend is often doubled by an average increase in people’s living standards, with the consequence of substantial changes in eating habits (lower consumption of vegetable products, increased consumption of meat, dairy products and processed food). These global changes have undeniable impacts on the global agricultural system, starting with a factor that it all too often overlooked: the strong growth in demand for animal feeds.

The rapid take-off of biofuels, in an increasingly sensitive context of scarcer natural energy resources and growing concern for the environment, would contribute to the rise in food prices and could give rise to eviction from land to the detriment of food production.

Mention can also be made of meteorological accidents which are perhaps already part of the climate change already announced, the rise in costs of maritime transport and shipments (congestion of port traffic and expansion of trade routes), and speculation on the futures markets. This combination of factors is thus responsible for these recent and probably permanent price rises. The situation is extremely worrying for the Mediterranean area, where cereals remain highly strategic because they are the staple food. It should be recalled that in 2004, about 22% of world imports of cereals took place within the Mediterranean area, although it has only 7% of the world's population.

What, ultimately, does this mean?

Like the majority of North-South interfaces, the Mediterranean does not appear to have an existence as an integrated region and is threatened, perhaps more than at any other time in its history, by lack of development and misunderstanding.

The Mediterranean, situated at the crossroads of three continents, has always been heterogeneous and marked by an extraordinary diversity, a melting pot and source of trade. What makes its wealth also explains its vulnerability and the fact that it has become an area of tensions, not to say divisions, some resulting from its own history, others from the fact that all the tensions of the world are now concentrated there. It might have been hoped, at the end of the 20th century, that a dynamic could be created around the project formulated by the Euro-Mediterranean partnership. Unfortunately, however, that has not yet yielded the expected results.

Clearly, the people of the Mediterranean have not been able to make their diversity their strength nor take advantage of the complementarities which might have made this area a genuine region of co-development. The lack of cooperation in the Mediterranean is no accident, and questions need to be asked about the failure of attempts at regional integration policies, or simply mutually beneficial cooperation, and whether in the end the pursuit of particular interests has not finally won the day over the pursuit of a collective optimum. Mediterraneans cannot escape their responsibilities just by forever blaming their all their woes on external factors and actors, the liberalisation of markets, the policy of the WTO, or the priority indisputably given by the EU to its eastward expansion... In other words, and without denying the existence of these external actors, what is important above all is for all Mediterraneans to decide to take their future into their own hands and, rather than swap recriminations, think about the actions that they could actually undertake together. There is room for manoeuvre. Better still, there can be more room for manoeuvre if people show foresight and ambition and are able to create together a vision of a desirable future which provides sufficient incentives to the different actors to mobilise.

An overview of future Mediterranean scenarios

From the analysis of the agro-food situation in the Mediterranean set out in the first part of the report, we can sketch out the first two of four possible scenarios up to 2020. The first could be described as a trend since it was constructed on the basis, if not of mere extrapolations, at least of patterns observed in the past. It clearly offers an image of a Mediterranean approaching the future without conviction, because, in particular,

it is suffering from the process of globalisation. The second shows a worsening of the phenomena and dynamics observed in the first: it is thus very clearly a crisis scenario, resulting from factors endogenous or exogenous to the Mediterranean, which would impede the gradual emergence of an authentic Euro-Mediterranean space. Quite clearly, these two global scenarios do not rule out more optimistic trends.

A third scenario would see the Mediterranean embrace globalisation in a disordered fashion, with the pitfalls of designing a multi-speed region with a future prone to the entrenchment of several Mediterraneans, some complementary, some competing. Despite the promising dynamics that it unleashes, this scenario is limited in its prospects, as it is primarily reactive. Partnerships, both opportunist and ad hoc, will proliferate to meet the regional challenges or alternatively to seize opportunities. Lastly, a fourth scenario for the medium term can be drawn up if care is taken to start on its construction right now. This is a scenario of a confident future, where Europe and the SEMC take up the challenge of forming a strategic partnership in order not to decline separately as time goes by. This is a Euro-Mediterranean that has reinvented itself and draws on the region's sources of mobilisation, starting with its agro-food and geographical potential.

Scenario n° 1: A Mediterranean without conviction

The first scenario for the evolution of agriculture in the Mediterranean holds no surprises. The region approaches its future without conviction, weighed down by the difficulties, mistrust and divisions. What have we seen over the years? What are the major trends which can be identified through the analysis carried out? This Mediterranean, so diverse in soils, landscapes, cultures and basking in such material and intangible wealth, is threatened at its core by the very reason of the inability of the regional actors to preserve and take advantage of its natural and cultural heritage:

- the biodiversity of the soil, the fauna, the flora and the landscapes are threatened by factors of an anthropic nature which result not only from the increase in the population and the resulting needs but also endemic under-development;
- the safeguarding, improvement and development of its regions are subject to considerable land pressure and must cope with the destruction of its urban and coastal culture, and the degradation of natural and rural areas;
- its wealth (water, oil, gas, etc.) are the subject of envy, if not conflicts, wastage and thoughtless exploitation.

This Mediterranean space is marked by ever-growing inequalities, whether at regional level (between the different shores), subregional level (between the countries in the same geographical subregion) or within countries (between rural and urban areas, for example).

Although quite evident, these trends are in no way inevitable. Their persistence, or aggravation, are the result of a lack of real North-South, North-North and South-South cooperation, the weakness of often omnipresent and thus powerless States, powerless because they cannot rely on real collective actors among whom synergies could emerge. All these factors have given rise to a situation where, despite well-meaning but probably over-ambitious declarations (such as the Barcelona Declaration of 1995), there is a clear

lack of actors capable of uniting, inspired by a collective will to take up the challenges facing the region. This, therefore, has created a climate of general suspicion and mutual paralysis instead of the necessary collective dynamics.

Like the economy as a whole, the Mediterranean agricultural sector is the victim of the complex realities of accelerating globalisation. It suffers from the distortions caused by the globalisation of trade and competition between regions, but on the other hand sees little of the paths to growth theoretically induced by globalisation. Mediterranean agriculture is becoming less and less competitive internationally, as it is focussed on rivalries within the area at a time when it should be seeking regional complementarities.

This scenario foresees the establishment in the decade 2010-2020 of agricultural free trade corridors in the Mediterranean, i.e. between Europe and certain SEMC which take this avenue, yet without introducing an institutional and political framework to manage this process of liberalisation effectively. As the latter only concerns commercial criteria, the agro-food imbalances in the Mediterranean cannot be absorbed. For the time being, the SEMC do not have sufficient skills to secure the specifications of their products, guarantee their origin, trace their distribution and thus enhance their export capacity because they cannot meet the increased demands of European consumers with respect to sanitary and phytosanitary standards. On the other hand, liberalisation of trade could be of considerable benefit to the large food industries for products which the SEMC lack. The agricultural free trade corridors could present two very different commercial morphologies: for Europe, a broad avenue of cereals, meat and dairy products would open on to the Mediterranean, while for the SEMC, only narrow alleys, strewn with technical and legal traps, would arise for an essentially limited range of products (fruit, vegetables, niche markets...). Failing a regional response, the Mediterranean would thus become the victim of the economic dynamics, the main consequences of which would be eviction from markets, regional and international competition, a pronounced North/South imbalance and accentuated dualism in countries with control of the quality branch by a minority of operators, destruction of family farms and limited influence of consumers' associations, and increased migration.

In the SEMC, producers continue to specialise in a few products and primarily target export markets to the detriment of local markets. But mining methods of exploiting resources persist and are accompanied by a loss of biodiversity and devaluation of local knowledge and know-how. This is compounded by the delegation of the function of setting standards and terms of reference in specifications to the distribution sector or private intermediaries, and this could be accompanied by relocation of production. Remuneration of producers upstream in the chain is low, input and certification costs are excessive, supply remains fragmented and controlled from downstream. Finally, the State transfers the standards function to the sole benefit of organised intermediaries and wholesale distribution.

In the European countries to the North of the Mediterranean Basin, different scenarios could ensue from this trend-based scenario. In particular, the future structure of the CAP confirms the current direction: maintenance and/or expansion of intensive production models with little concern for the sustainability of systems, readability deficit for the consumer with the proliferation of standards and brands, saturation or decline

in demand for products related to excessive costs, proliferation of conflicts and accentuation of competition between countries of the region in the absence of complementarities in the production and marketing systems.

Agriculture in the Mediterranean would then be faced with a set of constant or mounting pressures which, in combination, would steadily compress the region's agro-food potential. The destabilisation of the climate, reflected in longer droughts, erratic rainfall or abnormal temperature ranges in a single season, is likely to begin to have a marked effect on the Mediterranean sphere and accentuate the trends already at work. Areas of agriculture could disappear or move and the efficient use of water resources could become a major challenge. In this regard, if one extrapolates current trends, the outlook is rather gloomy. Some 70 million Mediterraneans will suffer from water shortages (500m³ per inhabitant per year) by around 2025, i.e. 10 to 15% of the total population of the region. Under these conditions, the use of non-sustainable resources, i.e. those which come from fossil sources or over-exploitation, could only grow (by up to 30% in Malta or Libya). As the growth in demand is strongest in the least endowed countries, they will unfortunately be the worst affected by structural shortages. Cultivable land will also become increasingly scarce. In short, agriculture could be penalised in areas which are already fragile in terms of land and water. At the heart of Mediterranean societies, competition for land and water is already happening, between farmers, between town and country, between tourism and agriculture, etc. The trend is likely to worsen in the future. From the point of view of quality of resources, there is no doubt, in such a scenario, that one can expect very worrying points of no-return.

The trend-based scenario also suggests a residual rural space which continues to suffer the effects of processes and policies which do not directly concern it. The changes in the rural world mostly depend on exogenous mechanisms and rural policies are "follow-my-leader" policies of support and adjustment. Two main elements could be crucial for the evolution of rural areas: the economic capacity of urban areas to take in rural migrants and the strength of environmental policies.

In the South of the Mediterranean, with the forthcoming liberalisation of agricultural markets and its probable effects on the structure of agricultural production, this scenario may have a series of negative impacts: reduction in the number of farms, lack of development of economic alternatives in rural areas, increased unemployment and poverty with or without a rural exodus to the towns, growing economic and social exclusion of rural populations, and a tendency to centralised management of environmental protection and natural resources. In the North of the Basin, civil society will continue to play a role in the development of rural areas but with an urban tone which has several effects: management primarily for the benefit of towns of a rural space subject to the demands of urbanisation and urban leisure, strong pressure on under-estimated and under-valued agricultural activities even though they are a factor in the construction of rural areas, continued reduction in the number of farms and agricultural development based essentially on the "industrial" agriculture model concentrated in the most productive areas.

Against this overall trend-based background, where finally the development of the Mediterranean shores does not converge, the emerging energy order, which, with the exception of Algeria, is not at all favourable to the SEMC, will do nothing to reduce the

scale of these divisions. Quite the contrary, the European countries of the northern shore, coming out of a kind of lethargy in the energy field, have already made a modest change of course. Before other energy alternatives are developed, the northern shore, by adopting first generation biofuels, could add to the increased cost of food products through the ensuing land eviction. This dynamic is not unrelated to the question of food security in the Mediterranean.

With the growing urbanisation of societies, the food of Mediterranean populations could continue to change. Town-dwellers' consumption, more affected than country-dwellers by malnutrition (symbolised by the excessive proportion of young generations), is increasingly based on standardised industrial products, meat and dairy products (especially made from imported powder). The health costs for diseases related to poor food habits are increasing in the majority of countries in the region. With the expected increase in the price of staples such as cereals, people are also finding it more and more difficult to feed themselves. In periurban areas as well as some country or poor urban areas, the rise in the price of bread poses a strategic food problem.

In the light of the trends observed over the last twenty or thirty years, the Mediterranean looks like a region that is disintegrating, ravaged by a great number of local and international conflicts of interest. The flourishing of bilateral relations in the context of cooperation developed in the region is symptomatic in this regard. This scenario, which may seem particularly pessimistic, is no more than the reflection of a policy which might be described as one of individualism, *laissez-faire* and resignation. By snapping its fingers at the present and emerging challenges, it points the way to a future without conviction, although perhaps not the worst possible. Without wishing to over-dramatise, it must be said that the increase in inequalities and the lack of concerted and sustainable management of scarce resources in a region prey to considerable demographic growth force one to contemplate a crisis scenario the origins of which could be both internal and external to the region.

Scenario n° 2: A Mediterranean under tension

A second more serious trend-based scenario cannot be ignored. It is one which would display the vulnerability of the environment and the poverty of Mediterranean cooperation policies in the face of the regional challenges. This possible future scenario shows an accelerated deterioration in certain phenomena observed in the first scenario and very clearly places the Mediterranean in a period of powerful upheavals and, ultimately, tensions.

Several internal crisis factors are involved:

- The threats to milieus, especially in the dense urban areas of the coast, of climate change which could be more rapid than predicted, and also in rural areas with impacts resulting from extreme phenomena.
- The degradation of the social situation, especially from the point of view of the quantitative and qualitative food security of a fast-growing population, the inability of the region to satisfy its population's food needs properly, its growing dependence

on global markets, the disappearance of a traditional Mediterranean quality model and, worse, the proliferation of hunger riots against a background of rising food prices.

- The inequalities of access to water resources, problems of drinking water supplies and those related to irrigation needs and thus agricultural production. In countries with a large agricultural population (Egypt, especially), such a scenario could see a proliferation of riots such as those which occurred in the 1990s following the agrarian counter-reform or during the summer of 2007 when failures in the drinking water supply led thousands of “thirsty” inhabitants of the Delta villages to revolt. While the water shortage situation can give rise to disturbances limited to social violence, it can also accentuate the forcible appropriation of water sources by certain countries.
- The emergence of phenomena of social revolt and serious conflicts, caused by the aggravation of inequalities, which can probably not be suppressed by purely authoritarian means.
- The under-development which ravages rural areas (glaring lack of social and collective infrastructure, educational and health problems, persistent gender inequalities). With the accelerating globalisation which involves the urbanised coastal areas, rural areas could become even poorer, victims of both political and economic marginalisation: an invisible split from the interior which causes a geographical distortion heavy with implications for the socio-economic balance of the States concerned.

A great many external factors can also provoke or aggravate latent or overt crises in the region. The Israeli-Palestinian conflict is the most obvious example, but other centres of tension could emerge as the extra-Mediterranean powers already present in the region expand their radius of action: the United States, first and foremost, but also Russia and China, not forgetting the Gulf States whose influence in the Mediterranean is steadily growing.

This scenario, where ultimately all the tensions of the present, whether entrenched or emerging, get worse, is all the more problematic because the regional State actors are not suggesting anything to structure the region, preferring to pursue their own particular interests or progressively abandon an area considered too turbulent to hope to achieve anything there. Geopolitically, this future puts the Mediterranean under the influence of the great powers who have little political, technical or financial commitment to the resource-related challenges (water and fossil fuels) or the regions (safeguards and supervision). We should not under-estimate the growing importance of the energy needs of the emerging countries such as China and India, which adds to the already palpable tensions in the economic markets and has contributed indirectly to the rise in food prices since 2006. The explosion of the price of cereals, an essential component of the daily diet of people in the Mediterranean, raises an acute risk of hunger riots in the poor periurban areas.

Worse still, a deterioration in major areas such as water, rural development or food security is to be feared if the European Union, opting for isolationism and abandoning any international ambitions, turns its back on the Mediterranean. Disinvestment by Europe in its southern neighbours could be heightened in the event of the political weakness of the Mediterranean States of the Union if, for internal, financial or economic reasons, they did not wish to apply determined strategies in the adjacent geographical area.

Global scenarios for Mediterranean agriculture

A spiral of adverse dynamics would then be unleashed in the Mediterranean where agriculture is not perceived as a strategic sector in the service of development. What exactly happens to agriculture and regional cooperation in this worst case scenario?

- Mediterranean agriculture loses its special nature. Only large farms survive, while countless rural dwellers migrate to towns which are already over-crowded or seek exile at any price.
- Agriculture is seen only through the prism of commerce and trade. Mediterranean producers, often powerless in the face of liberalisation of trade and competition, only export a marginal share of their production, chiefly due to the difficulties of satisfying the quality criteria and sanitary requirements of the developed countries. By imposing an ever more demanding regulatory framework, the continuing flourishing of wholesale distribution in the Mediterranean further squeezes producers' room for manoeuvre in commerce, and they are ultimately deprived of both external and internal outlets.
- In the South, the connection between the urban world and the rural world is completely broken, the hinterland forgotten by the public authorities, condemned to poverty and isolation. Political and religious extremism prospers.
- Europe, whose international action is losing its influence, is shaken by the regular disturbances on its southern fringe. Regional cooperation stalls. Neighbourhood relations are managed in terms of security and planning for the future means turning inwards. While major regional centres are organising, Europe and the Mediterranean choose to ignore each other and the region is wiped from the geo-economic map of the world. It is the Euro-Mediterranean project in reverse gear.

Scenario n° 3: A fragmented but reactive Mediterranean

This third scenario is a positive response to the trends described in the first scenario: a Mediterranean which concentrates many tensions but which attempts to react to adapt to the world of the 21st century and, through selective strategic partnerships, to soften the many shocks caused by globalisation. Opportunities for cooperation are sought to meet challenges which have become too global to be resolved unilaterally or to form small groups to maximise economic, political or natural potential. The Mediterranean is built "à la carte", in the light of circumstances and for political reasons based on the primacy of well understood interests. The Mediterranean space is fragmented but reactive, disordered but occasionally structured. It is interesting, subtle and inadequate all at the same time.

To counter the series of problems afflicting the Mediterranean, the scale or interdependence of which need no further reminder, and the lack of cooperation and solidarity, reactions occur. Faced with the erosion of the Euro-Mediterranean relationship, unlike in the first scenarios, one finds a proliferation of specific actions involving State actors or others who, for example, decide to ally themselves, at a time when the regional and/or international economic situation so requires, to respond to a threat (natural disasters, tensions in the agricultural markets, health crisis...) or a particular opportunity (mutually profitable operations, geopolitical upheavals).

In this scenario, for example, Algeria swaps its gas for Ukrainian wheat in order to secure basic food supplies while providing an energy resource to a non-Mediterranean partner

who is looking for it. This is a purely strategic alliance between two States anxious to diversify their partnerships with respect to their immediate advantages (gas potential for Algeria, cereals for Ukraine). South-South cooperation is also developing through closer trade relations between a Turkey deprived of its status as a potential member of the EU and the Arab Mediterranean countries which understand that history must sometimes come to terms with a present in which food security is a priority because it is vulnerable. Agro-trade cooperation here makes good sense between the great agricultural power of the region, with its enormous potential, and countries whose imports will grow bearing in mind the demographic pressures and the erosion of export capacity. This type of cooperation could be deployed on an even vaster scale with ever closer links, why not, between the Brazilian agro-food superpower and the Arab Mediterranean countries.

This scenario of a Mediterranean “à la carte” could also envisage the enhanced presence of certain non-Mediterranean actors who take advantage of the absence of specific policies on the part of the European countries to entrench their regional position or increase their investment there. The United States might well be inspired in future years to adjust its policy towards the Arab world and instead to deploy a new diplomacy to restore their international image. Looking beyond certain political aspects which are outside the remit of this chapter, work could be directed to civil operations on the ground to eliminate the poverty of the countryside, actions to combat hunger or illiteracy (role of NGOs and USAID, for example), or huge investment to improve basic infrastructure such as access to drinking water. This renewed American diplomacy would be concentrated on a few regions regarded as strategic, such as the Near East for food security or optimisation of drinking water supply grids. The economic presence of China, another non-Mediterranean power, will continue to grow. In a context where Europe has lost its commercial influence, why would China, with its powerful financial resources, not put in place a great development aid plan for the South Mediterranean in order to build new viable markets capable of absorbing its products, whether agricultural or others.

The Mediterranean, precisely because of its geo-strategic position, its wealth and what it represents in terms of hopes and fears, is a highly sought after space, open to the strategies of third countries such as the United States, China and, more generally, Asia and the Gulf States, each seeking to use the Mediterranean countries further for their own ends rather than making the region a shared space of solidarity and trade.

In practice, cooperation is then established between a few Mediterranean countries to meet certain challenges such as climate change, management of water resources or forest fires. Spain and the Maghreb are working together to tackle problems of drought and desertification which affect their countries. France works in solidarity with the SEMC and provides them with cereals and dairy products, while at the same time opening up strategic export niches for their production of fruit and vegetables (a concerted and geographically circumscribed free trade arrangement). Egypt, for its part, has placed its stake on a privileged relationship with Italy to share their mutual food potential. Germany and the Netherlands sometimes find the financial and political means to develop a series of agricultural and environmental cooperation activities with certain SEMC, especially in the field of water, soil-less cultures or the marketing of production. Technical and material partnerships are created during the summer months to combat the fires which

ravage the Mediterranean forests or to share experience of specific commercial niches (a regional olive oil arrangement between Spain, Italy, Tunisia, Greece and Syria, for example).

Of course, this scenario of a Mediterranean with a variable geometry could not be built on structural relations at State level. The impetus will come as much from the base, with a major commitment of certain private groups or a rise in the power of associative movements. In the first case, private economic actors may decide to build up financial and commercial operations but without abdicating their social and environmental responsibility. These entrepreneurs, the builders of a better future for the geographical area in which they operate, manage in a way to weave solidarities in the Mediterranean by mobilising economic projects: an agro-food industry with diversified capital which is established in a poorly developed region, a major wholesale brand which decides to develop and support typical Mediterranean products through a public health programme conducted in collaboration with the political authorities, production lines seeded by ecologically responsible private investment (dates, mountain products...). As regards the civil dimension, one could very well see associations uniting to defend well targeted Mediterranean agricultural causes which are marginalised by the State authorities: preservation of the region's food heritage by increasing the number of symbolic operations such as festivals or deliberately guided consumer choice; seeking to short-circuit distribution chains to encourage local agriculture; development of green tourism combining local and gastronomic flavours through alternative cultural and tourism promotion networks; support for rural women through micro-finance actions. Research and training institutions can also develop cooperative links based on their common interests, albeit still not an integrated Mediterranean research and training area.

Overall, this scenario offers the image of a Mediterranean developing at the whim of circumstance, where geography makes sense and encourages cooperation, but also, more often, where emergencies demand concerted action in order to avoid excessive shocks. This *ad hoc* diplomacy will be expressed in terms of the respective interests of the parties and the influence that could be exerted by a number of forces external to the Mediterranean region. This Mediterranean "à la carte" would also be driven by non-State actors from the private sector or civil society who, for various reasons, would decide to engage in specific cooperation. States, businesses, civil society... progress is achieved step by step, via a strategic bilateralism or thematic grouping in specific cases. It is the time of strengthened cooperation and hard core investors.

Cooperation here is only a question of interests, all too often a matter of reaction and not enough proactive operations which forestall future medium and long-term changes. Despite a flurry of good intentions, and occasionally very concrete results, no integration is foreseeable. Worse, this scenario has the not negligible risk of further dividing the region, which has become a leopard-skin zone, a politico-commercial jigsaw and a focus of envy. A multi-speed Mediterranean grows up where only the globalised useful spaces are likely to count, i.e. the urban centres of the coastal areas and the tourist sites.

While some actions, to some degree, will produce a series of solidarities in the region and thus gradually give rise to possible convergences, this future has little to offer the Mediterranean in terms of structure (the positive actions are not capitalised) and in no case an impetus to anchor the region in the global geo-economic landscape of the

21st century. While it has the merit of modifying some of the disturbing trends of the scenario based on current trends, it does not espouse the historic opportunity emerging on the horizon, that of a strategic association between Europe and the Mediterranean through agricultural, nutritional and environmental cooperation. In this sense, this scenario of an opportunist Mediterranean, where reactivity takes precedence over foresight, merely softens the threats described in the first and ultimately, in the medium or long term, heightens the probability of a general crisis scenario.

Scenario n° 4: A confident Euro-Mediterranean

This last scenario stakes all on a mobilisation where everyone, decision-makers, private operators, producers, civil society, realises the real risks faced by a Euro-Mediterranean which fails to develop its cooperation further: deterioration of natural resources, increased water policy rivalries, impoverishment of the countryside, uncontrolled immigration, food insecurity, marginalisation in the knowledge economy, increased transport costs which force consumers and producers together, and climate change which calls for coordinated responses. In a highly unstable world, in which the Mediterranean is more than ever acknowledged to be a major conductor of crises, Europe, which has virtually completed its expansion, is turning to the SEMC whose risks of instability and position as buffers between Europe and Africa enhance their strategic value. For their part, the SEMC, albeit committed to partnerships with other giants (China, USA, Brazil, etc.) are measuring the importance of cooperation with a northern shore which creates considerable wealth. Betting on greater partnership, this Euro-Mediterranean, by gradually integrating through strategic cooperation, is asserting its geo-political relevance and enhancing its geo-economic visibility.

This scenario is chiefly built around agriculture in all its dimensions. A critical review of the Euro-Mediterranean process launched in Barcelona, compared with feedback from the process of building the European Union around coal and steel initially and then agriculture, logically leads one to ponder on how to create a Euro-Mediterranean free-trade area in the agricultural, food and environmental field in which, precisely, the partners have common interests. Just as the Common Agricultural Policy (CAP) was the cement in the building of Europe, agriculture becomes an engine of the emergence of the Euro-Mediterranean actor.

The CAP is at a turning point in its history and this is clearly the time to contemplate its future in terms of the Euro-Mediterranean region. Created to guarantee Europe's food independence, a goal which was achieved then exceeded, as the Old Continent became a net exporter, the CAP has since been the subject of several reforms to take account of its internal evolution (over-production, explosion of the intervention budget, environmental degradation) as well as international constraints (GATT, later the WTO). In 1992, the price guarantee (production subsidy), which was contrary to international rules, was partly converted into income subsidy. In 2003, this was partly de-linked (subsidies were calculated on the basis of past references and no longer actual production) while the second pillar of flat rate subsidies conditional on compliance with certain environmental constraints was completed. The framework was thus able to adapt, albeit with something of a time-lag, to the internal and external context. For various reasons, it now needs to evolve further, indeed it needs to change radically in nature.

First of all, agricultural prices are rising structurally. While this may be due to some underlying economic circumstances (drought in Australia and Ukraine, floods in the United States, etc.), it certainly appears that prices are sustained both by the increase in the population and its growing global wealth. The engines of this structural rise are India and China where population growth is accompanied by real economic expansion. In this period of rising prices, direct income subsidies appear to be falling in quantity while the procedures for allocating them will change. Ecological conditions, especially, will gain in a general context of awareness of the ecological imperatives and scarce resources. The break with the status quo is all the more likely given that the Central and Eastern European Countries (CEEC), which will soon be out of the transition phase, will be marshalled under the same banner as the other EU countries. In these conditions, it is unlikely that they will be granted subsidies calculated according to the mechanisms which prevailed hitherto. The CAP budget will necessarily have to expand greatly as the CEEC are not net contributors. Neither can one envisage, under pressure from the old member countries, that the old system will be maintained even partly, let alone in total. In that case, the EU would be prey to serious agricultural distortions in favour of those countries.

Against this background of an inevitable and certainly radical reform of the CAP, part of the first pillar would shift to the second, with subsidies being increasingly conditional on environmental standards and food safety. Without waiting for 2013, and taking account of the trends in global markets for agro-food products, this orientation of the CAP could gradually take shape in the next few years. The impetus could come from the countries of the South of the EU which could decide to link the Mediterranean region to the new CAP, a crucial vector in redefining Euro-Mediterranean cooperation policy in concrete terms and thereby further developing the multilateral synergies of the area. It does not, however, mean seeking to extend the CAP as it currently operates, but developing future reforms in a wider geographical context.

If such a scenario takes shape, market policies will be based on the commercial integration of the Euro-Mediterranean States which will have 850 million inhabitants in 2020. This liberalisation process would continue the one which has already begun, i.e. in a progressive and asymmetric framework to respect the adjustment of agriculture in the partner countries. The unification of markets in the framework of the Euro-Mediterranean partnership, which due to the delays in transition would not happen before the end of the 2010 decade, would be especially beneficial in a context of increasingly expensive fossil fuels and limitation of greenhouse gases, forcing production and consumer areas closer together. Obviously, this would not preclude supplies from outside the Basin but they would be on a lesser scale than today. It would be facilitated by progressive upgrading of legislation and systems of standards and traceability, while a certain Euro-Mediterranean preference would be promoted and defended in the framework of negotiations in the WTO which might ultimately, in the interests of global liberalisation of trade in agriculture, accept the existence of regional agricultural centres, especially if associated with countries with vastly differing development dynamics. This position would be all the more defensible if the Euro-Mediterranean preference served agricultural development which respected the resource and consumers, and was a source of social balance.

This Community preference could be imposed *de facto*, without the need to resort to a tariff policy, at least for typically Mediterranean products (fruit, certain cereals, vegetables,

grapes, etc.) which would be supported by a demanding quality approach and mobilisation of consumers attracted by the existence of an agriculture capable of sustainable use of the Mediterranean lands. Products with a triple commitment of identity, quality and safety, food from Mediterranean agriculture would facilitate the reconnection of domestic markets by reassuring consumers in the area and would increase their international visibility. Coupled with a tourism policy linked to rural regions, this quality policy, strengthened for certain products by a branding policy (for example, with a Mediterranean label) could be attractive to the huge number of tourists in the Mediterranean.

Given the state of progress of commercial integration, the regional division of the agricultural system would inevitably continue with its march of relocation of production, destabilising local profiles to a greater or lesser degree (nature of production, levels of agricultural assets, competitiveness of branches, etc.). Consequently, this integration policy would need to be managed rather than suffered. Considerations other than immediate comparative advantages would be taken into account (for example, if it is possible to obtain an immediate competitive advantage from water-guzzling crops, is it sustainable?). If this commercial partnership is to benefit everyone, it would have to be accompanied in the South by an ambitious rural development programme, aimed especially at equipping local areas with agricultural infrastructure and improving the operating structures and branches. More broadly, this policy, which would also rely on increasingly effective mobilisation of civil society, would set itself the goal of transforming the agricultural economy into a rural economy, with real support for inland tourism and development of the countryside. It would be implemented from savings on the first pillar. The second pillar would thus be extended to the Mediterranean. Alongside this financing, notably that of the European Agricultural Fund for Rural Development (EAFRD), other resources would be mobilised, for example, the European Neighbourhood Partnership Instrument (ENPI) or aid from bilateral cooperation which would find in this strengthened partnership an additional reason for commitment.

This strong legislative and policy framework, inherent in sustained cooperation, supports an economic and organisational environment with partnerships to encourage the formation of producers' organisations, investment by processing industries and wholesale distribution to obtain its supplies locally, taking into account their access to quality standards. Beyond this, product lines are being organised in the vast Euro-Mediterranean arena, not to mention the fact that the change in market scale makes investment profitable and thus certain branches become internationally competitive. This entire framework contributes to the flourishing of Mediterranean food and the traditions which it hands down. Consumers are taking back ownership of the Mediterranean diet, with adaptations linked to new lifestyles and new expectations: simpler meals, less saturated fats, less meat, less sugar, diversification of the culinary repertoire with new dishes often of Mediterranean origin.

Linked to this partnership, Euro-Mediterranean agronomic research is then organised around ever more pressing common problems (soil erosion, increasing scarcity of water, climate change, zoonoses, etc.) for which a web of excellence, bringing together scientific communities or individual scientists in the Mediterranean Basin, is the mark of success.

In this key framework, the decision to put the improvement of integrated management of resources and demand for water at the heart of the Mediterranean Sustainable Development Strategy (MSDS) adopted in 2005, like the support of the Euro-Mediterranean Water Directors Conference in Athens in 2006, brought the idea of making the water sector a priority in the framework of the new neighbourhood instrument to life. The devolution of part of the partnership aid to the water sector supports States' public policies, some of which are prey to real difficulties of supply, and does not exclude funding from international donors or local authorities which are increasingly involved in urban water policies (water supply, drainage). The modernisation of irrigation tools, the refurbishment of urban networks and improvement of water management (tariff policy, water codes, organisation of water institutions, etc.) offer a way to escape the inevitability of the much heralded water crisis. Likewise, against a background of pressure on land and the worrying rise in the price of raw materials, cooperation on soil protection has begun, with investment by States in the increasingly necessary demarcation between inhabited and agricultural land.

At the end of the decade to 2020, the Euro-Mediterranean region would thus be equipped with a concerted, if not integrated, agricultural and agro-food development model and would be on the road to real sustainability. Apart from this outcome, which breaks with the trend-based scenarios, this agricultural, environmental and rural development policy would create a *de facto solidarity* which would make the partnership ever more indispensable. As a factor of cohesion between the States of the region, this policy would also be a binding factor within societies (enhanced food security, mitigation of disputes between water users, etc.). Furthermore, it would firmly cement the Euro-Mediterranean construct as an unprecedented and necessary geo-political edifice on the international scene.

This strategic policy could help to prevent the risk of environmental degradation and would promote the protection of rural landscapes while fostering economic diversification in the countryside which has become a source of growth and innovation for the SEMC. Moreover, it would ensure better food safety and quality, and would direct greater attention to animal welfare and the risk of zoonoses. Its mission would be to meet the following major goals: independence of food security in the Euro-Mediterranean region, helping to combat climate change, participation in the preservation of the environment and biodiversity, fashioning a new socio-economic balance between rural regions and the urban world.

This perspective makes regional cooperation between Europe and the Mediterranean tangible, by demonstrating through facts about the daily life of individuals, the health of economies, the development of local regions, food security, how the agricultural question gives meaning to the concept of sustainable development as a mobilising goal and not a policy to be followed. Putting agriculture at the heart of Euro-Mediterranean cooperation, as in the case of the European construct, ultimately means finding the cement to bind a geo-political project which is quite crucial at a time when globalisation is becoming regionalised and where Euro-Mediterranean interdependency is growing. This great Euro-Mediterranean agro-food and environmental policy will have to meet two complementary objectives: ensuring food security in both quantitative and qualitative terms while collectively and responsibly developing regions and economies.

Action is needed now to build the future we want

In conclusion, the trend-based scenario is worrying because it lacks conviction and heralds an increasingly difficult and more complex future for the Mediterranean. It is fairly likely that if it continues, the option of launching the optimistic scenario of a Euro-Mediterranean built on agriculture will disappear from the spectrum of possible futures. Likewise, the longer it lasts and stamps its mark in the years ahead, the greater the probability, in the medium term, of the major upheavals of the second scenario describing a Mediterranean in crisis and prey to tensions. The third scenario, marked by economic strategies and which ultimately draws a region where Mediterraneans co-exist without converging, with countries opting for cooperation in strictly national interests, may well come about as the trend-based scenario is prolonged. It is a kind of reaction, a knee-jerk response. Indeed, if this scenario emerges, and although it does hold out some hope, the future of an integrated Euro-Mediterranean region built on solidarity could yet again be compromised.

There is thus every reason to believe that the trend-based scenario will offer only two possible solutions up to the 2015-2020 horizon: aggravation of situations or going it alone. This shows the importance of the years immediately ahead if we are to build this Euro-Mediterranean region. Failure to make this choice today would have hugely damaging consequence for tomorrow. To hesitate further could mean not having the chance to choose the future but simply to face a future that deeply imprinted its own stamp. Not being the architect of one's future is to condemn all present action to the scrapheap and to toll the knell of creative mobilisation. In the light of the global economic situation and a series of regional factors, this Euro-Mediterranean idea is no longer just a wager on the future. It has become a strategic imperative where agriculture, in particular, seen in its plural dimension, will progressively reveal the geo-political relevance of this Euro-Mediterranean region. This dynamic can realise the will to make the Mediterranean a laboratory of sustainable and responsible development.



PROPOSALS FOR ACTION



The following proposals are presented in the form of recommendations, by which we mean invitations to action to unleash the dynamics necessary to establish a Euro-Mediterranean framework for agricultural, food and rural cooperation. They are not intended to be exhaustive, since a choice was made to concentrate these ideas to make them readable and easier to disseminate.

It should also be noted that these proposals are the fruit of analysis and reflection by the experts involved in the writing of this report and in no case are they recommendations of Ciheam as an institution.

General approaches

Strengthen national agricultural policies

The Mediterranean countries must conduct their agricultural policy in the light of the profound changes in their societies and the new conditions created by the globalisation of economies. These policies need to be explored in terms of several interdependent dynamics: security of supply in a changing geo-political landscape, adaptation to climate change, the growing scarcity of natural resources, changes in patterns of consumption, development of food-related diseases, growing product standardisation, opening to trade and diversification of commercial partners, territorial socio-economic balance, promotion of new tourist and cultural activities. In combination, all these variables demand that governments in the Mediterranean region should be fully mobilised around ambitious agricultural, food and rural policies, with domestic markets as important as international markets and a requirement for competitiveness in relation to the imperatives of sustainability and responsibility. The goal is a rational approach to countries' agricultural production, by adapting it to local environmental conditions (avoiding water-guzzling crops), developing domestic and export markets and at the same time supporting smallholdings and small family farms. Ministries of Agriculture and the Environment must inevitably strengthen their cooperation. Ministries of Health should be fully involved in the food question and should, in due course, become Ministries of Health and Food.

Promote local governance of the rural and agricultural world

While States must assume their responsibilities in the field of agricultural policy, the process of decentralisation begun in the majority of Mediterranean countries should be continued so as to stimulate public support for agriculture. It would be useful, moreover, to provide a lasting framework in which civil society in rural and urban milieus can flourish (consumers' associations, agricultural cooperatives, irrigators' associations, rural development agencies, etc.).

Put agriculture at the heart of Mediterranean cooperation

The holistic approach to agriculture, combining land development, preservation of the environment and biodiversity, public health and nutrition, the model of economic growth and the socio-cultural dimension, must also be at the heart of Mediterranean cooperation policies. Seen in all its dimensions, agriculture, the cornerstone of the region's plural identities, should be placed at the centre of the Euro-Mediterranean construct, since the sector is both vital for the societies and economies of the region and a mobilising force to bring about progressive convergence of the two shores of the Mediterranean.

Organise a Euro-Mediterranean inter-ministerial meeting on agriculture and food

Euro-Mediterranean ministerial meetings on agriculture, along the lines of the one held in November 2003 under Italy's presidency of the Union (limited to ministers of agriculture) should continue to be held. In this regard, a Euro-Mediterranean inter-ministerial meeting on agriculture and food could be organised in about 2010. It would involve, in particular, departments of economy, trade, health, environment and tourism. The meeting would first explore the priority themes to strengthen cooperation centred on agriculture in the Mediterranean.

Create a Euro-Mediterranean platform for multi-disciplinary dialogue and cooperation on agriculture

This platform would be one of the strategic decisions taken at the above-mentioned inter-ministerial meeting. It could be organised around three pillars of mutual competencies: political orientation and positioning (decision-makers, governments, parliaments, civil society), research and expertise (researchers, analysts, educators), professionals and producers (actors in the agricultural, production and marketing sectors). Without pre-judging any proposals that might be formulated at such meetings, some major themes could be explored immediately: development of productive complementarities between the EU and the SEMC, water resources management in agriculture, land dynamics and the question of rural areas, commercial prospects and economic development, means of combating zoonoses and other sectors of the rural economy (including tourism).

Seek Euro-Mediterranean convergence in international bodies

Initially, this work should be part of a regional perspective to encourage closer ties and trade between the countries of the northern and southern shores. Subsequently, where possible, there should be a common Euro-Mediterranean stance at international level, especially in the World Trade Organization (WTO) and the World Food and Agriculture Organization (FAO), the objective being to meet the major trade challenges imposed by the globalisation of trade. Initially, it could involve forming a Mediterranean Group (G-Med) then progressively the establishment of a Euro-Mediterranean Group (G-Euromed). It would be matter of focusing more on the agricultural complementarities

of the Euro-Mediterranean at international level rather than competition within the Mediterranean so that production would be compatible with the environment, territories and the socio-economic realities of the various countries in the region.

Conceive the common agricultural policy in Europe as interdependent with the Mediterranean Basin to build a medium-term Euro-Mediterranean agro-food and environmental policy

The current and forthcoming reforms in Europe can no longer ignore the problem of Mediterranean agriculture, food and the rural world. A vision of the CAP in the medium term future must incorporate the Mediterranean in its sphere of action and solidarity by 2020. This Euro-Mediterranean agro-food and environmental policy will need to meet two objectives: to promote agricultural and food complementarities in the Euro-Mediterranean zone, ensure security of supply, help to combat climate change, participate in the preservation of the environment and biodiversity, fashion a new socio-economic balance between rural areas and the urban world, not forgetting the need to guarantee better food quality. With this perspective in mind, the principles of the Mediterranean Sustainable Development Strategy (MSDS) defined in 2005 will have to be applied and respected, while creating the tools and mechanisms necessary to introduce sustainable agricultural and rural policies in the Euro-Mediterranean region.

Technical proposals

Guarantee progressive and managed liberalisation of Euro-Mediterranean trade

In the framework of current negotiations to liberalise Euro-Mediterranean trade in agriculture, measures to open up trade progressively and gradually must be promoted by accepting the principle of exception lists for the most sensitive products. Asymmetrical timing is necessary here to allow producers most vulnerable to this process to adjust to the new competitive forces. The results of recent impact studies also need to be considered carefully. In this respect, the liberalisation of trade in the Mediterranean must neither neglect the socio-economic realities specific to the zone nor marginalise the growing concern with preservation of the environment. In the medium term, in the perspective of a major Euro-Mediterranean agro-food and environmental policy, consideration should be given to whether a system of trade preferences for production in the zone should be put in place.

Develop revitalised rural development policies

Against this background of integration of markets, it will be important in the longrun to consolidate and strengthen existing rural development programmes in the Mediterranean, not only to support family farming systems but also to tackle the remaining deficiencies in social and community facilities (access to drinking water, electricity, education and health). The road infrastructure must also be improved and economic diversification must be fostered by creating non-agricultural activities within rural areas (thus moving

from an agricultural to a rural economy). Multilateral solidarity to share experience and good practice should be encouraged in this regard and a Euro-Mediterranean rural development programme could be financed in the decade 2010-2020 (Commission, EIB, States in the region, private operators in agriculture or tourism, etc.).

Safeguard the land

It would be important to put in place a system to monitor land trends in the Mediterranean (area and quality of agricultural and arable land) that is as dynamic and exhaustive as possible and, for that purpose, set up a database which is regularly updated. Two other actions seem essential: strengthening the effectiveness of legal systems capable of clearly distinguishing agricultural land from building land and promote contracting of rural building, necessary to investment and sustainable management of cultivable land.

Optimise water resources management

The supply policy still allows a few opportunities for development. For countries whose financial resources so permit, developing water desalination plants could be a way of increasing water resources for human consumption. Progress can also be made in the re-use of waste water, especially urban waste water, for agricultural irrigation. But it will undoubtedly be necessary to move away from supply management in favour of technical management of demand: more than ever in the development of water generally, new sources of water can be found in the water savings that can be made. This demand management relies on a multi-level approach, as, moreover, does supply policy. From a political point of view, the arbitrage between uses must be done on a cost-benefit basis taking account of negative external factors, especially environmental. In technical terms, substantial savings can be made by intensive use of precision irrigation. Demand must also be minimised by significantly improving supply grids where losses at present are considerable.

Demand management involves new tariff systems which also serve the supply policy since, by allowing recovery of distribution costs, they facilitate financing of new installations, although that does not mean that international government aid schemes should be abandoned. Tarification can provide additional resources to finance works, while encouraging saving by consumers, but it must take account of the vital character of water and must not prevent access to it by the poor. In the agricultural sector, where the option of sourcing water from savings is most evident, many farmers in the South and East Mediterranean owe their survival to irrigated agriculture. Tarification by bands of consumption provides solutions.

The new water policy must be accompanied by institutional and legal changes. Thus, current regulations clearly need to be amended to preserve an endangered resource. The necessary reorganisation of the “water authority” must involve a degree of subsidiarity, with the establishment of management units at the level of a basin or aquifer and support for users’ associations. Awareness and implementation of local regulation practices by grass-roots actors seems to be a preferable means given that situations may vary. The trade in virtual water, finally, may be an interesting tool for this new water policy. High-level strategic thinking about this problem is required bearing in mind the water stress

from which some Mediterranean areas are suffering and with a view to a progressively integrated Euro-Mediterranean agricultural area based on solidarity.

Build an agronomic research and education network

The establishment of scientific and agronomic research and education networks must be sustained. The Euro-Mediterranean cooperation framework is of strategic importance here and the presence of Mediterranean scientific institutions in European research programmes should be strengthened (PCRDT, ERA-Net...). The ERA-Net, which has now been developed in the network for agronomic research in the Mediterranean (ARIMNet), is a prime concrete example. This dynamic must be part of a sustainable measure involving participation, partnership and sustainability, based on complementarities, with the objective of progressively introducing technical benchmarks for the identified agronomic research priorities. It will probably be necessary to support the development of centres of agro-food competitiveness and promote greater mobility among students and scientists to intensify this web of agronomic expertise and research.

Encourage innovation and sustainable production

While research and education are privileged vectors of innovation, other key factors must be brought into play, in particular, a legal framework which protects innovations. Project promoters will be encouraged by bank financing or agencies for innovation. More generally, the banking sector needs to get more involved with farmers in the SEMC so that they can invest and thus increase their output while respecting environmental constraints (double green revolution). As this financial support for agriculture cannot be decreed, it can only come about if agriculture offers real guarantees. Land policies (designed to safeguard land) and commercial policies (to bring production into line with international standards) may therefore be envisaged at the forefront.

Improve the supply and marketing of agricultural products

A more efficient synergy needs to be found between producers, transporters and distributors. Innovative commercial strategies must be drawn up around the agro-food industries, urban wholesale distribution and rural family farms in a spirit of fair shares of the added value between the actors in the agro-food system. It is by following this model that rural development policies will be able to integrate the question of logistical supply with availability (transport, processing, storage) to ensure mobility and safety of agricultural production (traceability) and, consequently, its marketing. Parallel to this, farmers' professional organisations could be strengthened, by working on their structure and safeguarding markets through private and public agreements. It would also be useful to take more vigorous steps to mobilise the institutional frameworks and human and material resources required to exploit opportunities to promote Mediterranean agricultural products in the domestic and international markets opened up by the spread of quality systems and marks (mainly organic agriculture and appellations of origin). Sharing of experience and knowledge must also figure among the priorities of cooperation between the countries of the North and those of the South if it is sought to encourage a regional strategy for the defence and promotion of the Mediterranean diet, agriculture and rural specialities.

Support the establishment of national food safety agencies in the SEMC

To ensure that the abolition of tariff barriers does not translate into the establishment of non-tariff barriers (sanitary and phytosanitary standards), the SEMC must progressively set up national food safety agencies. In this regard, just as the European Food Safety Authority (EFSA) supported the development of this type of agency in the Countries of Eastern and Central Europe at the time of their accession, it would obviously be useful if it could now support the SEMC, in particular by fostering multilateral collaboration in the Mediterranean.

Introduce labelling of Mediterranean products

In order to defend and promote the Mediterranean food regime, the creation of a Mediterranean label for typical products of the region can be envisaged to meet the triple objective of identity, quality and safety, and respect for the environment (energy efficiency index). This essentially marketing label would be complementary since it would be an umbrella for existing ones and would not be intended to replace appellations of origin. On the other hand, it would allow the spread of a culture of Mediterranean communication about food products and thus affect people's daily lives.

Inform consumers and guide them towards Mediterranean products

In a global context of promotion of Mediterranean products benefiting all the more from a popularised marketing label, the accent will be placed on consumers as a major element in the agro-food system whose choices would be progressively steered towards the range of Mediterranean foods, both fresh and processed. To allow consumers to eat better without nibbling away the margins of their purchasing power, tax reliefs would be granted to Mediterranean products. Better informed, more aware and even more careful of their health, consumers could be redirected towards quality products. A partnership between the public authorities and wholesale food distributors should be defined in order to make a more extensive range of Mediterranean products available (subsidies, VAT refunds, etc.). It is a matter of public health for States and a measure of social and environmental responsibility for private operators. Special support would be granted to organic agriculture, with the progressive introduction of the outlets desired by the State (school catering, for example).

Promote the Mediterranean diet

The Mediterranean food culture is an important component of its identity to which a contemporary political social dimension must be added. The Mediterranean diet must be protected, promoted and disseminated. Measures need to be taken both to communicate this powerful legacy of the Mediterranean identity (major promotional and information campaigns, socio-cultural gastronomic activities) and to undertake large-scale public actions (national youth health and nutrition plan, marketing and labelling of Mediterranean products). Bearing in mind the attractiveness of typical Mediterranean products and the need to restore food education policies aimed at public

health, one of the flagship events could be the introduction of an annual Mediterranean food day which would be an opportunity for Europeans and Mediterraneans to share their ideas on their gastronomic cultures while popularising the typical products of each region through a variety of activities: meetings between decision makers and technicians, street theatre, marketing awareness (tasting week involving private wholesale distributors). These festivities could be held during the summer season, when Euro-Mediterranean relations are at their peak, primarily because of tourism. Large international institutions which have already expressed their support for the Mediterranean food regime could play an important role in this process (World Health Organization, UNESCO, FAO, etc.).

Seek better linkages between tourism and agriculture in the Mediterranean

As strategic sectors for Mediterranean economies and societies, tourism and agriculture cannot ignore each other when it comes to development and regional cooperation in the Mediterranean. Better linkages need to be found between the two activities, exploring all avenues where synergies can occur. Partnerships could be launched between tourist areas on the coast and their hinterland to intensify relations between town and country, the objective being that food eaten in urban areas and tourist resorts should come more from local farms than imported from abroad (discovery of the gastronomic heritage of the country of residence) and that, conversely, a tourist movement should be developed in rural areas (green tourism). In this regard, two measures can be envisaged: establishing agreements between local producers and caterers (in town and hotels), to guarantee a commercial outlet and support local domestic agriculture, and develop agro-tourism systems in rural areas to promote the local produce and lands of the Mediterranean.

Establish a rapid response force to combat forest fires

Faced with the recurrent risks afflicting the Mediterranean countries, especially during the summer, it would be vital to form a rapid response force to combat forest fires. Sharing of technical tools and equipment to tackle this type of disaster, apart from being an additional safeguard, is an important means of protecting rural and agricultural areas in the Mediterranean.



All these proposals seek to illuminate an initial avenue of cooperation in building the Euro-Mediterranean agro-food and environmental policy in the medium term. It goes without saying, however, that they have no other purpose than to restate the triple question of the future of the Mediterranean, its relationship with Europe and the place that agriculture can play in creating a strategic link between these two geographical masses whose destiny is bound together.

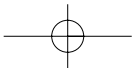
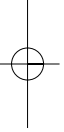
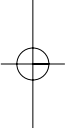


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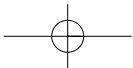
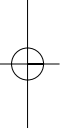
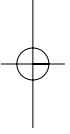
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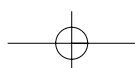
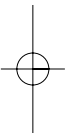
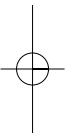
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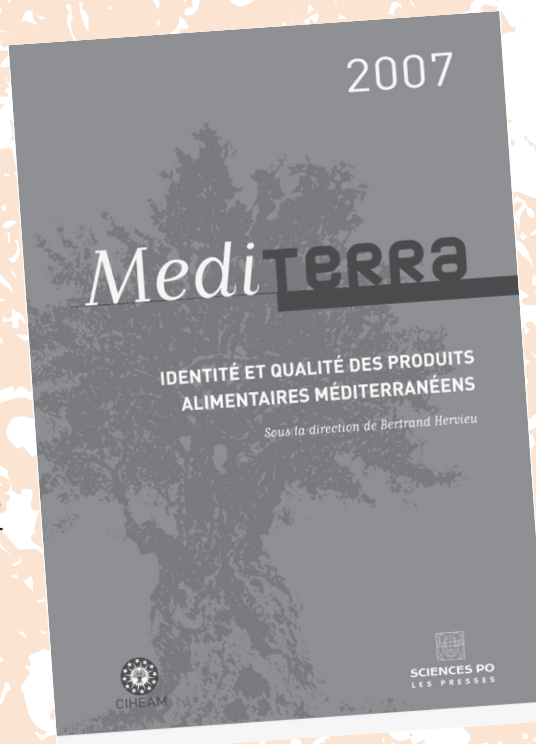
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