CHAPTER 6

FISHING AND FISHING COMMUNITIES: what future when faced with the challenges of inclusive and sustainable development in Algeria?

Sid Ahmed **Ferroukhi**, *École nationale supérieure agronomique d'Alger (ENSA-Alger), Centre de recherche en économie appliquée pour le développement (CREAD)*

The current situation of countries on both Mediterranean shores and their neighbourhood, even distant ones, and the challenges they face cannot be addressed without considering the social and economic consequences of the explosion of migratory flows over the past five years. The Mediterranean has become the most important transit area for migrants and unfortunately also the most deadly. This vertiginous acceleration of migratory flows reached its peak when nearly a million migrants arrived in Europe in 2015[1] particularly fleeing the wars in the Middle East and Africa. For almost twenty-five years (1993-2017), an estimated 34,500 migrants of all ages have died while crossing the Mediterranean Sea, of which, 15,000 since 2014 alone[2].

The Mediterranean area has always been the theatre of important flows of people and goods. In the 19th century, many farming and fishing families from Sicily and Calabria (southern Italy) (Vermeren, 2015) fleeing famine and the destruction of vineyards caused by phylloxera, have settled on the eastern coast of Algeria[3]. At the east of Algiers, the maritime region of Bouharoun has experienced the same phenomenon: many families from mainland Spain and the Balearic Islands, particularly the island of Menorca, suffering from a severe economic crisis have settled there before being joined by Italian migrants coming from the region of Naples and the islands of Procida and Ischia whose economy was badly affected by the earthquake of 1993.

1 - Across the world, the International Organisation for Migration (IOM) estimates that more than 5,350 migrants died in 2015, including 3,771 deaths in the Mediterranean. The IOM also recorded 1,004,356 arrivals by sea in Europe in 2015, that is, more than five times than the 2014 total that amounted to 219,000 (www.iom.int/fr/news).

2 - Estimations of the IOM and The Migrant Files.

3 - According to the *Institut français de la vigne et du vin*, the phylloxera, an aphid-like stinging insect, is native to the eastern United States. In the 19th century, it devastated French and European viticulture with dramatic economic and social consequences.

Except for the contemporary and extreme cases of Syrian, Libyan and other war refugees, the migratory issue has historically been significant in the region, justified overall by socio-economic reasons but also by the hope of these migrants to reach areas of economic prosperity and peace. The only thing that changes today is the direction of these flows, which are mainly directed from the South towards the North and perceived as drastic since they are the subject of extensive media coverage. The magnitude of this phenomenon is causing tensions between departure and host countries reinforcing the "fortress" logic in Europe and the "wall" logic in the United States.

Nonetheless, whatever their sophistication and height, no wall nor fortress can be a solution. It is rather necessary to build actions on the divides and development gaps not only between departure and host countries but also within the countries themselves by optimising the impact of a two-fold action: inclusive national development driven by regional cooperation and eco-development.

Recent research on Algerian migrants in Europe and around the world (Labdelaoui, 2012) clearly shows the specific changes in migration phenomena, in terms of causes, profiles and benefits. The rural worker who migrated alone or accompanied by his family to work in factories or mines, is replaced by a multitude of profiles of young people, low, medium or highly qualified such as academics, scientists, female graduates or others without qualifications, students, athletes, artists, journalists or intellectuals.

These departures are no longer solely motivated by economic reasons, but also by cultural, social and political considerations. It is probably the lack of opportunities enabling to improve livelihoods and the lack of hope for change of their situation in the short and medium term and especially of their immediate environment, which seem to be the main drivers of migration. Thus, for the Algerian migrants of today, "the decision to leave is made according to the conditions in the country of origin and the attractiveness of the potentially existing opportunities in the host country" (Labdelaoui, 2012).

In this context, the opportunities offered by the inclusive development of national economies can help reduce development gaps and divides. In particular, through its links with the rest of the economy (blue growth), the fisheries and aquaculture sector can contribute to meeting the socio-economic challenges of contemporary Algeria. These new opportunities are very conducive to creating wealth and jobs and enhancing food security for the benefit of the seafarers.

This chapter is aimed at highlighting the new Algerian growth model and integration of fishing communities, the majority of which carry out artisanal activities. If this model is to be inclusive for small-scale fisheries and aquaculture, of course, it must incorporate the dimension of sustainability. This two-fold requirement refers to the blue economy paradigm developed by the famous entrepreneur Gunter Pauli[4], who

4 - Belgian entrepreneur born in Anvers in 1956, Pauli Gunter is the author of *L'Économie bleue, 10 ans, 100 innovations, 100 millions d'emplois*, Lyon, Caillade Publishing, 2011.

is inspired by nature to promote circular economy, producing zero waste and constantly seeking the pooling and multifunctional valorisation of resources. It is only recently that this approach has been transposed to the areas of marine and fisheries resources.

The Food and Agriculture Organisation of the United Nations (FAO) defines blue growth in the fisheries and aquaculture sector as a way of "maximising economic benefits from the sustainable use of aquatic resources minimising ecosystem degradation and enhancing social benefits" (FAO, 2015). In the aquaculture sector, the FAO encourages the promotion of policies and best practices that ensure the responsible and sustainable production of fish, seafood and marine plants. Regarding capture fisheries, the FAO calls for the implementation of a Code of Conduct for Responsible Fisheries and related instruments to restore fish stocks, combat illegal fishing and promote best practices of production and sustainable growth. In the framework of blue growth, production systems and ecosystem services must contribute to the establishment of efficient value chains and improved livelihoods, regulatory frameworks and rehabilitation approaches for vital coastal habitats, biodiversity and eco-systemic services (including carbon capture, defences against storms and tides, tourism, etc.).

On its behalf, since 2012, the European Union (EESC, 2013) has initiated the implementation of a blue growth strategy for the marine and maritime sectors, including, in an integrated and sustainable approach, maritime transport, fishing, pleasure boats, coastal tourism, marine renewable energies, marine biotechnology, mineral resources etc. Initially exclusively focused on the member countries of the European Union, it is now developing new cooperation instruments integrating countries of the southern Mediterranean shore (Bluemed Initiative).

Fishing and aquaculture in the Mediterranean

In order to better understand the issue of blue growth in Algeria, particularly in view of the challenges posed by migration, it is important to recall the strategic dimension of the maritime and fisheries sectors in the Mediterranean. First of all, it is important to highlight the fact that current and future challenges of the region far exceed its relatively limited extent and the extent of the richness of these fishery resources in comparison with other maritime areas.

The Mediterranean is a semi-enclosed sea bordered by twenty-three countries, with a coastline of 45,500km. The continental area (0 to 200m) is of 525,600 km^2. Little known to non-specialists, this data better reflects the fishing potential of each country. Thus, Algeria has an area of 13,700 km^2. In 2008, the number of fishing vessels declared in the Mediterranean was about 82,000 units, of which 68,200 were of small-scale fisheries (83%), for nearly 250,000 registered seafarers and a production of 970,000 tonnes, of which one third are pelagic fish (Sacchi, 2011). At the same date, Mediterranean aquaculture production was estimated at more than 1.6 million tonnes, dominated by Egypt, Spain and France. While it had doubled since 1995, this production reached only 330,000 tonnes in 2015 for only two species: sea bass and sea bream.

Despite its limited extent in comparison with the Atlantic and Pacific Oceans, the Mediterranean accounts for almost 30% of the global commercial maritime traffic, 25% of global maritime hydrocarbon traffic and has 450 ports and terminals for this purpose (European Commission, 2017). This maritime area is also characterised by its remarkable natural and heritage sites including 400 Unesco sites and 236 marine protected areas. An economic opportunity for this region of the world, the important Mediterranean maritime traffic generates permanent risks on marine resources and the navigation safety for the different Mediterranean countries.

The countries bordering the Mediterranean have a coastal population of 150 million inhabitants which doubles during the tourist season. If, during the 1980s and the 1990s, the coastal urbanisation increased rather on the northern shore (Coudert, 2002), this dynamic has moved to the southern and eastern shores where the process has accelerated. However, it is estimated that the relative population of coastal areas has remained stable at around 30%.

Moreover, according to the WWF (2015), a strong development of exploration and oil and gas extraction is expected by 2030. Therefore between 2010 and 2030, gas production is expected to be multiplied by five. Similarly, the annual growth of international trade forecast at 0.4% will affect the maritime transport and port activities as well as the main maritime routes of the Mediterranean. According to the WWF study, the arrival in the region of about 500 million tourists by 2030 will lead to a significant development of coastal, cruise and pleasure boat tourism. Between 2010 and 2030, marine aquaculture is expected to grow significantly, by nearly 112%. On the other hand, given the decline in the fishery resource and the overexploitation of stocks, estimated at more than 70% by the FAO, production in the catch fisheries sector will continue to decrease.

These forecast data and trends clearly show the economic and environmental challenges faced by Mediterranean countries: preservation and sustainable development of traditional activities of marine resources exploitation (fishing and aquaculture), preservation and integrated management of coastal areas, job relocation due to the necessary reduction of fishing effort, creation of new jobs and values in integrated maritime activities, securing maritime and port traffic, preservation of marine and fishery resources, struggle against illegal fishing, promotion of new activities (marine biotechnology, offshore exploration). While each of the Mediterranean countries tries to meet these challenges in the framework of national public policies, those of the southern shore are faced with two major limitations: the lack of a coordination framework for sectoral public policies related to the maritime sector (fishing, transport, tourism, tourism, energy, environment, etc.); the weakness of regional cooperation in the face of the extent of common phenomena and resources at stake.

It is within this framework that a number of regional collaboration and partnership projects have been developed in recent years such as the initiative for the sustainable development of the blue economy in the Western Mediterranean led by the European Union. It is aimed at the promotion of sustainable growth of the blue economy, the creation of jobs, the improvement of safety and security and the preservation of

biological diversity and regional ecosystems[5]. As a multilateral framework for the sustainable development of the Mediterranean, now open to countries of the southern shore, the Bluemed initiative has extended these guidelines for research and innovation. These programmes represent new opportunities for different fields: the rational use of marine and maritime potential, the structuring of international cooperation in and around the Mediterranean, the promotion of new "blue" professions, the protection and preservation of ecosystems or respect of the environment.

This issue of sustainable development of the maritime area leads us to the analysis of the policies implemented in the fishing sector in Algeria. This country accounts for an important share of the fishing economy in the region. At Mediterranean level, the Algerian fishing sector represents one-fifth of all registered seafarers, 12% of jobs and 12% of the quantities fished.

Vitality and limitations of the fishing sector in Algeria

For the past fifty years, the fishing sector in Algeria has experienced discontinuous periods of development and institutional organisation. After ten years of civil war, from 2000 to 2015, the country experienced a period of constant stability in terms of fishing and aquaculture policy. From the year 2000, the administration of the sector was set up as the Ministry of Fishing and Fishery Resources with the prerogative of marine environment regulation. On the same date, a major *Plan national de développement de la pêche et de l'aquaculture* (PNDPA)[6] was launched and public funds were mobilised to support investment in fisheries and related industries and services.

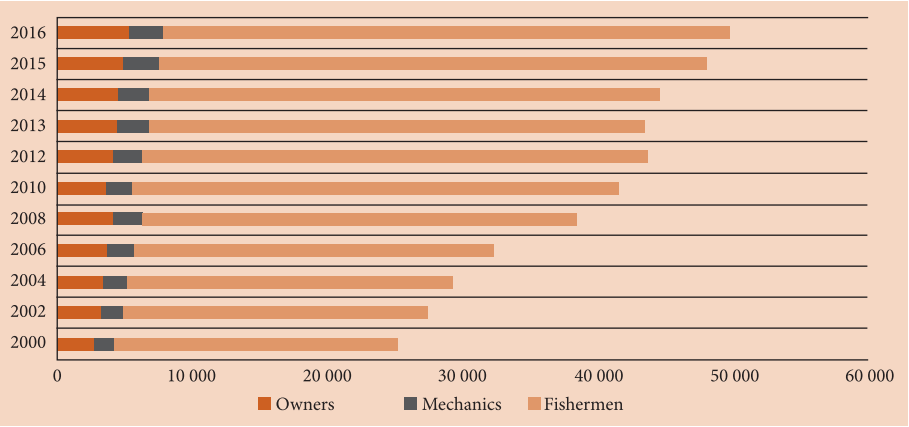
Beyond the fact that it enhances an intergenerational natural heritage, the fishing sector is both a productive and renewable economic sector. Thus, the 9.5 million hectares[7] of fishing areas provide direct and indirect income and employment to nearly 550,000 people. In addition, there are about 100,000 hectares of water resources consisting of natural bodies of water and dams (about forty) that can be exploited by inland aquaculture. Moreover, more than 80% of the consumption of fishery products comes from domestic production, which highlights the contribution (quantitative and qualitative) of fishery products to strengthening food security. The estimated size of the market varies between 200,000 and 220,000 tonnes including 87% of fresh fish, 7.5% of frozen fish and 5% canned fish (Vermeren, 2015).

The contribution of fishing to the Algerian economy is also measured by the investments it induces. Since 2000, the fishing fleet has doubled and the maritime population has tripled. Over the past twenty years, no less than twenty new ports and fishing shelters have been built and rehabilitated, and eight beaches have been adapted to the needs of small-scale fishing purposes. These infrastructures are strategic places (public services, maritime border posts, etc.) and their contribution is

5 - The initiative is part of the framework of the Neighbourhood Policy and of the 5 + 5 Dialogue: 5 Member States (France, Italy, Portugal, Spain and Malta) and 5 third countries (Algeria, Libya, Mauritania, Morocco and Tunisia).
6 - Translator's note: National Fisheries and Aquaculture Development Plan.
7 - Of which 1.4 million hectares, that is, 15%, enable trawling.

obviously also measured in terms of jobs. The majority of these jobs are occupied by young people (60% of registered seafarers are under 40). This figure is all the more important to stress that in Algeria, the latter, are particularly affected by unemployment. The evolution of sea entrants in fishing activities in Algeria shows a strong increase between 2000 and 2016. The number of fishermen, mechanics and coastal masters has more than doubled over the period, from 20,066 in 2000 to 53,423 in 2017 (Graph 1). In addition, jobs related to fishing and aquaculture activities grew even faster, from 25,000 jobs in 2000 to 95,000 in 2016, when they are estimated at 103,000 in 2017.

Graph 1 - Evolution of maritime registrants by occupational categories (2000-2016)



Source: Developed on the basis of data from the General Department of Fisheries of the Ministry of Agriculture, Rural Development and Fishing (MADRP).

The registered fishing fleet particularly increased during the period from 1990 to 2016. In 1990, it included 1,548 vessels of various sizes while in 2016, there were 5,323 vessels, mainly small vessels (64%) and sardine boats (25%) and trawlers (11%) (Table 1).

Table 1 - Evolution of the fishing fleet in Algeria (2000-2016)

	1990	2000	2016
Small vessels	708	1,545	3,411
Sardine boats	554	643	1,341
Trawlers	286	318	553
Total	1,548	2,506	5,323*

* This total includes the tuna fleet (18 vessels).
Source: Developed on the basis of data from the General Department of Fisheries (MADRP).

Production from the capture fishery has significantly increased in the 2000s, reaching an average of over 135,000 tonnes (99,928 tonnes for the 1990s). This production has fallen sharply since 2010, returning to an average level slightly above 100,000 tonnes (Table 2).

Table 2 - Evolution of production and import of fishery products in Algeria (2000-2016)

	1990-19999	2000-2010	2010-2016
Fishery production	99,928	137,721	102,442
Imports*	–	17,608	37,048

* Data of the *Centre national d'informatique et des statistiques*[8] (CNIS)/General Directorate of Customs
Source: Developed on the basis of data from the General Department of Fisheries (MADRP).

Besides, the decline in production over the period (2010-2016) and growth in demand are offset by the doubling of imports.

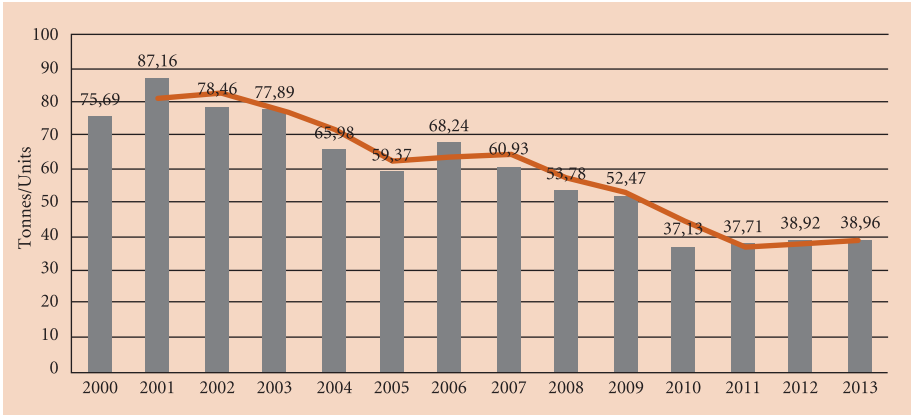
Graph 2 - Evolution of exports and imports of fishing products (2000-2016)

Source: Developed on the basis of data from the General Department of Fisheries (MADRP).

The decline in fishing catches since 2010 has not only led to a significant drop in average productivity per fishing unit (divided by two in ten years) but also to a drop in the labour productivity and income of seafarers.

8 - Translator's note: National Centre for Informatics and Statistics.

Graph 3 - Evolution of quantities fished per fleet unit (tonnes/units)



Source: Catanzano (2014).

Over the past twenty-five years, the production of capture fishery in Algeria has experienced two production peaks: the first in 1994 (135,000 tonnes) and the second in 2006 (157,000 tonnes). In other years, the production fluctuated around 100,000 tonnes with relative stability for white fish and variability for blue fish (sardines, sardinella, anchovies, saurel, etc.).

In contrast to this downward and stagnant trend in capture fisheries, as we have already mentioned, the number of registered seafarers has doubled and the fleet tripled over the same period, resulting in a decrease of the income of seafarers, paid by the share and a strong immobilisation of the fishing fleet due to its non-profitability.

A new activity that was virtually non-existent before the year 2000, aquaculture has gradually developed in particular through the establishment and operation of 9 public fish farms and fishing centres for continental aquaculture (Sidi Bel Abbès, Sétif, Béchar, etc.), 2 marine aquaculture farms in Bou Ismaïl and 25 private aquaculture farms including 9 marine fish farms, 9 shellfish ones and 7 freshwater fish farms. Twenty-five projects are also underway for a total production volume of 25,000 tonnes and 102 aquaculture activity areas identified for marine and inland aquaculture.

Small-scale fishing in Algeria: socio-economic characteristics

The FAO defines artisanal fisheries as "traditional fishing by fishing households (as opposed to commercial companies), which use relatively small amounts of capital and energy, relatively small (or none) fishing vessels, conducting short fishing trips close to the shore and mainly working for local consumption" (FAO, 1998, annex 5: glossary). At global level, there is currently no consensus definition of small-scale

fisheries but there are several definitions that vary from country to country. Small-scale fishing may be subsistence or commercial, for local consumption or for export.

The importance of small-scale fishing in Algeria can be assessed through four main indicators:
– An estimated fleet of more than 10,000 boats (small craft vessels, registered or not, and pleasure boats[9]);
– More than 20,000 direct jobs;
– A direct source of living for more than 80,000 inhabitants and an indirect source of living for more than 24,000 inhabitants;
– An annual turnover estimated at more than 10 billion Algerian dinars.

For 92% of these fishermen, fishing is the only source of livelihood and an important source of animal protein supply[10]. In order to better comprehend this category of professionals and even to approach those of the informal economy, in January 2014, the Ministry of Fishing and Fishery Resources launched a national survey in the framework of the preparation of the plan "Aquapêche 2020" (Badani, 2014). It consisted of collecting information targeting six main areas: the identification of small-scale fishermen; the characteristics of the fleet; production costs related to fishing activities and the nature of financing of investment; product marketing channels; membership of socio-professional organisations; the difficulties and expectations of small-scale fishermen.

The statistical unit represented by a boat that is less than or equal to 7 metres in length and engaged in fishing activity at the various sites (fishing ports, fishing shelters, beaches, etc.)[11]. On the basis of this study, the socio-economic profile of the Algerian small-scale fisherman has been established: with an average age of 40 years, he is often married (75%) and has 3 children; often comes from a fishing family (65%), his level of education is primary and intermediate (67%) but also secondary (21%); fishing is his only resource (90%) and he works on average 3 to 7 days a week, two outings at sea a day (Table 3).

Table 3 - Socio-economic profile of small-fishermen in Algeria

Age	80% of these fishermen are between the ages of 20 and 50
Ownership	73% are owners
Qualification	Capability driven (50%) and marine (28%)
Professional experience	16 years on average; 58% have an experience of more than 15 years

Source: Developed on the basis of the survey outcome (MPRH, 2014).

9 - The boundary between professional and recreational fishing is not clearly defined.
10 - Estimate developed by the Statistics Directorate of the Ministry of Fishing and Fishery Resources (2014).
11 - The method used is based on stratified random sampling with a confidence interval of 95% and a risk of error of 5%.

Regarding the technical characteristics of small-scale fishing boats, one can note that they have an average length of 5.1 metres, that 98% of them are motorised, 78% are speedboats with an average driving force of 30 horsepower and 94% are built in Algeria (Table 4).

Table 4 - Profile of small-scale fishing boats and fishing gear in Algeria

Size	69.55% less than 4.8 metres
Age	37% are less than 15 years old
Fishing gear	Sink-net gillnet (20%), trammel nets (36%)
Fishing area	60% less than three miles

Source: Developed on the basis of the survey outcome (MPRH, 2014).

Regarding the expectations of professionals, there are three main elements:
– Better access to means and equipment and the acquisition of new boats, fishing equipment, boat engines, etc.
– The development of port services including the construction of dry-cleaning facilities, fishing huts, refuelling stations, etc.
– The creation of plastics production units, fishing nets manufacturing units, ice production units, supported by fishing industries and services.

It is important to note that more than 65% of professionals have expressed the desire to continue fishing. Nonetheless, they are less likely to encourage their children to continue the tradition. Mediterranean coastal communities as well as those that make a living from small-scale, artisanal fishing, processing and commercialisation have many common features in terms of both fishing techniques and fleet characteristics.

This data on the evolution of the fleet, jobs and fish production at national and regional levels reveal today, the socio-economic significance achieved by the sector, especially for coastal populations. In view of these elements, the challenges that must be tackled by fisheries and aquaculture policies and actors in Algeria are at least two-fold: the first one is global and strategic in nature; the second concerns the sector and the effectiveness of policies implemented since the year 2000. The strategic challenges are reflected not only in the necessary occupation and enhancement of marine areas (double economic and security challenges) but also through the provision of new development opportunities and growth for the municipalities and coastal populations concerned (improved economic access). Many municipalities on the Algerian coast (from Ténès to Mostaganem in the West and from Oued Zehor to Chetaïbi in the East) find themselves economically isolated between mountainous areas with low productivity for agriculture and the coastline. These territories offer few opportunities for the population in terms of jobs and economic activities except those related to fishing, aquaculture and mainly summer tourism.

This strategic dimension is also present in the safeguarding and strengthening of Algeria's place in the Mediterranean fishery sector (1st small pelagic producer

[90,000 tonnes on average between 2000 and 2008]; 27% of blue fish production, one third of the fleet[12]) and in the contribution to the emergence of new related economic activities, interacting with the sectors that value blue growth. It is therefore considered that Algerian maritime economy has a great potential for creating jobs and values provided that integrated policies and operational strategies are implemented in this field. These maritime economic activities must be carried out in close cooperation, by enhancing common resources: port infrastructure, marine resources and knowledge and training capacities. Some of them are already developed (maritime transport, fishing, desalination), under developed (coastal tourism, aquaculture, yachting and pleasure boats, construction, repair) or emerging (offshore oil exploitation, blue biotechnologies, etc.).

Ensuring effectiveness of fisheries and aquaculture development policies requires the finalisation and enhancement of both public and private investments. This will consolidate jobs in the fisheries sector and create new ones in the fields of aquaculture, services and marketing (productive employment). It is also a question of continuing the modernisation of sustainable fishing activities through the upgrading of techniques and standards of production and consumption.

A plan to support fishing in Algeria

Given the potential for creating sustainable jobs in the Algerian maritime economy, particularly among young people, a model for growth and integration of small-scale fishing communities has been developed. The plan "Aquapêche 2020" (2015-2019) identifies the objectives, the instruments and the actions to be implemented[13] in order to follow a development strategy for fishing and aquaculture, while paying particular attention to small-scale fisheries. It is based on four priority areas of intervention:

1) Promoting integrative, sustainable fisheries and aquaculture sectors that favour the creation of jobs;
2) Improving the supply of the internal market, with diversified products of better quality and more accessible to the consumer;
3) Implementing support systems adapted to the development of fisheries and aquaculture sectors;
4) Consolidating governance, strengthening participatory management and integrating the sector to develop the growth capacity of the national productive economy.

In order to meet the necessary conditions for the launch of this new programme, several accompanying actions were carried out in parallel:

Adaptation of the support system for productive investments in fisheries and aquaculture (SAIPA). Multiple incentives for the support of different actors are provided in the areas of taxation, custom duties, concessions, taxes and insurance. Six priority areas of investment have been established: modernisation and rehabilitation of the fishing fleet; the rehabilitation and development of small-scale fisheries; development and

12 - FAO, General Fisheries Commission for the Mediterranean, 2012.
13 - It also provides for the programming of public and private investments to be promoted during the five-year period 2015-2019.

integration of upstream and downstream services; the consolidation and modernisation of maintenance and shipbuilding activities; the modernisation of marketing and distribution channels for fishery products; large-scale development of marine aquaculture.

Enhancement and broadening of the social protection system for seafarers and fishermen that are owners through: the promulgation and implementation of the new social protection scheme for seafarers (2014); the enactment of the legislative provisions on the compensation of seafarers during the period of biological rest with indirect aids for the implementation of collective actions for the benefit of fishermen; the signing of eleven local conventions (11 coastal wilayas) (MPRH – Ministry of Health, Population and Hospital Reform) for the establishment of occupational doctors and social correspondents of social security in fishing harbours (MPRH – Ministry of Labour, Employment and Social Security); the set up of the *Association nationale de solidarité des marins pêcheurs* (ANSMP)[14], a social and humanitarian association.

The elaboration of a new programme for aquaculture development and a new implementation strategy. The analysis and assessment of the situation of aquaculture in Algeria led to the definition of a new development programme for the different chains of the sector, which is expected to create 10,000 new direct jobs and a production of 100,000 tonnes, for a total investment cost of more than 58 billion Algerian dinars. The fish farming chains concerned by this new programme (marine fish farming in floating cages [*offshore*], shellfish farming, shrimp farming, inland fisheries, freshwater fish farming, seaweed farming etc.) have essentially been identified according to: biotechnological requirements related to different species of molluscs, fish, crustaceans and seaweed, already mastered in Algeria; physical characteristics of the selected sites; aquaculture experiences and the level of know-how recognised in Algeria; the updating of the port master plan in its section on ports and fishing shelters by 2025.

The recognition of specificities and the integration of small-scale fisheries. The main goal of this programme is to establish infrastructures in scattered and isolated areas, allowing in particular to: identify small-scale fishing boats and to group them in protected and secured sites, providing them with all the enabling conditions to the carrying out and development of their activities; and to strengthen the existing system for the control of landings and consequently, the management of fishery resources.

The implementation of the modernisation of the marketing channel of fishery and aquaculture products. To this end, the plan "Aquapêche 2020" provides for the consolidation of this programme through: the finalisation and commissioning of twelve fish markets, as part of previous public investment programmes, the construction and/or equipping and refurbishment of eighteen fish markets at high production centres and new wholesale markets in major consumption and shipping centres in coastal wilayas and inland cities; the exploitation of inland fishing and aquaculture centres at large bodies of water with intense production activity.

14 - Translator's note: National Fishermen Solidarity Association.

The adoption and enactment of the new Fisheries Act 2015 and the strengthening of the regulatory framework. This law incorporates new provisions concerning: fisheries planning and management; participatory action of fisheries and aquaculture professionals in the process of formulating and implementing sector policies; remote monitoring systems for fishing vessels by setting up a geo-tracking system; planning and management of aquaculture activity zones; the rehabilitation and promotion of small-scale fisheries.

The improvement of knowledge, the preservation of resources and the setting up of a programme and appropriate research networks. The plan provides for the organisation of evaluation campaigns of fishery resources (8 campaigns have been carried out so far) with national means (boats, researchers).

Matching the training system with the needs of professionals and operators in order to respond to the reality of activities, with the expectations of the professions and the objectives of sectoral development. This consists in redoubling efforts in terms of modernisation and adaptation, focusing on infrastructure and equipment endowments, and on improving training programmes and the diversification of the sector.

Ultimately, the implementation of the "Aquapêche 2020" plan will have the following main impacts and outcomes:
– Increase in the current production (200,000 tonnes by 2020);
– Creation of more than 30,000 productive jobs in the field of fishing and aquaculture that will be added to the 70,000 existing jobs made sustainable;
– Achievement of a turnover of 110 billion Algerian dinars for the fishing and aquaculture sectors (currently 46 billion);
– Contribution to the implementation of about 5,000 private investment projects in the various fishing and aquaculture sectors, including 350 marine and continental aquaculture projects;
– Development, implementation and extension of 25 development projects of ports and fishing shelters.
In particular, with regards to the environmental dimension, several actions are planned:
– Implementation of the new provisions of the fisheries act to better identify and combat illegal fishing practices, such as those related to the use of toxic and dangerous substances, to tougher sanctions and the strengthening of the means to fight against these practices.
– Development and implementation of 14 fisheries planning projects for the coastal wilayas allowing the reduction and the regulation of fishing effort.
– Establishment of 29 aquaculture activity zones on an estimated 100,000 hectares of marine area (extracted from fishing areas).
– Promotion and setting up of artificial reefs on a large scale, following the first pilot experiments launched in 2014 in Annaba and Oran.

The charter drawn up in the framework of the "Aquapêche 2020" plan, represents the first founding act of a new partnership between the public administration and all the professional actors in the activity chains of the fishing and aquaculture sectors, of the marketing, promotion, protection and conservation of products and resources from marine and continental ecosystems. This charter was adopted by all stakeholders following local, regional and national consultations, launched as part of the process of finalising, validating and implementing the plan. Aware of their key role in this new partnership, stakeholders are all committed to working towards the achievement of the goals[15]. They have immediately recognised the importance of devising a development strategy based on: the integration of the fisheries and aquaculture economy into the dynamics of expansion of the national production system and the improvement of food security; the consultation and broad participation of local actors of the sector; a participatory diagnosis and the perspective of future challenges; an inclusive approach integrating all users of fishery ecosystems; the structural association of national and professional skills and scientific knowledge. Moreover, realising the complexity of this process, stakeholders have focused on the strengthening of intersectoral coordination, which is a necessary extension of the framework and regulation of the fishing sector development. Today, more than fifteen sectors related to fisheries and aquaculture activities are closely involved in the formulation and implementation of the strategy and operational programme for the development of fisheries and aquaculture.

Box 1: Charter of voluntary membership for a responsible and sustainable development of fisheries and aquaculture (excerpt)

"Areas covered by the responsible collective commitment:

– Contribution to the achievement of the objectives in terms of production, creation and safeguarding of jobs and making fishing and aquaculture products in safe sanitary conditions available to consumers at affordable prices.

– Commitment to the development of marine and freshwater aquaculture sectors by orienting seafarers and potential operators towards the implementation of aquaculture projects and by encouraging investment in production.

– Support given to the strengthening of professional organisations and institutions in place and therefore, contribution to the definition and the consolidation of the rights of small-scale fishermen and related professions, contribution to the principles of co-responsibility, participation in development projects of coastal economies in a concerted and responsible framework (to reduce illegal fishing and trade, to contribute to the reinforcement of social rules and the consolidation of the environment for the development of economic activities (banks, insurance, services to small enterprises...).

– Optimisation of the intervention of professional associations in sectoral development action, particularly with regards to interprofessional solidarity, recreational and underwater fishing...

15 - 146 meetings within wilayas, 3 regional workshops, 5,000 participants and 1,500 professionals that have directly approved the charter.

– Improvement of the sanitary and working conditions of the whole sector, from capture, handling, marketing, recovery and transport of fishery and aquaculture products, through training, awareness raising and information...

– Protection of the natural environment, marine, coastal and continental territories, exploited and used as a support for professional activities, by reducing waste and various pollution related to productive activities, by reducing the environmental nuisances likely to hinder the development of other activities...

– Commitment to the good governance of fishing and aquaculture infrastructures made available to the sector and contribution to the achievement of the objectives of the 'Aquapêche Bleue 2020' plan, in the framework of the sustainable and rational use of natural resources.

– Work for better transparency, through data on catches, landings, fishing gear, discards, declarations, the populations concerned in each trade group (fishermen, fish merchants, retailers, transporters, recovery units, processing factories, enterprises...), thus, better contributing to the research and administration of the sector."

Source: Ministry of Agriculture, Rural Development and Fishing, administration responsible for fishing and aquaculture (http://mpeche.gov.dz/?Charte-d-adhesion-volontaire-pour).

Conclusion

The negative factors that influence the migration of rural populations and seafarers in the southern Mediterranean countries are manifold. The depletion of natural resources, the marginalisation of young people, unemployment, food insecurity, are all processes that encourage illegal migration. Seafarers can therefore be absorbed by these movements as conveyors or convoys.

The development of fisheries and aquaculture is therefore a means to address the causes of migration. We must fight against poverty, inequalities, enhance social protection and ensure the sustainable exploitation of fisheries resources. In the long term, effective fisheries policies will therefore be those that integrate the actors. They will be formulated according to the principle of co-responsibility in the management of fish stocks, while ensuring the permanent restoration of the balance between the fishing effort and available resources.

The implementation of the pre-requisites and the elements of an effective public policy in the fisheries and aquaculture sector, which is part of a long-term and highly participatory vision, will certainly allow, as from 2020, an increase in new opportunities and livelihoods for seafarers in Algeria. More broadly, perceiving the Mediterranean as an area of inclusive growth where security and safety will be ensured, and where ecosystems and biological diversity are better preserved, requires the promotion of significant programmes and initiatives for regional cooperation that can ensure the implementation of the blue economy in all its dimensions, especially in the areas of innovation and youth employment in southern Mediterranean countries.

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