

# The role of small-scale fisheries in Mediterranean coastal communities. An analytical framework for their development

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## Introduction

According to the FAO Advisory Committee on Fisheries Research (ACFR) Working Group on Small-Scale Fisheries (SSFs), “small-scale fisheries make an important contribution to nutrition, food security, sustainable livelihoods and poverty alleviation, especially in developing countries.” Activities such as processing, net/gear making, ice production, boat building/maintenance, fish processing equipment, packaging, marketing distribution, engine repair and maintenance, etc. can provide additional fishery related employment and income opportunities in fishing communities. Furthermore, the social and cultural role of SSFs is often highlighted by policy makers, reflecting the historic links to adjacent fishery resources, traditions and values, and the support to local cohesion. On the other hand, despite the recognition of these significant contributions, the position of SSFs and how they fit into the multiple activities of the coastal economy remains poorly understood, as is the case for the issues constraining its sustainable development.

Negative features of SSFs, compared to commercial fisheries, are the scarcity of economic resources, the low investments, the lack of innovation, the smallness of enterprises, the weak market position, the fragmentation of pro-

## Abstract

*Small-scale fisheries make an important contribution to nutrition, food security, sustainable livelihoods and poverty alleviation of coastal areas. This paper deals with the integration of small-scale fisheries in coastal communities, their contribution to sustainable development, and some methodological approaches that can be used to carry out this kind of analysis. Concepts as supply chain, blue growth, ecosystem services and multifunctionality are discussed and finally integrated in a framework for the analysis of coastal communities, which are assimilated to a specific pattern of industrial clusters. The approach proposed represents a useful and relatively easy to use instrument supporting the involvement of people, enterprises and institutions for the analysis of the local context and the definition of future strategies, in order to create a favourable environment offering income and employment opportunities to marginalized communities.*

**Keywords:** blue growth, coastal communities, ecosystem services, industrial clusters, multifunctionality, small-scale fisheries.

## Résumé

La petite pêche contribue d'une manière significative à la nutrition, à la sécurité alimentaire, aux moyens d'existence durables et à la réduction de la pauvreté dans les zones côtières. Dans ce travail, nous allons parcourir l'intégration de la petite pêche dans les communautés côtières, son apport au développement durable et en plus, des approches méthodologiques qui peuvent être utilisées pour réaliser ce type d'analyse. Des concepts tels la chaîne d'approvisionnement, la croissance bleue, les services écosystémiques et la multifonctionnalité sont passés en revue et successivement intégrés dans un cadre analytique pour examiner les communautés côtières en les considérant comme un modèle spécifique de cluster industriel. L'approche retenue représente un instrument utile et relativement facile à employer pour mobiliser des populations, des entreprises et des institutions dans l'analyse du contexte local et la définition des stratégies futures visant à instaurer un environnement favorable à la génération de revenu et à la création d'emplois pour les communautés marginalisées.

**Mots-clés:** croissance bleue, communautés côtières, services écosystémiques, clusters industriels, multifonctionnalité, petite pêche.

duction, the difficulty to comply with sanitary and safety standards, the low level of education and individualism of fishers. On the other hand, some of the relative advantages of SSFs in certain conditions are (Naji, 2015):

- Lower running costs and fuel consumption
- Lower ecological impact (thus, higher sustainability) linked to the use of passive gears
- Higher employment opportunities (being more labour-intensive)
- Higher versatility (small-scale fishing boats can operate from small ports and landing sites relatively close to fish resources)
- Lower building costs
- Lower technology costs (SSFs require relatively low investment in technology and equipment and are consequentially more competitive in

most developing regions where labour is cheaper than equipment).

In other words, quite often, the same reasons that seem to make SSFs uncompetitive also can make them resilient. Low investments reduce economic risks and imply fewer restraints on work mobility. It is also worth noting that, since production cannot be arbitrarily increased without compromising sustainability, innovation may either cause overexploitation of resources or (in order to avoid overexploitation) entail a reduction in the number of fishers. Thus, at their best, SSFs exemplify sustainable resource use: exploiting living marine resources in a way that minimizes environmental degradation while maximizing economic and social benefits.

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Economic literature highlights that competitive environment for small-scale agro-food businesses has been dramatically altered in recent years. The new environment is characterized by globalization, liberalization and extensive organizational, institutional and technological change. This is also true for SSFs, where these elements are even more insidious due to the coexistence of problems related to the sustainability of fish stocks and, more generally, to the provision of ecosystem services. In the face of these challenges, one organizational strategy that appears to warrant optimism for small and medium sized enterprises is clustering, which includes proactive relationships among firms of the same type (i.e. small scale fishers), and with all the other actors of the coastal area.

This paper discusses the integration of small-scale fisheries in coastal communities, their contribution to sustainable development, and some methodological approaches that can be used to carry out this kind of analysis. Finally, we propose a methodological framework that encompasses previous concepts. The theoretical perspective of this paper is supported by the application of the methodology proposed in the study of six Mediterranean coastal areas, whose results are presented in Mulazzani *et al.* (2017)<sup>1</sup>. It is important to highlight how coastal areas of the Mediterranean region, probably more than others, are today hotspots from different perspectives, including overexploitation of natural resources, social tension and migration. Thus, sustainable development of these areas remains a priority for every country of the region, and the important role of Mediterranean SSFs has been broadly stressed by recent international conferences, namely:

- The First Regional Symposium on Sustainable Small-Scale Fisheries in the Mediterranean and Black Sea (Malta, 27–30 November 2013)
- The Regional Conference on “Building a future for sustainable small-scale fisheries in the Mediterranean and the Black Sea” (Algiers, 7-9 March 2016).

In this framework, the theoretical and methodological approach that we propose is aimed at being easily understood by non-academic or specialized stakeholders involved in international cooperation. This choice is explained by the need to provide an analytical tool supporting the definition of local communities development strategies where different actors are involved, who should be able to understand and discuss complex issues related to a multidimensional

<sup>1</sup> Both this paper and the paper by Mulazzani *et al.* (2017) have been produced in the framework of NEMO project, developed by CIHEAM Bari, and funded by the Italian Ministry of Foreign Affairs and International Cooperation (MAECI/DGCS) and the Italian Agency for Development Cooperation (AICS). The coastal areas analyzed include Tyre (Lebanon), Algiers (Alger), Marsa Matrouh (Egypt), Zarzis (Tunisia) and Tricase (Italy). Furthermore, theoretical contributions have also been developed during the preparation of the two regional conferences on Mediterranean SSFs (held respectively in Malta and Algiers) where CIHEAM Bari has been an organizer partner.

(economic, social, environmental) integrated development model.

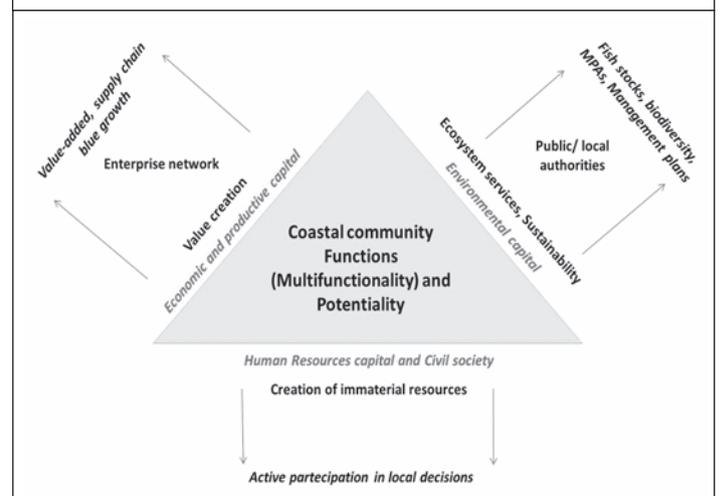
The next chapters are organized as follows: chapter two illustrates some methodological approaches to investigate the role of SSFs in coastal communities, chapter 3 defines an integrated analytical framework for the study of coastal community development, while chapter 4 offers some concluding thoughts about the contribution of this approach, also considering the results presented by Mulazzani *et al.* (2017).

## 2. A review of conceptual frameworks for fishery and coastal community development analysis

Sustainable development of coastal communities should consider the three dimensions of environmental, economic and social capital (Qiu & Jones 2013; Frazão Santos *et al.*, 2014) (Figure 1). These three dimensions may have different key players (public authorities, enterprises, civil society) and different strategies, but everyone's cooperation and participative governance are needed in order to achieve balanced results. In this context, small-scale fishers have to play an important role, considering their traditional position in the mechanisms of coastal communities.

Several conceptual frameworks can be used to analyze the empirical evidence of the relation of SSFs with the territory, the environmental resources, the human capital and the other economic activities of coastal areas. Important relationships may be found both in pre-landing and post-landing areas. In the following paragraphs we shall discuss a number of concepts: value chain, Blue Growth, ecosystem service approach and multifunctionality.

Figure 1 - The dimensions of sustainable development of coastal communities.



### 2.1. Value chain

Fisheries (both artisanal and industrial) represent the first stage of fish supply chains. In other words, fisheries provide the raw material that will be used by other economic activities of the coastal area to create added value: process-

ing, wholesaling, retailing, catering, hotel and restaurant services, etc.

A classic tool to analyse and, later, to find development strategies for post-harvest relationships, is value chain assessment. Value chain analysis seeks to characterize how chain activities are performed and to understand how value is created and shared among chain participants (Kaplinsky and Morris 2001). Relationships between members are not only characterized by transactions through which a product is transferred from one member to another in return for payment. Relationships in value chains are also characterized by a vast exchange of information, knowledge, skills and various embedded services (e.g. loans provided by input suppliers to small producers, training sessions conducted by lead firms, quality control mechanisms, leasing arrangements, provision of equipment and manuals, marketing support, etc.).

Several structures of leadership can be identified in a value chain (Humphrey and Schmitz 2002; Naji 2015). A benchmark case, corresponding to a theoretical situation of perfect market, is characterized by few relationships (beyond exchanges) and little power difference between buyers and sellers. From this situation, different less conventional cases can evolve, including structured and balanced relationships (in which decision-making is equal) among participants, situations where small suppliers are transactional-dependent on much larger buyers (or vice versa) and a situation where the value chain has a dominant player (a vertically integrated enterprise) that sets or controls various functions along the chain.

Several strategies can be considered by a value chain participant (e.g. the fisher) in order to improve their position inside the chain (Humphrey and Schmitz 2002). Functional upgrading means increasing added value by changing the mix of activities conducted within the firm or moving the activities location to different links in the value chain. This strategy is often advocated in the case of SSFs (and small scale agro-food businesses) even if this may entail practical difficulties (Naji, 2015). Typically, it concerns the combination of fishing with processing or direct sale. Sometimes, functional downgrading, combined with economies of scale and process upgrading, can also be successfully employed to maximize returns or to remain in an increasingly demanding value chain, but this really seems a difficult strategy for SSFs where production potential is bonded by biological parameters. On the other hand, cooperation and horizontal integration can be seen as an alternative approach to get economies of scale.

Strategies developed by single actors of the supply chain may shift the distribution of power and added value between actors inside the chain. On the other hand, integrated strategies taken by all the actors (e.g. labelling and quality standards, contracts) may provide general advantage for everybody in a market competition against rival supply chains. Indirectly, fisheries management (cooperation between private and public institutions) and synergies devel-

oped between fishing fleets and other maritime activities (i.e. Blue Growth) provide advantage (e.g. sustainable landings, lower costs) for every actor of the supply chain.

## 2.2. Blue Growth

In recent years, interest has grown around ocean economy, both at national and international level (Park 2014; The Economist Intelligence Unit 2015; OECD 2016). Furthermore, in order to cover a more sustainable dimension, in a growing awareness of the damage wrought on ocean ecosystems, terms as “blue economy” and “blue growth” have been forged. In particular, according to the EU Commission “blue growth” is synonymous with marine and maritime sustainable growth, and it makes a valuable contribution “*to the EU’s international competitiveness, resource efficiency and job creation, whilst safeguarding biodiversity and preserving the services that healthy and resilient marine and coastal ecosystems provide*” (European Commission 2012).

In this perspective, fishery is neither a growing nor a promising economic activity for future economic growth. On the contrary, it is a mature sector that needs to be properly managed in order to guarantee sustainability, efficiency and employment. Blue growth strategies imply synergies between maritime activities to reduce costs and increase efficiency. In fact, several economic activities combined in the same area are likely to produce more growth and jobs than the sum of their parts. It needs a form of orchestrated or spontaneous governance between key actors rather than fragmented behaviour. In particular, synergies are expected to benefit activities that lack critical mass to develop economies of scale. Synergies can be triggered through various mechanisms (Ecorys *et al.*, 2012). Some examples, all relevant to highlight the role of SSFs in coastal development, include:

- Shared suppliers. This is the case of activities that use similar inputs, like the construction/repairation of boats for both fishing and tourism purposes.
- Enabling activities. This is linked to economic activities that provide conditions, in particular technology or credit, for the development of other economic activities.
- Common use of infrastructures. Ports or coastal protection interventions can benefit several maritime activities. Markets also fall within this group.
- Shared input factors. This is particularly the case for specialized workers such as sailors or maritime engineers, often locally trained.

On the other hand, SSFs may also be negatively affected by collateral effects produced by other maritime activities. For instance, aquaculture could have a negative impact on water quality in the surrounding environment. Litter from ships can cause damage to nutrient and biological cycles. Coastal tourism and related infrastructure development can lead to water pollution and adverse impacts on natural and living environment (Ecorys *et al.*, 2012).

### 2.3. The ecosystem service approach

Many of the examples mentioned above demonstrate that threats to SSFs, originated by other maritime activities, are strictly related to good environmental status and provision of ecosystem services (ESs). The concept of ecosystem services has been increasingly used after the results of the Millennium Ecosystem Assessment (2005). Ecosystem services may be defined as the components of nature enjoyed, consumed or used to yield well-being (Boyd and Banzhaf, 2007). They contribute to both market benefits, which are valued in measures of national accounting, and non-market benefits. A large literature already exists on the value of marine ecosystem services. De Groot *et al.* (2012) calculate, building over a review of empirical studies, average values of the ecosystem services provided by some coastal and marine biomes (i.e., open oceans, coral reefs, coastal systems and coastal wetlands).

This approach may be useful to show the connection between the coastal/maritime human activities and the environment (Mulazzani *et al.*, 2016). Several supporting ecosystem services (e.g. nutrient cycles and waste treatment) are needed in order to guarantee healthy fish stocks. Generally, the same services are very important to guarantee sea quality characteristics required by tourists and residents that want to enjoy activities such as bathing, snorkelling, yachting and all types of aquatic sports. Thus, both fisheries and tourism services operators should be interested in the protection and management of the environment.

Sustainability cannot be neglected in any development strategy and this can be obtained only through an active participation of fishers' associations and coastal communities in management decisions. As a result, competitiveness requires sustainability, and sustainability requires stakeholder participation, cooperation and empowerment to be accepted. Some kind (individual or communal) of property rights should be recognised to internalize social and environmental costs, thus enabling small-scale fishers to manage resources sustainably and enhance their household income.

### 2.4. Multifunctionality

Finally, the role of SSFs in coastal communities can go beyond the physical provision of raw material for supply chain, and can be linked to the concept of multifunctionality, which is quite a new concept in fisheries (see the different functions reported in Figure 1). Actually, it is related to the existence of non-trade benefits of fisheries (especially SSFs), in other words, benefits other than commerce and food production, which have the characteristics of public goods. The correct evaluation of these environmental, territorial and social functions is essential to assess the total relevance of SSFs (Malorgio *et al.*, 2015). A preliminary list of these functions includes: employment (strictly linked to other social issues such as migration and security), food security, environmental functions (se-

lectivity, sustainability) and social and territorial functions (maintenance of traditions, attraction for tourists).

Diversification, that is the decision of fishers to change something in their economic activity by taking a new job outside the fisheries sector, can be seen as a strategy for the internalization of some of these externalities (i.e. generation of benefits for other stakeholders without compensation). In particular, through pluri-activity, fishers and their families continue to obtain some income from fishing but also carry out complementary activities, such as tourism services or catering.

## 3. An integrated approach based on industrial clusters

The different approaches described earlier consider relevant dimensions where the role of SSFs inside coastal communities is strictly interlinked with several social, environmental, economic, and political and governance aspects. Defining an integrated analytical framework, where these dynamics are organically considered, could provide a useful contribution to approach effective and efficient development strategies. This integrated analytical framework should be able to illustrate the economic, social and environmental characteristics and performance of coastal communities, their development stage (in terms of size, diversification, organization, etc.), and the most feasible strategies for further sustainable development.

On these grounds, we consider that a suitable analytical framework for the evaluation of the role of SSFs in coastal communities can be found in the study of industrial clusters. From now on, we will regard coastal communities as a specific case of industrial clusters. This approach is linked to studies related to the local economies, deriving from the Marshallian district concept (Marshall, 1920). A Marshallian district can be defined as: "A population of small-sized firms concentrated in some areas, which are specialized in different phases of production and find their labour supply in a single local market [...] For industrial districts to develop, it is necessary that such a population merges with people who live in the same territory and who, in turn, possess the social and cultural features (social values and institutions) appropriate for a bottom-up industrialization process." (Amin, 2000). The term industrial cluster was later popularized by the economist Michael Porter (1998a). An industrial cluster is a geographical location where enough resources and competences amass reach a critical threshold, conferring it a key position in a given economic branch of activity. Porter (1998a) argues that economic activities are embedded in social activities and are enhanced by inter-personal networks. According to Becattini (1987, 1989), enterprises are kept together by a net of complex external economies and diseconomies, historical and cultural roots, and personal relationships<sup>2</sup>. Depending on the structure and composition of the cluster, we can classify it as a geographical or sectoral (e.g. maritime clusters), horizontal or vertical (i.e. a supply chain cluster) cluster.

In the scientific literature related to maritime economy and Blue Growth, maritime clusters have been traditionally analysed weighing the relative importance of maritime sec-

<sup>2</sup> Other relevant contributions in defining a theoretical and methodological approach for the study of industrial clusters can be found in Bellandi (1982) and in Schmitz and Nadvi (1999).

tors (e.g. shipping, coastal tourism, fisheries, off-shore oil and gas) in terms of added value, employment, number of enterprises and export, and classifying them based on these characteristics (Fernández-Macho *et al.*, 2015). Pinto *et al.* (2015) evaluate the role of innovation, human capital and social capital in the development of maritime clusters, highlighting the importance of firm participation in these fields. Gunther (2014) has explored clusters versus sectoral/regional innovation systems in the Norwegian maritime industry.

In the face of the challenges of modern economy (i.e. globalization, liberalization and extensive organizational, institutional and technological change), clustering is an organizational strategy that appears to warrant optimism for small and medium sized enterprises (Neven and Droge, 2001). Clusters have the potential to affect competition by increasing the productivity of the companies in the cluster, by driving innovation, and by stimulating new businesses in the field.

The question now becomes: why do successful clusters arise in certain specific environments? (Neven and Droge, 2001). This is not a random process. Local factors are determinant and Porter classifies them according to the so-called “diamond model” (Figure 2): factor conditions (human resources, natural resources, knowledge resources, capital resources and infrastructures); firm strategy, structure and rivalry; demand conditions; related and supporting industries. Furthermore, “government” and “chance” are second-level factors that can influence all the other determinants, enhancing local development. Depending on the reasons behind the comparative advantage that make a cluster succeed compared to others, we can distinguish: historic-know-how clusters, factor endowments clusters or low-cost factor clusters.

We consider that Porter’s diamond model encompasses quite well the other approaches (i.e. supply chain, Blue Growth, ecosystem services, multifunctionality) used to analyze the role of SSFs in coastal communities. Let us see how these concepts merge discussing the six dimensions of Porter’s diamond. Factor conditions concern capital, labor and natural resources.

Competitive advantages are dependent on how efficiently and effectively these factors are used (Bakan and Dogan, 2012). In the case of SSFs, without underestimating the importance of other factors, it is clear that fish resources (characterized by biological constraints) play a key role for the success of the industry and of the related coastal community: therefore, we come back to the ecosystem services concept, and to the need for sustainable management. As regards common resources as fish stocks, sustainable technologies and management are strictly related to the firms’ strategy, the industry structure and the rivalry (the second dimension of the diamond model), since fishers’ choices are at the base of negative situations generally known as “tragedy of the commons”, “race to fish”, “free riding”, “overcapitalization of the fleet”.

Demand conditions are related to the nature of consumers in the home market and correspond to the pressure based on buyers’ requirements concerning quality, price, and services in a particular industry. The existence of related or supplier industries, which produce inputs and provide new technologies, is regarded as the fourth dimension of diamond model (Bakan and Dogan, 2012). Together, these two dimensions deal with the drivers considered in the supply chain approach (including both the inputs providers and the buyers of fisheries enterprises) and in the Blue Growth approach (where firms can experience synergies out of the supply chain). Multifunctionality also relates to the positive externalities provided by the SSFs and enjoyed by other local stakeholders. Finally, it goes without saying that the government (as well as history/chance) always plays a leading role in the management of fisheries and in the development of coastal communities.

In this context, SSFs and their value chains can represent important key stages of maritime/coastal clusters. Synergies between private and institutional actors are necessary in order to foster this development in a win-win approach, generating benefits for all the actors of the supply chain and of the related and supporting industries. Fisheries value chains may constitute the backbone of coastal economy in isolated areas or may be part of more integrated development strategies (including tourism, for example) where environmental and structural characteristics make this possible. Thus, emphasis is placed on the capacity of efficiently merging a focal economic activity (i.e. SSFs) with the specific features that define the context in which the coastal community operates. If properly activated and managed, the human, financial and physical resources available in a local community can generate a virtuous development circle.

### 3.1 The methodological approach

In this section, we introduce our approach to the coastal communities study, in the framework of Porter industrial clusters (Figure 3). First of all, the context has to be outlined (e.g. geographical and natural resources, population, governance, main infrastructures and main economic activity). Secondly, an analysis of the competitive performance of the coastal community (i.e. industrial cluster) has to be carried out. Thirdly, the present situation (re-

Figure 2 - Coastal Communities Competitiveness analyses - Porter’s Diamond.

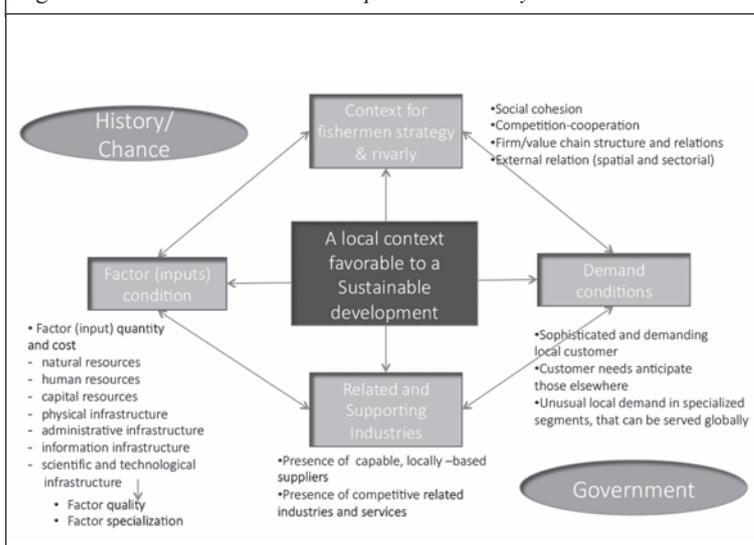
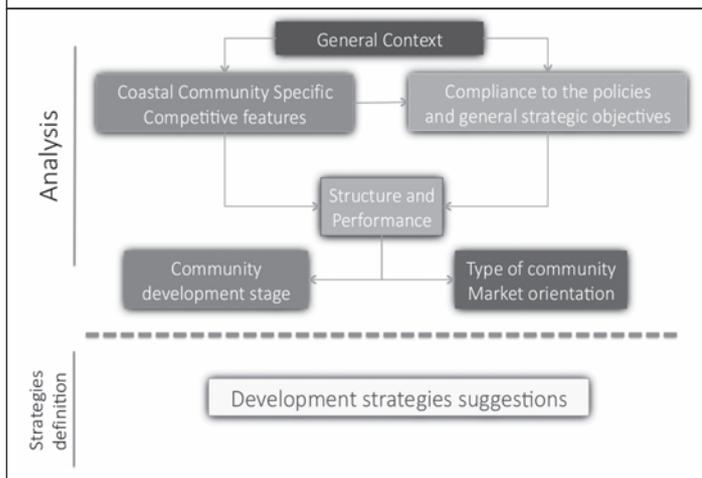


Figure 3 - Analytical framework for the Coastal Community monitoring and development strategies' definition.



sulting from the context and performance analysis) has to be assessed considering the compliance with policies and the strategic objectives (if any) of the region (institutional objectives, private objectives). Finally, the cluster development stage and its market orientation can be evaluated. This analysis can provide indications for development strategies.

In the context description, special importance should be given to the relationships structure. In particular, market relations inside the supply chain (supply chain analysis) and social-governance relations among public and private actors (stakeholder's analysis) should be distinguished. However, the key step of this approach is the analysis of the cluster competitiveness based on the assessment of the six dimensions (the Porter's diamond) designed by Porter (1998a, b). With this aim in mind, information should be collected through interviews to local stakeholders (also using perception measures on a Likert scale).

The choice of indicators to be considered in the analysis (including perception measures) should follow the directions of Porter's diamond. The firm structure and the strategy dimension include elements such as performance of fishing techniques, marketing strategy, formal and informal relations among fishers. Factor conditions refer to the availability of resources (fish at sea), the accessibility of technical inputs (fuel, gears, nets) and the obsolescence of equipment (boat, engine). Demand conditions include the level, characteristics and requirements of local demand and tourist demand. The related and supporting industries and services dimension refers to the presence of processing activities, the access to credit, the presence of market infrastructures, the extension service, the interaction with tourism activities, etc. Government includes several aspects such as financial support, market policy, environmental and social legislation, but also the level of active participation and collaboration between private and public institutions. Finally, chance concerns historic events and traditions.

Based on the state of all these characteristics (i.e. indicators), it is possible to evaluate the degree of competitiveness of a cluster. As a general benchmark, it is worth mentioning that the community may prove to be more competitive and develop-

ment more sustainable if the following conditions are met: firms are related to people who live in the same territory; local people possess the appropriate social and cultural features (social values, cohesion and institutions) to be involved in a bottom-up development process; local stakeholders are effectively related to external institutions (public and private) providing further support to their development; firms exploit external economies of scale and generate positive externalities (benefits for the community not accounted for in the products' value); there exists flexibility for the workers (they can perform different tasks) and the organization (they can adapt to changes in supply and demand); innovation and/or product diversification are made possible by cooperation/competition between producers involved in the focal activity.

Once the characteristics of the coastal community have been highlighted, compliance with policies and strategic objectives (if any) of the area can be assessed by comparing the current situation with the aims of policies and plans. Strategic objectives are normally found in the policies of public institutions such as territorial authorities (e.g., States, Regions, Provinces, municipalities) and sectoral authorities (e.g., specific ministries). On the other hand, the comparison may also involve the objectives of civil society, associations of entrepreneurs or specific firms, or the objectives of development projects.

The industrial cluster (i.e. coastal community) development stage can be assessed by adopting a theoretical classification framework as reported by Neven and Dröge (2000). Based on the Porter's diamond approach results, the coastal community's structure, the social and economic dynamics provide a basis for classifying different development stages: unstructured, infant, initial, take-off and maturity. The following basic features should be considered: presence of a critical mass of complementary activities capable of activating synergies in the coastal community members' relations; horizontal and vertical relations between coastal community operators along the fish chain; diversification and typicality of products; presence of marketing channels within and outside the community; institutional links between central and local government; links with related industries and services.

These assumptions lead to the definition of the development stages of coastal communities taking into account their evolutionary process. Therefore, our reference will be first a coastal community at its initial stage and then, the previous and the subsequent stage by comparison. At an initial stage, a critical mass of complementary activities is present and can potentially support the development of relations between the different communities' actors, thus fostering a development process. The level (quantity and quality) of the relations between the community socio-economic actors is still low. In particular, the horizontal and vertical relations between the chain agents (supplier-client) show a low level of functional integration. The products and services supplied at the local level are limited and slightly differentiated, as is the case for the marketing channels. Local resources (capital and labour) are hardly available and there is little coordination as regards the activities charac-

terizing the coastal community (e.g. fishery). The relations of the coastal community with the local and central government are still limited, both in terms of range of policy intervention areas, and in terms of scope and quality of investments and regulations. Relations are also limited concerning the coastal community focus activity (e.g. fishery) and the other related activities and services such as credit, training and research institutions. The local population has limited awareness of the importance of the coastal community focal activity and limited awareness of consumers' role in supporting the product quality.

The two previous development stages may be characterized as follows. In the unstructured stage, the community does not show any of the characteristics mentioned above. The size of the activities, the critical mass of related activities, the presence of significant quality or quantity of inputs and the role of governments and local population are totally irrelevant and actually a community (i.e. cluster) is simply non-existent. Development strategies based on the principles of integration do not have a subject to interact with. In the infant stage, the size, quality and variety of factors listed are present but at a very low level. This stage is very fragile and development can occur only if both the local community and the external agents (governments, other investors, cooperation agencies) find a way to activate an efficient coordination process to implement the necessary measure for the consolidation of the community structure, including infrastructures and human and social capital.

Finally, the two most developed stages may be characterized as follows. In the take-off stage, the critical mass of related activities is growing, the socio-economic dynamics characterizing the relation between the coastal community focal activity (e.g. fishery) and the other stakeholders involved in local development, get consolidated. In particular, the horizontal and vertical relations between the chain agents (supplier-client) show a high level of functional integration; innovative, or more complex governance and organizational models involving the intra-inter stakeholders' relations, start emerging. The products and services supplied at the local level are numerous and differentiated, as is the case for the marketing channels; the level of available local resources (capital and labour) and coordination between the activities characterizing the coastal community is quite high. The local population's awareness and participation in the community development grow: more specifically, the role of promoters of local production, culture and environment and the role of active consumer emerge. Research, training, credit and political institutions are increasingly focused on the community development. In the maturity stage, the potential for the community development is fully exploited as regards the achievement of the economic and social ethical goals set for the coastal communities. The expansion of the quantity of products and services provided has reached a plateau; on the other hand, the quality of the goods and services increases.

It can also be important to assess the coastal community present and potential market orientation, above all if goods and services are oriented to resident population, tourists, national or international trade. The relevance of the market orientation on the integrated territorial development strategies is paramount

and affects every dimension of the cluster. Present market orientation is immediately identifiable considering the prevailing destination of goods and services (e.g. fish consumption). On the other hand, potential market orientation may be assessed considering:

- Local population density: a high population density with respect to the available fish is an indicator that local demand could be sufficient to satisfy the supply. This would entail a food security function for fisheries. At the same time, local demand can be influenced by many factors like physical and economic accessibility to fish, local consumers' taste, etc.
- Share of non-resident population (i.e. tourists): cultural and environmental assets of the coastal areas may guarantee actual or potential tourism flow. These actual or potential flows represent a potential for specific activities (e.g. fisheries) to target a larger consumers' basin.
- Product specialization: this variable considers that a fishing community specializing in few species, could more easily have an excess supply of this product for local population and tourists, and consequently be more oriented towards trade.
- Product typicality, quality, sustainability: typical products, in particular if they are obtained through traditional techniques (e.g. SSFs), even more when sustainable practices (labelling may be important) are applied, can be the drivers of tourism attraction. In this case, fisheries provide positive externalities for other economic sectors (i.e. tourism services).
- Added value of the product (or physical-commercial potential for value adding): a differentiated, high value added fish can be more easily sold to tourists or addressed to trade.

All together, the coastal community performance, its market orientation, its stage of development and its compliance with policy and strategic goals, contribute to defining effective and efficient strategies for a sustainable development.

#### 4. General conclusions

In this conceptual paper, we have discussed some approaches (i.e. supply chains, Blue Growth, ecosystem services, multi-functionality) that can be used to analyse the role of small-scale fisheries in the structure and development of coastal communities. We have then assumed that these approaches are all encompassed in the analysis of industrial clusters through the Porter's diamond framework. In other words, we consider coastal communities as a specific case of industrial cluster. Finally, we have proposed a methodological application of this framework for the assessment of coastal communities' characteristics and the definition of development strategies. This methodology has been applied to six Mediterranean case studies by Mulazzani *et al.* (2017), and this empirical study permits to appreciate the strengths of the approach. We should point out that this application has led to distinguish among coastal communities that are fishery-oriented, communities that are tourism-related (where SSFs may be less or more integrated), and communities that are fully developed urban areas (where SSFs may take advantage of large demand from local

consumers, good infrastructures and good potential synergies with other Blue Growth activities). This study has also enabled us to evaluate different levels of development of these communities, while highlighting the related bottlenecks.

The empirical application through the case studies shows that special emphasis should be laid on the choice of the indicators (that should be made in line with Porter's diamond dimensions) and of the method used to measure them. In particular, surveys must be carried out to collect the opinion of key stakeholders and this means a careful choice of these persons. Methodology should also be improved in order to integrate quantitative/objective information and personal opinions. Finally, attention should be paid when the opinions of different stakeholders' groups are diverging or even clashing (e.g., objectives, preferences, priorities).

The approach proposed in this paper represents a useful and relatively easy to use instrument supporting the involvement of people, enterprises and institutions for the analysis of the local context and the definition of future strategies, in order to create a favourable environment offering income and employment opportunities to marginalized communities (Figure 1). In general, this method could be applied to other coastal communities inside (and outside) the Mediterranean region, especially for areas based upon small and medium sized economic activities, needing to start an integrated territorial development through the creation of a critical mass of activities. These coastal communities represent most of the contexts which can be found in the Mediterranean region and consequently, the diversity of problems and solutions devised by Mulazzani *et al.* (2017) provides a wide range of information, which can be considered in other similar contexts.

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## References

- Amin A., 2000. Industrial districts. In: E. Sheppard, T. Barnes (eds). *A Companion to Economic Geography*. UK: Blackwell.
- Bakan I. and Doğan İ. F., 2012. Competitiveness of the industries based on the Porter's Diamond Model: an empirical study. *IJRRAS*, 11, June 2012.
- Becattini G., 1987. *Mercato e forze locali. Il distretto industriale*. Bologna: Il Mulino.
- Becattini G., 1989. *Modelli locali di sviluppo*. Bologna: Il Mulino.
- Bellandi M., 1982. Il distretto industriale in Alfred Marshall. *L'Industria*, 3.
- Boyd J. and Banzhaf S., 2007. What are ecosystem services? The need for standardized environmental accounting units. *Ecological Economics*, 63: 616-626.
- The Economist Intelligence Unit, 2015. *The blue economy: growth, opportunity and sustainable ocean economy*.
- Ecorys, Deltares and Oceanic Development, 2012. *Blue Growth: Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts*. Final report, tender no. MARE/2010/01 122.
- European Commission, 2012. *Blue Growth: opportunities for marine and maritime sustainable growth*. COM(2012) 494 final.
- Fernández-Macho J., Murillas A., Ansuatégi A., Escapa M., Galastegui C., González P., Pallezo R. and Virto J., 2015. Measuring the maritime economy: Spain in the European Atlantic Arc. *Marine Policy*, 60: 49-61.
- Frazão Santos C., Domingos T., Ferreira M.A., Orbach M. and Andrade F., 2014. How sustainable is sustainable marine spatial planning? Part I-Linking the concepts. *Marine Policy*, 49: 59-65.
- de Groot R., Brander L., van der Ploeg S., Costanza R., Bernard F., Braat L., Christie M., Crossman N., Ghermandi A., Hein L., Hussain S., Kumar P., McVittie A., Portela R., Rodriguez L.C., ten Brink P. and van Beukering P., 2012. Global estimates of the value of ecosystems and their services in monetary units. *Ecosystem Services*, 1: 50-61.
- Gunther M., 2014. *The Dynamics of the Norwegian Maritime Industry*. Master Thesis of Master programme in Economic Growth, Innovation and Spatial Dynamics. Lund University - Norway.
- Humphrey J. and Schmitz H., 2002. How does insertion in global value chains affect upgrading in industrial clusters? *Regional Studies*, 36: 1017-1027.
- Kaplinsky R. and Morris M., 2001. *A handbook for value chain research*. Ottawa: International Development Research Centre.
- Malorgio G., Mulazzani L., Di Terlizzi B., Zuccaro M. and Petruzzella D., 2015. Enhancing small-scale fisheries value chains in the Mediterranean and Black Sea: Part 2. In Srour A. (ed.). *First Regional Symposium on Sustainable Small-Scale Fisheries in the Mediterranean and Black Sea*. Rome: FAO.
- Marshall A., 1920. *Principles of Economics*. London: Macmillan.
- Millennium Ecosystem Assessment, 2005. *Ecosystems and human well-being: synthesis*. Washington: Island Press.
- Mitchell G., May A. and McDonald A., 1995. PICABUE: A methodological framework for the development of indicators of sustainable development. *International Journal of Sustainable Development and World Ecology*, 2: 104-123.
- Mulazzani L., Trevisi R., Manrique R. and Malorgio G., 2016. Blue Growth and the relationship between ecosystem services and human activities: The Salento artisanal fisheries case study. *Ocean & Coastal Management*, 134: 120-128.
- Mulazzani L., Zanasi C., Errico A., Pugliese P., Zuccaro M., Zerrouki R., Medani M., Ouazzani Tnacheri M., Mohanna C., Hamza H. (2017). The comparative analysis of Mediterranean coastal communities: case studies, *New Medit*, 16(2), pagg.27-37.
- Naji M., 2015. Enhancing small-scale fisheries value chains in the Mediterranean and Black Sea: Part 1. In Srour A. (ed.). *First Regional Symposium on Sustainable Small-Scale Fisheries in the Mediterranean and Black Sea*. Rome: FAO.
- Neven D. and Dröge C.L.M., 2000. *A Diamond for the poor? Assessing Porter's Diamond Model for the analysis of agro-food clusters in the developing countries*. Michigan: Dept. of Agricultural Economics, Michigan State University.
- OECD, 2016. *The ocean economy in 2030*. Paris.
- Park K.S., 2014. *A study on rebuilding the classification system of the Ocean Economy*. Monterey, USA.
- Pinto H., Cruz A.R. and Combe C., 2015. Cooperation and the emergence of maritime clusters in the Atlantic: Analysis and implications of innovation and human capital for blue growth. *Marine Policy*, 57: 167-177.
- Porter M.E., 1998a. *Cluster and the new economics of competition*. Harvard Business Review.
- Porter M.E., 1998b. *The Competitive Advantage of Nations (with a new foreword)*. New York: The Free Press.
- Qiu W. and Jones P.J.S., 2013. The emerging policy landscape for marine spatial planning in Europe. *Marine Policy*, 39: 182-190.
- Schmitz H. and Nadvi K., 1999. Clustering and industrialization: Introduction. *World Development*, 27: 1503-1514.