

## ANNEX 1

# THE DOMINICAN REPUBLIC: A NATIONAL STRATEGY FOR THE FISHERIES SECTOR (English)

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"Strengthening Fisheries Management in ACP Countries"



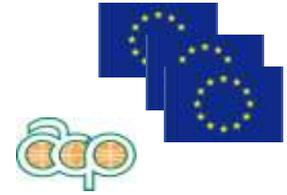
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## *Enhancing Fisheries Management in ACP Countries"*



### **1 Introduction**

A number of questions have been asked in the course of preparing this report. Where does the fisheries sector need to be in 20 years' time? What are the priority activities to establish the base of a viable fisheries sector? How can the national fisheries sector be sustainable in terms of the utilization of resources? Which exogenous factors must be taken into consideration? What resources are available to undertake the identified activities? What are the values and expectations of stakeholders?

For the purposes of this report the fisheries sector is considered to be production activities (fish catching and fish farming) and related processing, marketing, distribution, and other ancillary services, together with the institutional framework. A National Plan for the Fisheries Sector consists of three distinct parts: a National Fisheries Policy (NFP), a National Fisheries Strategy (NFS) and the related National Operational Plan (NOP).

The NFP defines a Vision for the fishery sector and the related primary and secondary objectives which are used to confirm the direction of the NFS and decide between alternative strategic options. The NOP identifies the human and financial resources that are available to implement the NFS and confirms the priority axes on the basis of the expected capacity for action.

The NFS must be realistic in identifying what may be achievable with the resources available; that is to say that it is not a "wish list" of the things that are needed rather it is realistic appraisal of what may be done over a given period. Consideration of this aspect is contained in the final section of this report. The NFS defines the direction of the sector and the scope of the activities to be undertaken in terms of: (i) an analysis of the current situation; (ii) the overarching role of the Consejo Dominicano de Pesca y Acuicultura (CODOPESCA); (iii) a vision of the nature and characteristics of the sector in the medium to long term; (iv) the potential time scales for defined activities in the light of known constraints; and (v) the potential participants in the implementation of the NFS.

The NFS is the response of the Dominican Republic to the challenge of ensuring sustainable use of fish stocks within an overall approach that emphasises the maintenance of the richness and diversity of the overall ecosystem and protects the long term interests of fishery dependent people and their communities, with the development of fisheries activities that are economically, financially, socially and environmentally viable.. It is emphasised that the NFS is a living document; on-going activity based on annual work programmes must be monitored and evaluated on the basis of realistic indicators of achievement. The NFS and the related NOP may be adjusted in the light of experience and the progress made, with modifications if there is a change in the level of available resources.

A number of tools have been used in developing the NFS; there were (i) a series of eight formal regional workshops involving persons from the private sector and the technical and administrative personnel of CODOPESCA and other institutions with a role in the fishery and aquaculture sector; (ii) informal meetings with private sector stakeholders; and (iii) individual meetings with the CODOPESCA personnel and representatives of other institutions. These provided a wide range of stakeholders with the opportunity to present their opinions on issues affecting the sector. The results of these consultations have formed a fundamental part to the development of the NFS. The workshops provided ample illustration of the range of issues and concerns that confront the fishery sector. Many of the concerns are general within the country (e.g. stock status and the lack of respect for fishery regulations); others are specific to a particular community and individuals. The findings from the consultation provide baseline information on the current status of the national fisheries sector.

The NFS defines the purpose and the range of activities that may be undertaken and supported in the sector in the context of the human and financial resources that may realistically be expected to be available.

While CODOPESCA has responsibility for its implementation, a successful outcome will be dependent on the success in coordinating complementary activities by a range of different stakeholders.



The NFS needs to take account of cross cutting such as regional and international policy, environmental issues, and the condition of fishery communities..

A further key to success is to find the balance between the development of a sector that has great importance and bearing on the welfare of those communities and ensuring that fishing activity is sustainable based on an approach to management that takes into account the impact of the fishery on other elements of the aquatic environment.

## **2 Areas for Strategic Consideration**

### **2.1 National Development Policy**

The National Development Strategy has a number of elements that feed into any National Fisheries Strategy including:

- The Strategy defines a vision (part of which refers to the sustainable use of resources), general objectives, specific objectives and activities. It is emphasized that any sub-sectorial plans must be compatible with the National Strategy (article 5).
- The general objectives are defined according to four axes. Each of the axes has established indicators of success and a timescale (Articles 18 to 23). Monitoring and evaluation of the national strategy (Articles 24 to 33) includes stakeholder participation.
- Axis 1 (Article 7) refers to a transparent application of the Law with the participation of stakeholders.
- Axis 2 (Article 8) relates to a united society with equal opportunities and a low level of poverty and inequality. Some of the aspects covered in the specific objectives are social security and health; increase human and social capital and economic opportunities for the population that lives in poverty; decrease and alleviate poverty by developing the capacity to generate income; protect vulnerable groups and facilitate their inclusion into society; regulate migratory flows in line with the necessities for national development; the strengthening of local development through stakeholder participation; and the promotion of sustainable development of the frontier zone.
- Axis 3 (Article 9) covers a coordinated and innovative economy in the context of a sustainable environment, with a productive structure that generates high sustainable growth. Secondary objectives include: the use of the national budget to respond to national development priorities; support for a regulatory framework that provides a favorable climate for investment and competitive business; the promotion of research; an increase in productivity, competitiveness and environmental sustainability; and finance for the food production chain to contribute to food security, increased exports and higher income and employment for the rural poor.
- Axis 4 (Article 10) requires sustainable management of the environment and an adequate response to climate change. The axis considers as secondary objectives the protection and sustainable use of natural resources, the effective and sustainable management of water resources, and an effective and efficient management system with the participation of stakeholders.
- For each of the strategic axes, five-yearly reviews will establish planning priorities for the following period.
- Identified cross cutting issues are: participation of women (Article 13); environmental sustainability (Article 14); territorial integrity (Article 15); stakeholder participation in the formulation, execution, monitoring and evaluation of public policies through the creation of appropriate mechanisms (Article 16); and the promotion of information and communication technology to make public sector processes more efficient (Article 17).

### **2.2 Fisheries & Aquaculture Policy**

#### **2.2.1 Strengthening of the Fishing and Aquaculture Sector of the Dominican Republic (2012-2015)**

Part of the project ISEC-PROINVEST was the design of a strategy for the Strengthening of the Fishing and Aquaculture Sector of the Dominican Republic for the period 2012-2015 with the overall objective of providing continuity and the basis for implementation of the project within the context of food safety. There are four (4) main objectives: achieve accreditation of CODOPESCA as the Competent Authority in the fisheries sector; strengthening

CODOPESCA to apply Law 307-04; the prioritization of needs; and establish programmes and projects in extension, training, and the dissemination of fishery and aquaculture information.

Within the framework of these objectives, this Strategic Plan identifies twenty three courses of action with the identification of activities are for implementation over the period 2012-2015. Identified issues related to the strengthening of this preliminary strategic plan are the need to : (i) prepare a logical framework matrix to summarise the plan (goal / objectives / activities / indicators / risks); (ii) define procedures for the monitoring and evaluation of performance against objectives;; (iii) clearly define objectives, courses and related activities;; (iv) clarify between courses of action and activities; (v) prioritize actions; (vi) define an implementation schedule; (vii) establish a budget for the Annual Operational Program; (viii) facilitate stakeholder validation of the strategy; and (ix) define the scope of the proposed activities.

The definition and implementation of a meaningful plan must be based on a well-defined policy; this is fundamental in mapping out the approach to meeting objectives, and allocating scarce resources between competing uses. Accordingly, annual operational plans and monitoring programs should be defined to measure progress in the implementation of the Plan. To improve CODOPESCA's capacity to prepare the required analyses and related documents, nominated staff should receive training on the project cycle, project planning and management and monitoring and evaluation. This is valid for the NFP.

### 2.2.2 Aquaculture Policy

Law 307/04 mandates the promotion and development of aquaculture. However, due to the limited resources available to CODOPESCA aquaculture, the current approach does not reflect the strategic importance and priority to promote this sector. Thus far, CODOPESCA actions have focused on providing technical advice on the development of rural and subsistence aquaculture projects and the national aquaculture policy has not been implemented.

Following the initiative of the Asociación Dominicana de Acuicultores (ADOA), a Strategic Plan for Aquaculture has been developed with inputs from public and private sector entities related to the sub-sector. This Plan proposes that by 2020 the aquaculture sector will have been consolidated and gained significant share of the local and international markets. The Plan's vision for the aquaculture sector in 2020 is that existing producers are actively using their available production resources; there is a consolidation of the activity in the geographical areas traditionally devoted to aquaculture and there are new areas of production; production is 90% of estimated capacity; there are vertically integrated companies and out-growing facilities; the aquaculture sector has improved it's the quality and continuity of supply and is using better quality feeds; there is a trend towards value added production; sales will be made in both national and export markets; national authorities have provided investment incentives and improved controls to ensure increased production of international quality standards and; public policies are implemented to continually improve the performance level of the producers.

The strategy considers a significant number of areas for intervention.

CODOPESCA has accepted the guidelines of this initiative in the planning and implementation of activities in the approach to the management of the subsector.

### 2.3 Legal Framework

The basic fisheries legislation is the Law of Fishing and Aquaculture (Law No. 307-04, December 3, 2004). It covers all harvesting activities and / or the extraction of biological marine resources carried out in marine areas under the sovereignty or jurisdiction of the Dominican Republic, for both national and foreign flagged fishing vessels. Also, it covers the harvest of internal waters and aquacultural production.

CODOPESCA was created by Chapter III of the Law that outlines its role and responsibilities as the Republic's fishery authority. Currently, a draft of the regulation for development of the proceedings and mechanisms for the

application of Law # 307-04 is being prepared. It will establish restrictions, sanctions, permits, and protective measures and contribute to the efficient management of the sector.

With the new regulation, the legal framework is considered an adequate framework for the implementation of a fisheries policy aimed at responsible fishing. However, it should be reviewed in the medium and long term, to identify and avoid overlap of the functions of the various institutions involved in the sector and establish the rules and regulations necessary to encourage private sector investment in fisheries capture and aquaculture. Also, if the proposals for co-management are accepted then the Law may need to be revised to establish the required base.

The Law would take into account international obligations and be harmonized with that in other countries in the region to allow a coordinated approach to the sustainable management of shared stocks and a shared ecosystem.

## 2.4 CODOPESCA

### 2.4.1 Mandate

In the past 20 years,, administrative responsibility for the management of the fishing sector including aquaculture has changed a number of times, passing from the Department for Hunting and Fishing to the Department of Fishery Resources (both as part of the State Secretary for Agriculture), then the National Directorate of Fishing Resources of the State Secretariat for Environment and Natural Resources (that in turn reported to the Sub-secretariat for Coastal and Marine Issues) and finally to CODOPESCA. Currently there is consideration of a draft law on coastal marine resources. Continual change is not beneficial and indeed may be counterproductive if the aim is to establish efficient management of the sector.. From discussion in stakeholder workshops it was evident that the division of responsibilities between the CODOPESCA, the Marina de Guerra, the Ministry of the Environment and others is far from clear. This lack of definition of the respective functions leads to a duplication in effort and presents an obstacle to the implementation of a realistic work plan, the allocation of budget, the provision of required logistical support (such as vehicles and at-sea enforcement craft) and the creation of synergies through effective cooperation and collaboration.

### 2.4.2 Finance

CODOPESCA requires the funds needed to fulfil its mandate. Analysis indicates that about 60 % of its current annual budget of R\$52 million is expended on staffing costs for the 187 employees. Insufficient budget is available to allow the technical staff to effectively implement their work plans with needed field work as there is only limited logistical support covering such as transport, office supplies, travel costs and equipment etc. The allocation to CODOPESCA should be taken into consideration: (i) a focus of the National Strategy is alleviating poverty; fishing activity is based in poor rural communities that are marginalized in terms of economic options and access to basic services; and (ii) capture fisheries are based on the harvest of a renewable natural resource that if managed sustainably will provide on-going benefits to the country. Unsustainable fishing increases the risk that the situation in already poor communities to become worse.

Experience in other countries indicates that it is reasonable for the CODOPESCA budget to be between 7 % and 10 % of the first hand sales value of fish production to administer and manage the fishery sector on a sustainable basis. An approximate first hand sales value of R\$1,579 million for the country's fishery production would imply an annual budget of R\$120 – R\$158 million, with a tendency towards the higher figure given the incipient nature of many of the activities and the need to promote development especially in aquaculture.

A source of CODOPESCA funding is the *ad valorem* levy on fish imports that currently stands at 0.5 %; an amount which must be used to support the development of the institution (Arts. 25 & 26, Ley de Pesca). CODOPESCA should determine the mechanisms of feasibility or feasibility to apply this provision of the law.

While it is possible that international agencies may provide financial aid, in the absence of firm commitments it would be remiss to base the implementation of the NFS on this possibility. When international assistance is available this should be in the framework of the NFS with contribution to the achievement of strategic objectives. It is recommended that once the NFS is approved it should be promoted with potential donors to identify possible support.

### 2.4.3 Organisation

Various responsibilities in CODOPESCA are assumed by the Board of Directors, four directorates (Executive, Administration and Finance, Human Resources and Fishery Resources), the Departments for Fishery Regulations, Fish Farming and Capture Fisheries, and the Regional Service Stations. CODOPESCA is based in number of departments with staff located in the Santo Domingo headquarters and the nine regional offices.

In structural and operational terms, four key elements require attention to make CODOPESCA more effective: communication; planning; training; and logistical support.

**Communications.** Strong communication depends on the means, supports, channels, information networks, and the dissemination of policies, plans, regulations and reports. CODOPESCA needs to develop a communication strategy that takes the following into consideration: (i) the need to establish effective communication and develop a work programme together with the organisations that are represented on the Board of Directors; (ii) the need to develop a formal approach to internal communication with regular meetings managed with agreed agendas and minutes; (iii) to strengthen the team approach to support objectives and activities; (iv) the introduction of up-to-date technology to facilitate continuous formal consultation with stakeholders. A dedicated web site and a corporate domain for e-mails would strengthen corporate identity and improve communication with regional offices and especially with the data collectors.

The implementation of the Communications strategy should be supported by a number of actions; (i) the establishment of a Communications Unit to take responsibility for all communications and coordinate all the internal and external information of CODOPESCA; (ii) the improvement of internal communications through such as bulletin boards in all CODOPESCA offices and a planned schedule of formal meetings at the departmental and divisional level; (iii) the establishment of formal channels of communication between CODOPESCA and other responsible bodies within the public sector related to the fishery sector; (iv) strengthened communications with stakeholders. As noted below, it is recommended that a permanent mechanism be established to allow consultation and co-management through local, regional and national committees; (v) the use of readily available technology to facilitate communications and the provision of information. While this may have an initial high investment cost in hardware and software, it will reduce recurrent costs while making staff more efficient. An IT professional should work in the Communications Department; (vi) a CODOPESCA web site would make its activities more transparent while observing Law # 200-04 covering free access to public information; and (vii) Service Station staff should have logistical support (transport, computers, internet and CODOPESCA cell phones) to allow effective communications and make the organisation more effective.

**Planning.** The current lack of effective planning is notable. The constraints identified in monitoring and related evaluations increase the risk that defined strategies and work plans are not implemented. Other limitations that impede efficient work are the reduced number of fisheries officers, inadequate logistical support and lack of coordination with other institutions and stakeholders impede efficient work. All this illustrates the substantial concern about the capacity for effective implementation of the NFS.

**Training.** Although Article 38 of Law 307-04 states that CODOPESCA will have a permanent training program for inspectors, technicians and professionals involved in the area, due to various limitations the institution lacks a specialized training program for its staff. Notable is the need for training and scheduling according to: (i) specific technical training to increase knowledge of specialized areas; and (ii) general training covering such as computerization, development and management of databases, English, project identification, project preparation,

project management, interpersonal relations, conflict management, planning, report writing; management, human resources and negotiation. Currently the institution works with national and international organizations, universities and other institutions to provide scholarships and courses for staff.

**Logistical support.** Considering the situation described in section 2.4.2, in order to maximize the efforts of the institution with the resources available and to implement planned activities efficiently on the budget available it is necessary to ensure the efficiency and effectiveness of staff inputs with the provision of required logistical support. This is a main issue affecting the effective implementation of the NFS.

#### 2.4.4 Data Collection

Good fisheries data is needed to provide the basis for analysis of the sector, identify trends and measure the success for individual projects. Despite the limitations on personnel and finance, a lot of hard work has been completed to provide the data on fisheries activity which assist the decision making process both by CODOPESCA and other institutions that receive the information.

To provide data, CODOPESCA has designed a program for the survey of statistical information, which is populated with data collected by one or two data collectors located at individual landing sites. This staff visit each site at least three times a week to record statistics on, among other things, species, price, place, fishing gear, catch volume, fisherman, fishing vessel, time of fishing. This data is sent from the different service stations to the Department of Capture Fisheries in Santo Domingo for digital processing and subsequent presentation and analysis. Although this system has been praised by international institutions, there are several aspects that affect its efficiency: (i) the lack of funds to hire more data collectors who have higher education with better and monitor their field activities. This can lead to errors in the recording of information, which can lead to misunderstanding, especially when it is used by people who are not familiar with the fisheries sector; (ii) there is not a clear methodology for the measurement of quantities, so there is not a basis to determine statistical error of the estimates (population size, sample size, sampling error, etc.) The method used is to collect the data sample to estimate total catch. There is a lack of data on fishing capacity and the statistics provided are not geared to monitoring fishing activity in terms of distribution and control. A constraint on CODOPESCA is the quality of information collected. For the effective implementation of a fisheries information system on high sea fisheries, the information collection unit as well as the control unit for fishing capacity must use the *fishing vessel* as the Unit. All collected data on catches (amounts, fishing areas, etc.) and control measures to be implemented after the evaluation of that data should be based on this unit and not on the landing site as it is currently. Accordingly, the approach should be reviewed in the context of the priority actions identified by the NFS

It is essential that all the fishing vessels and their characteristics be officially registered. Fishing licenses should not be solely a registration tool but be linked to specific management conditions (such as providing information about data on catches and fishing effort). There should be a permanent data collection program that includes biological, environmental and socioeconomic data.

#### 2.4.5 Monitoring, Control & Surveillance

The monitoring, control and surveillance (MCS) of fishing activity is the responsibility of CODOPESCA, the Marina de Guerra and the Ministry of Environment and Natural Resources. Stakeholders point out a number of issues. (i) Most importantly the lack of an effective compliance plan with a large number of fishermen and buyers failing to respect regulations on gear, minimum catch sizes, closed areas and closed seasons. This lack of responsible fishing combines with the open access nature of Dominican fisheries and has led to resource status consistent with overfishing of fish stocks that are already overfished. (ii) Poor management practices such as low fines and inappropriate sanctions serve to undermine the effectiveness of the legislation and related regulations. Accordingly, compliance with fisheries legislation by resource users and fish traders may be considered to be generally precarious.. The limit on the

number of fish inspectors and data collectors, required equipment and logistical support reduces the potential for effective MCS. This lack of resources for MCS underscores the need to enhance the involvement of fishers, fish farmers and their communities in the development and implementation of measures designed to protect and manage the fisheries sector. Enforcement personnel should work more closely with resource users and their communities that should assume greater responsibility for resource protection and management. Community policing should be encouraged and promoted.

Any strategy to improve the effectiveness of MCS should be considered: increased compliance with regulations by users; the implementation of a cost effective integrated approach to MCS; improved management efficiency; and the establishment of effective sanctions to deter illegal fishing practices. The strengthening of inspection and surveillance activities is a priority. Inspectors must work in collaboration with the competent authorities to carry out a monthly compliance plan based on risk analysis, the availability of resources and the provision of the required logistical support.

#### **2.4.6 Research**

There is a limited capacity for fisheries research. Law 307-04 gives CODOPESCA responsibility for conducting research to support the decision making process in capture fisheries and aquaculture, ensure that research by other parties is robust, and to disseminate research results. As CODOPESCA has not developed its own research program there is the need for cooperation with others, including academic and industry institutions. This includes: (i) the development of aquaculture requires studies into systems to help optimize the production of commercial species. In this regard, the Dominican Institute of Agricultural and Forestry Research (IDIAF) has conducted research in aquaculture, as well as the Aquaculture Experimental Station of CIMPA in Santiago. Furthermore; (ii) The Research Center of Marine Biology (CIBIMA) focuses its research on marine and coastal resources. In general, studies include capture fisheries, the resource potential of all aquatic systems and the application of appropriate technology to manage and monitor the operation; and (iii) due to CODOPESCA's role to produce information on fisheries resources, it offers different research topics to undergraduates and graduate students at the Autonomous University of Santo Domingo (UASD) and other universities. This has led to which four theses being published while several are in process.

In relation to the sustainable harvest of resources, it is of particular importance to provide biological information and advice to local communities on the characteristics of fish species including those suitable for farmed production to support the identification and implementation of local management areas, and provide a basis for decision making on the potential for small scale investments.

#### **2.4.7 Stakeholder Participation**

Historically, on a global basis there has been little formal involvement of stakeholders in the development process and management of fishery resources, This is an obstacle to any initiative on the sustainable development of fisheries production. It is recognized that one of the keys to the successful implementation of a sustainability strategy is to carry out a consultation process that regularly seeks and accepts relevant information, including the traditional knowledge of fishery communities.

In response to this problem, Art. 7 of Law 307-04 established the CODOPESCA Board, as the highest authority for direction, decision making and control of the Institution. It is composed of public and private entities involved in the fisheries and aquaculture sector, such as the Ministry of Agriculture (that presides), the Ministry of Environment and Natural Resources; IDEAF, the Navy, the Agricultural Bank, the Institute for Development and Cooperative Credit, a representative of the fishing companies and a representative of the Association of Aquaculture, among others. Law 307-04 defines the functions and / or tasks of the Board such as: hold meetings regularly every six months and whenever necessary; know, approve, modify or reject the actions taken by the Executive Director in the performance of his duties, in addition to making appropriate recommendations in each case; review national fisheries policy every two years and whenever necessary according to established international conventions and agreements on fisheries and

aquaculture, as well as revise and update the regulations and submit to the Executive considerations on the need for changes of place after consultation with the Technical Advisory Committee. But there is no record that the Board has met at any point, meaning that initiatives to develop co-management by CODOPESCA have been isolated, This highlights the need to establish a strong direct communication with stakeholders.

The need to ensure responsible fishing is urgent. It is suggested that a piecemeal approach with pilot projects is unlikely to yield the needed changes in the limited time available to introduce change. To reduce public expenditure, it is recommended that emphasis be placed on the development of a public sector / private sector partnership, with the latter assuming key responsibilities in the context of a stronger approach to co-management.

This strategy recommends that CODOPESCA, based on consensus with the Board and negotiation with stakeholders and other key players in the sector, takes a targeted approach to ensure the sustainability of fisheries resources. This institutional work should be complemented by a system of advisory committees at the local, regional and national levels.

The advisory committee provided for in the regulations constituted by the Director of Fisheries (Chairman), the Manager of the Fisheries Regulations Department (Secretary) Fisheries, the manager of the Legal Department, together with the appropriate Department Manager (Capture Fisheries, Aquaculture and / or the manager of the Service Station where the issue arises), shall have jurisdiction to decide the viability of a particular authorization or cancellation of authorization under the law 307-04 on Fisheries and Aquaculture .

The development of CODOPESCA partnerships with the public sector / private sector, with the latter assuming greater responsibility will be fundamental in ensuring a stronger approach to co-management. This would help to combine efforts while reducing government spending and making initiatives more effective. What is important in the participatory management system of fishery resources is that CODOPESCA values the interest and information of stakeholders and that each party is objective in assuming and applying measures.

## 2.5 Key linkages

### 2.5.1 Introduction

The implementation of an NFS will require cooperative and collaborative work with a number of national and international agencies. Examples are: (i) CODOPESCA actions that require complementary activities by other public sector bodies and representative organisations in aquaculture, fisheries enforcement and cooperatives amongst others; (ii) actions that contribute to achieving the purpose of the NFS but are not within the remit of CODOPESCA such as community development; and (iii) cross cutting issues, such as gender issues, tourism and the environment. The success achieved in collaborative efforts will to a large extent be dependent on a hands-on, rather than policy level, approach. It is recommended that the various state agencies do not duplicate activities. Within the context of the NFS CODOPESCA and other agencies must work to their strengths, thus maximising the benefit from combined budgets.

### 2.5.2 National

At least 14 other public institutions and 9 non-governmental organisations have been identified as having a potential role in the implementation of the NFS. According to Mateo & Haughton (2004) *"the fragmented and overlapping responsibilities of public sector agencies tends to create inefficiencies and even confusion in some cases. There is clearly a need for rationalization and improved coordination of actions among these agencies"* and *"the current situation of fisheries management in the Dominican Republic is still a challenge due to overlapping functions among several governmental agencies and limited resources"*. The organisations and individuals involved in the fisheries sector must be clearly identified, with their functions, roles and responsibilities explicitly defined and well understood for all areas of responsibility and interaction. This approach will facilitate the strengthening of relations among the different institutions through improvement of communication procedures and allow better coordination of activities at

the local level including activities in those areas where cooperative actions are required – especially in work related to MCS.

This role must be strengthened through an appropriate organizational structure, in which the competences are defined and with a participative process for decision-making. Likewise, interrelationships between the different actors must be strengthened through the establishment of networks and the continuous flow of information. The undertaking of activities by the Board of CODOPESCA must be strengthened.

### **2.5.3 International Aid**

In the Dominican Republic there is the continuous need for international assistance. In the recent decades a number of International agencies have supported the country in a large number of projects including some specifically designed to assist the fishery sector – amongst others the Government of Germany (PROPESCAR-SUR), the Government of Taiwan (various projects related to aquaculture), as well the European Union, the Japanese International Cooperation Agency (JICA) and the FAO have provided technical and financial assistance.

While there are other important agencies, from the perspective of fisheries management the Organization of Fisheries and Aquaculture Sector of Central America (OSPESCA), the Caribbean Community & Common Market (CARICOM) and Western Central Atlantic Fishery Commission (WECAFC) are the most relevant.

There is a continued need for international assistance and this may be of strong importance in providing the technical and financial inputs needed to address specific parts of the NFS. Any future inputs of bi-lateral and multi-lateral assistance should be developed within the context of the Strategy so forming a link between independent actions that are designed to achieve the overall objective while strengthening the potential for synergistic benefits from cooperative actions.

In developing and implementing the NFS it must be recognized that national fisheries policy cannot be considered in isolation from the actions of other countries in the Region, especially in the marine sector where fish stocks may be shared and what happens in the waters of one country or in international waters may affect the sustainability of fishing activity in other countries. On that basis, the NFS has to be considered in a regional context, with attention paid international obligations; indeed this may be a strong driver of the ability to attract international assistance, especially as it is highly likely that some projects will be regional, as opposed to national, in character.

Given concern about the status of fishery stocks in a region where fisheries provide income to a large number of people with limited alternatives, there has been increasing activity to promote sustainable fisheries. OSPESCA has defined a Code of Ethics for responsible fishing and aquaculture that includes: (i) using the knowledge of fishermen to develop sustainable fishing practices; (ii) promoting alternative economic activities for fishing and aquaculture communities; (iii) preventing IUU fishing; (iv) protecting the ecosystem with the use of selective fishing gear and appropriate aquacultural practices; and (v) providing training to increase awareness of the importance of responsible fishing and aquaculture.

The definition of this NFS has taken into consideration the objectives of international agreements signed with the organizations NOTED ABOVE, including WECAFC, while it is in accordance with the Common Fisheries Policy of the Caribbean Community and the Declaration of Santa Lucia on IUU fishing.

## **2.6 Capture fisheries**

### **2.6.1 Marine Coastal Fisheries**

Capture fisheries in the Dominican Republic are based on a series of activities ranging from subsistence, commercial and semi-industrial fishing. The latter is the only one that uses large vessels fishing ocean banks beyond the Dominican shelf and often in the fishing areas of neighboring countries. In general, such fishing is done by divers and lines using mother ships as a base of operations.

Although historically there has been a lack of systematic recording of national fisheries data, available information indicates: (i) there are approximately 8,640 fishermen in coastal marine fisheries; (ii) there are about 4,200 fishing vessels including ships, boats, dinghies and canoes; (iii) there are about 200 landing sites along the length of the coast; (iv) the catch comprises 300 different species of fish, mollusks and crustaceans, with the most important being reef fish (snapper, parrot and grunts), deep sea fish (tuna and mahi mahi) and local fisheries such as shrimp and lobsters in Samaná and Trudillé, and conch in Pedernales and the east of the country.

Specifically, the catches of the artisanal fleet are dominated by mixed demersal and shellfish species with some catches of lobster, shrimp and small pelagics, while for the semi-industrial fleet mainly located in Puerto Plata the main interest lies in the queen conch (*Strombus gigas*) and lobster (*Panulirus argus*) while also targeting groundfish.

The current number of boats compares to 2,350 in 1979 and 3,750 in 1994. While this is a significant increase the rate of growth has reduced substantially probably due to reduced catch rates affecting vessel economics. In the same vein, CODOPESCA reports that in recent years the artisanal catch of pelagics has increased considerably.

Among the limitations observed in fishing is the size of the offshore platform Dominican (8,000 km<sup>2</sup>), which does not have the area or depth to develop and maintain a sustainable fishery on a medium to large scale. This allied with the high cost of fuel and the lack of autonomy of the existing vessels, reduces the potential for small scale fishermen to harvest traditional grounds. However, mother vessels could be used to facilitate small scale fishing effort in more distant grounds.

The productivity and actual potential of the capture fisheries is relatively poorly understood. The indications are that harvest of marine fish resources in the traditional inshore areas of the Dominican Republic is beyond its sustainable level. The results of research by Wielgus *et al* demonstrate that reef- and mangrove-related fisheries in the DR have declined in recent years, almost certainly due to overfishing. If these fisheries are to be sustained, then it will be important for the DR to improve its capacity to enforce regulations protecting mangroves and fisheries (Silva 2003). Although there is limited resource information, fishermen themselves report a diminution in local abundance, with the overfishing of juveniles and a consequent decline in the spawning stock biomass. It should also be recalled that the small area of platform and low operational capacity have prompted fishermen to fish in the same places and extract the same species over time, thus increasing the pressure on the coastal fish resources. This requires special attention as it tends to lead to overfishing.

CODOPESCA is currently conducting a fisheries census throughout the country. By providing an updated description of the number of people that depend on fishing and on the levels of fishing effort, the census will help to fill important gaps in current knowledge. Information on levels of by-catch for different fisheries and the relationship between reported landings and actual catches will be crucial for developing a more complete understanding of the status of coastal fisheries, including those that depend on the habitat of mangroves and coral reefs. The census will also provide information on the costs of fishing. This will be useful in estimating net fishing revenues and economically optimal harvest levels.

It should be noted that CODOPESCA statistical reports, indicates that the annual trend of CPUE far from diminishing remains almost stable, suggesting that there is no certainty of being on the edge of MSY. However, it is clear that the precautionary principle should prevail in line with regional policies and Environmental Law 64-00 which notes that "the lack of adequate scientific information should not be used as a reason for postponing or failing to take measures to conserve species and the environment."

Analyzing the above information together with the suggestions of international organizations for the development of the fisheries sector, there is a clear necessity to improve the welfare and socio-economic conditions of fishermen and fishing communities. Measures include: (i) improving the environment for business, finance and insurance; (ii) the promotion and facilitation of joint ventures; (iii) access to training; (iv) support for capital investment; (v) the

participation of stakeholders, particularly in planning and management, including encouraging the formation and strengthening of fishers' organizations; and (v) the support and protection of the rights of traditional, subsistence, artisanal and small scale fishers.

Finally, there may well be specific opportunities to increase fishing effort in some fisheries (e.g. fisheries on the continental slope and highly migratory species). This will require new investment and improved skills. Due to the lack of robust scientific knowledge on the main stocks, it is the responsibility of fisheries managers to adopt precautionary approaches to implementing an effective management regime. This approach would recognize that there is a limit on the sustainable level of employment and income that coastal marine fisheries can generate, and that the essentially open access fishery must be replaced by regulated access and limiting fishing effort on a permanent or temporary basis. There should be an emphasis on the optimization of the number of boats in relation to available fish stocks so as to increase profit and fishers' earnings.

The overall view of marine capture fisheries is one of uncertainty. Fishing pressure has greatly increased, and user engagement in responsible resource use and supporting data collection is essential.

### 2.6.2 Inland

Inland fisheries take place on seventeen reservoirs, and 2 lakes, 2 lagoons and some rivers, with an estimated 2,500 fishers using traditional and at times rudimentary fishing methods to catch species such as tilapia (*Oreochromis spp.*), carp (*Cyprinus carpio*), bass (*Micropterus salmoides*) and freshwater crayfish (*Procambarus clarkii*). The reservoirs were developed to provide energy, irrigation and water for main population centres with the added benefit of providing fisheries for harvest by local populations. This activity has been assisted by government agencies and NGOs with restocking programmes. Hamilton *et al* found that the density of fish populations was below the theoretical annual production potential of reservoirs found in the tropics of 250 kg/ha.

Lakes Enriquillo and Sumaitre (the main part of which lies in Haitian territory) and the Lagoon Ovieda are saline, but after a long period of heavy rain the salinity is reducing to the level where fisheries productivity has increased and allowed more fishing activity.

While inland fishers are to a large extent dependent on fishing as an economic activity, the catch rates are low and the fishermen have limited income. In 2010, there was an average of 8 kg landed for each fishing trip recorded by CODOPESCA in its data collection programme that covers nine of the water bodies. The range was between 33 kg in Limon to 2 kg in Rincon. CODOPESCA estimates that in 2010 the total catch was 323 t – or on the basis of 2,500 active fishermen an average of 129 kg per fisherman. At an average of RD\$100 per kg, the average annual gross income would be RD\$12,900 or less than US\$400. Clearly fishing costs (investment and operational) are low but lake fisheries are mainly subsistence in nature. Data is not collected in these fisheries and this leads to uncertainty about the available data. In inland fisheries there may be opportunity for growth, however the potential is largely unknown as there is no on-going research into the carrying capacity of the different water bodies.

Training and improved information is required to promote awareness of the importance for sustainable fishing and the use of appropriate fish gears and methods.

### 2.6.3 Recreational

Little is known about activity in the Republic. CODOPESCA does not register this activity, however there is an important "fishing charters" offer in the coastal hotels. It is necessary to improve the knowledge on the subsector to regulate the activity.

### 2.6.4 Ancillary Services

There are 160 landing sites along the coast, with the number of boats per site ranging from 1 to 387 (Sanchez) and the number of fishermen between 2 and 933 (ISEC-PROINVEST 2011). The only port of major significance is Puerto

Plata which is the base of the operation for the semi-industrial fleet. The wide dispersion of fish landings on numerous beaches is a constraint to the development of support industries as the lack of concentration of vessels and landings makes it less feasible to establish businesses. This leads to the fishing sector not benefitting to the extent possible from potential multiplier benefits. While given the nature of the fleet (a lot of vessels with limited autonomy) it may be ambitious, there should be an analysis of approaches to concentrate activity in selected locations along the coast to provide the basis for the development of on-shore activity.

## 2.7 Management

### 2.7.1 Fisheries

It appears clear that it is necessary to limit access to water bodies in line with a policy of sustainable fisheries management. To guarantee their sustainability fish stocks must be protected through effective limitations on the fishing power, capture, possession and marketing. There are a range of administrative (e.g. closed seasons) and technical (e.g. minimum mesh sizes and minimum catch sizes) harvest control tools that can be implemented by fishery managers to enforce a harvest strategy aimed at the sustainable use of fish resources. The opportunity to enter a particular fishery must be restricted, with a consequent need for fisheries communities to diversify from small-scale rural production activities and identify development options. There is also an urgent need to explore and develop aquaculture potential from the present low production levels, and to develop culture based fisheries in natural and manmade water bodies.

Stakeholder consultation indicated the need to make fishers, their families and communities more aware of the impact of their actions and the need for responsible fishing. Good fishing practices are complementary to the education of the fishermen..

The priority in the Dominican Republic in resource management is to deal with the issues of the infringement of regulations and to involve fishery communities in the co-management of the available resources. CODOPESCA as the public authority will coordinate, monitor performance and guide the implementation of the co-management systems.

### 2.7.2 Eco-System Approach

Over recent years there has been increasing emphasis on the need for an eco-system based approach to fishery management in considering the needs for sustainable fishing effort. Accordingly, fishery managers must take account of the impacts of fishing on other elements of the ecosystem to ensure that activity does not increase the risk of damage to habitats (such as mangroves and coral). Wielgus *et al* (2010) point to the economic importance of coastal and marine ecosystems and the threat posed by unsustainable coastal development, pollution, overfishing, and other local and global pressures. The authors note that one of the key barriers to better decision-making is lack of information and understanding of the scope and value of benefits provided by these ecosystems.

Climate change is also important factor that may have an important bearing on the prospects for fishing and fishing communities in the medium to long term. In that sense a realistic strategy should consider reducing the risk of changes affecting the livelihoods of fishermen and their communities introducing culture of prevention of disasters caused by natural phenomena by putting into practice adaptation and appeasement measures regarding climate change.

## 2.8 Socio-Economic Factors

The capacity to develop an approach to fisheries management based on the precautionary principle and responsible fishing is to a large extent based on the real economic situation of the fishers, their families and their communities. Interventions in the fisheries sector by themselves may not solve the problems unless they are part of a larger sustainable development programme that seeks to address the larger issues facing marginalised fishery communities. Improvement in the basis socio- economic conditions and living standards are needed to reduce the heavy dependence

on over exploited fishery resources. It is difficult to implement regulations restricting catch (especially the long period of the lobster fishing closure) when the fishers do not have any alternative sources of income, and they are able to sell any catch to intermediaries who themselves do not respect the regulations. The population in poor fishing communities continues to grow and the lack of alternatives means that many are forced to make whatever living they can from fishing, even though they are aware of the damage they are doing to the resources.

The NFP must consider that lack of access to basic services (education, health, transport, sanitation and safe water supply) does not only affect the quality of life in fishery dependent communities but also reduces the capacity to develop and widen the economic base.

A core issue is how to raise the incomes of the poor who comprise the lowest social stratum.

The provision of infrastructure to support modernisation of the sector and add value to products, are also essential to encouraging growth, diversify effort away from catching and increase incomes. Other possibilities relate to human resource development to widen the skill base; stronger community organisations that allow for social inclusion and improve the capacity to influence the political decision making and the related allocation of available budgets; funding to support the diversification of the local economies; the formal monitoring of the implementation of the NFS; actions aimed at supporting cash saving initiatives for poorer, marginalized fisheries stakeholders; and allowing for the full participation of women in the process.

The NSP should consider the opportunities for poverty eradication by strengthening the involvement of women in the various processes. Credits to support livelihood improvement and income diversification might well be targeted at women's groups allowing them to have higher incomes. Women should be encouraged to participate in community-based organisations and other capacity building activities in the fisheries sector. A number of actions would support implementation of this approach to gender. CODOPESCA could: (i) develop specific training courses in gender matters with the aim of making decision makers more aware of the various issues; (ii) in cooperation with las Oficinas Provinciales de la Mujer designate gender focal points and form gender working groups; (iii) train staff and extension workers to raise their awareness of gender issues and to improve their skills in gender analysis and at developing gender-sensitive projects; promote research that focuses on gender issues in fisheries including the collection of information on research undertaken on gender in fisheries; (iv) put in place systems to monitor gender-related fishery issues and indicators that report the quality and quantity of gender information; and (v) develop indicators that are specific to the achievement of gender equity and the empowerment of women in fisheries.

At the community level: (i) women should be encouraged to participate in the decision-making processes; (ii) training and information on the fisheries sector should be provided to women; (iii) there should be enhanced sensitivity to gender issues; (iv) support women by improving their access to markets and storage of fish that will help raise the quality of the fish catch; and (v) the improvement of women's possibilities by supporting entrepreneurship and by facilitating access to fish resources and decision making women's organizations.

## 2.9 Aquaculture

In the Dominican Republic, there is a strong potential to increase annual fishery production and help meet the widening "fish gap" between production and the demand from a growing population. Also, at the same time growth in this sector would contribute to the livelihoods of farmers and fishermen and provide a stable source of fish for local communities.

Since the introduction of aquaculture to the Dominican Republic in the 1950s, while there were early indications of success, development proved not to be sustainable.

The initial expectations of growth in the sector were disappointed for a wide number of reasons, the principal issues being; the lack of technical knowledge; weaknesses in the supply of feed and fingerlings; and relatively high production costs reducing competitiveness with cheaper imports, and weaknesses in the marketing chain. In turn,

while the potential of the country has been recognised by a number of international companies, there has not been sufficient growth to incentivise the development of ancillary services, particularly the domestic production of feed and good quality fingerlings. Uncertainty about the supply of these two key inputs increases the risks to the business and is unlikely to lead to any increased level of support from the banking sector to improve the availability of loans, especially in a situation where there have been previous bad loans.

Today the sector makes only a marginal contribution to the national economy and the supply of fish to the domestic market. The estimated 43 active fish farms producing less than 300 t of product from about 128 has which is substantially below the potential and uses on a small part of the water resources available to the Republic for fish farming activity.

It is globally recognised that aquaculture will become increasingly important as wild stocks continue to be threatened by over fishing. The Dominican Republic should not exclude itself from this trend and recognise the potential benefits of a strong fish farming sector: (i) improved income and employment in areas where alternative economic options are lacking; (ii) widened income base for small scale farmers and fishermen; (iii) improved national food security; and (iv) a favourable impact on the balance of trade in fish and fish products.

The question is how to promote the required development.

It is important to consider the strategic importance of aquaculture and recognise it as a national priority, such that International Agencies could contribute technical and financial assistance, and allow the conditions for international and national private sector investment. There could be consideration of the potential for incentive schemes to attract finance, including tax breaks and duty free imports.

It is recommended that CODOPESCA increases the resources available for aquaculture related activities.

In recent years, CONAPROPE & IDIAF (2007), ADOA (2011) and ISEC-PROINVEST/CODOPESCA (2011). have made proposals on changes covering training, funding, research, production, promotion and marketing.

Also, there is reported private sector interest in developing fresh water growing facilities while CODOPESCA has taken the initiative to promote community development of cage culture on Lake Rincon and Lake Monción.

The Government should facilitate access to bank credit considering the availability of loans, grace periods, loan period, guarantees and high interest rates and the creation of a financial programme (investment and operating costs) directed at small farms and medium scale producers. CODOPESCA should introduce a revolving fund where beneficiaries repay loans at a commercial rate once fish is being harvested, however there will need to be consideration of the amount of available finance.

Large corporations likely have access to financial resources for investment and working capital; what they require is the support of Government in providing the investment climate, with guarantees concerning the long term use of water resources and the legal framework needed to ensure a level playing field.

Given that 42 % (source ADOA) of active fish farms need to pump water, the high cost of fuel (oil, gasoline and electricity) has a major impact on the bottom line of operations. For example in 2006 it was found that 87 % of the farms that had exited the sector were in locations where water had to be pumped.

The definition of a strategic approach to development of the National fish farming sector must consider financial and technical assistance for existing and new investments, taking into account the carrying capacity of freshwater bodies for cage culture and the fish tanks that depend on water supply through gravity.

Also, it will be important to improve research and educational programmes related to environmental factors in order to minimize the impact of farming activity on the lakes and reservoirs.

Given the limited number of trained aquaculture technicians in the country, the Strategy proposes that the main projects contract specialized staff which will provide timely and relevant advice with the aim of reducing the risks of the investment failing. This is especially important in the initial period of promoting the sector as a worthwhile investment. Specialized staff should not only be able to provide advice on project design and implementation, but also provide a monitoring service and identify issues before they become major problems. One of the keys to success will be the ability to identify those areas which have the greatest possibility of success while reducing the potential for negative impacts on the ecosystem.

A large part of the prospects for success of any investment project depends on management capacity. A low level of business skills increases the risk of company failure. A necessary part of an overall approach to management is training to improve management skills and that the farms comply with regulations, observe GAP and HACCP processes to improve sanitary standards, and supervise production facilities to guarantee that aquaculture products meet the required health conditions. Even if export markets are not targeted, steps should be taken to protect domestic consumers from bad quality product.

The lack of security about the supply of fingerlings of the required quality at a competitive price is one of key constraint to development of the aquaculture sector. If the expected growth in the aquaculture sector is to become a reality cage production must be prioritised, the supply of high quality fingerlings of existing species should be guaranteed, and the potential to rear other species of commercial interest should be assessed.

Another key area for policy consideration is the feed for the framed species especially its price and quality. Good quality feed is needed to achieve a profitable FCR and ensure a good product that is capable of competing against imports. As an example, the cost of the cage project in Lake Monción is reported by CODOPESCA to be US\$46,000 and the price of feed and the food conversion rate (FCR) are key issues in any sensitivity analysis associated with the financial rate of return. ADOA notes that several national companies produce feed for livestock and some of these prepare feed for aquaculture. It is reported that production is occasional and quality variable, with the product breaking up in water thus increasing the amount of waste and contributing to reduced water quality.

It seems likely that, in the short to medium term, growth in the sector will be dependent on the purchase of feed on the international market. Emphasis should be on reducing the costs, potentially through cooperative buying. The options for this would be improved by growth in the sector and increased buying power. ADOA proposes: an agreement between the Ministry of Agriculture, IDECOOP, ADOA and CODOPESCA to establish COOP-ADOA which would have the objective of reducing the costs of imported feed, facilitated by a credit line with low interest rates; and to support research into alternative feeds based on locally sourced primary material. However, whatever the source of feed, there should be an analysis of the current FCR and how to improve it towards international standards.

It is worthwhile noting that Art. 26 of Law307-04 provides for tax free materials such as feed. This is designed to promote growth in the sector.

Part of any strategic approach would be the identification of value added products. While this brings increased investment costs (premises, ice, smoking kilns) that may not be viable in low production units. Primary and secondary processing of farmed product may increase market value especially when peaks in production are not matched by market demand. Consideration of the potential for value added products should be within the context of an overall approach to marketing that ranges from potential buyers to substituting imported fish products, including consumer awareness campaigns, the introduction of standards and the role of the competent authority to ensure that those standards are maintained. While ADOA has taken steps to provide a kite mark to differentiate national production of the required quality, due to the low level of product the results are not yet visible.

CODOPESCA must work to create the conditions for growth and fully engage with the sector; with stakeholders, with complementary national institutions, with suppliers of feed and fingerlings, with international companies and with aid agencies.

Currently, aquaculture does not make a great contribution to the economies of communities dependent on fishing, but the potential importance of the sector as a source of protein and extra income should not be underestimated. The emphasis on aquaculture development could represent a significant opportunity to increase revenue in these communities, by creating direct jobs and with the development of large commercial scale operations in a number of water bodies. The desired result of the Policy is that aquaculture is important, both at local and national level so as to provide increased employment and income for the rural population in need, while contributing to food security.

Currently, aquaculture does not make a large contribution to the economies of fishery dependent communities but the sector's potential importance as a source of protein and supplementary income should not be undervalued. Emphasis on the development of aquaculture could present a significant chance for increased incomes in those communities. If not directly employed, the development of larger scale commercial operations on a number of water bodies would provide new wage earning opportunities. The required end result is that aquaculture is important at both the national level and at the household level where it will provide increased employment and revenue to the rural poor while increasing the local supply of protein.

Another option exists through culture based fisheries and that is a Stock Enhancement programme for restocking of lakes and reservoirs. Given the scale of inland water resources, it would be a fair assumption that current production levels from inland capture fisheries could be substantially increased if the stocks were available. The potential for higher populations of inland water fish would increase if cage culture was to become more widely spread with their attributes as perpetual sink of nutrients and waste from such systems.

Limited access to credit is a major constraint to the development of community based aquacultural production units. Credit and savings facilities for community based aquaculture are at present non-existent. Long-term loans at reasonable interest rates are needed to support development. The nature of aquaculture means that fish farmers stay at a certain location and therefore are easily contacted and they are more likely to be considered subjects for credit than capture fishers. CODOPESCA has established a mechanism for funding through the development of revolving finance and this mechanism could meet the needs of fishery communities. This would need to be under-pinned by group formation and capacity building.

#### **2.10 Marketing**

The existing marketing of domestic production is relatively straightforward, with the bulk of captured and farmed fish and shellfish sold fresh with limited value added. There are a number of distribution channels, which in both artisanal and semi-industrial fisheries starts with the landing of the catch where locally it is consumed by the family, sold directly to consumers or retailed in fish shops, or sold for distribution through a number of outlets in large urban centers, supermarkets and hotels.

The tourist trade is a major driver in the local market and its seasonality influences the distribution of product. High value product, such as lobster and shrimp, is mainly sold to tourists or exported.

Currently imports of seafood account for about three-quarters of consumption as national production does not meet the demand. Imports and high input costs and fuel used for fishing that have increased local production costs and the limited purchasing power of the Dominican population, result in annual per capita consumption of fish and fish products is around 5kg. It should be noted that official data reflects a lower level of consumption.

Fish processing and marketing is an area where opportunities exist to increase the contribution of the fisheries sector to the national economy. However, currently, postharvest conditions do not meet the standards required for domestic and export marketing and this reduces the value of the fish in the domestic market while making it difficult for national production to gain market share. In that sense, CODOPESCA as the competent authority does not have the resources to guarantee the safety of fish products. This prevents exports from the Dominican Republic from exporting to international markets including the EU. Issues start in the catching sector, with insufficient care in handling and the

limited use of ice to maintain the cold chain. On-shore there is a lack of supporting infrastructure to allow the reception, storage and handling of the product. In response, CODOPESCA is promoting a series of initiatives including accreditation of national laboratories and the creation of functioning support infrastructure to the standard required.

The correct storage of the product will minimize waste and further enhance its value. Measures required to reduce post-capture losses include the use of good hygiene practices, the introduction of systems for Hazard Analysis and Critical Control Points (HACCP) from capture through to retail, the development of added value processing (fillets, frozen, salted, dried and smoked).

Improved landing facilities and processing installations (including ice making machines and cold stores) represent a high initial investment but their availability is the key to ensuring an efficient market, improving quality, developing export possibilities and increasing the profitability of the sector. The greater the possibility to add value and store fish, the higher the demand that offers the prospect of improved first hand sales prices. This is needed to maximize the value of the fishery and increase the first hand sales value of the fish.

It should be acknowledged that as with the situation of activity ancillary to the fish catching sector, the wide dispersion of fish landings on numerous beaches along the coastline is a constraint to effective marketing as the volumes of product coming ashore at any one point are scarce. While it is ambitious, there should be an analysis of approaches to concentrate landings in selected locations along the coast to provide the basis for the development of on-shore activity and provide an equitable market that reduces the potential for monopoly actions..

A benefit of the improved organisation of producers would be increased ability to negotiate sales price. However, for many this is problematic due to the linkages with intermediaries that buy the fish but also own the boats and / or supply finance for fuel and loans.

It is necessary to encourage the participation of the private sector in the area of processing of products to leverage the added value in the country, reduce imports and boost productivity and national competitiveness. The country lacks experience in this regard and it is suggested the establishment of governmental agreements with international bodies to support the validation of technologies for the processing of aquaculture and fishery products, as well as training of technicians specialized in the field.

If the national aquaculture sector is to develop, steps need to be taken to improve market demand. Initially this does not imply increased consumption, rather the substitution of imported product. The two best forms to promote domestic product is quality assurance to satisfy consumers that health standards are met and competitive pricing which in turn is dependent on the cost of inputs (fingerlings, feed and fuel) and the volume of production. Efforts to promote consumer awareness of the benefits from eating nationally produced fish and not imported product have to be built upon with branding and kite marks to allow ease of identification and a guarantee of quality.

### **3 National Fisheries Policy: Goal, Purpose & Strategic Axes**

#### **3.1 Guiding Principles**

The core guiding principle and priority of the National Fisheries Policy of the Dominican Republic is to protect the interests of future generations and their access to a national renewable natural resource. In order to meet this need, all fisheries activity and the management and development of the sector must be grounded on sustainability and based on responsible fishing in the context of an eco-system based approach. This recognizes the rights and needs of both present and future generations. In line with the precautionary principle, lack of knowledge about resource status is not a legitimate reason for lack of action.

Another factor that guides the definition and implementation of fisheries policy and associated strategy is the need to be consistent with National Development Strategy 2010 – 2030, particularly Axis 2 (Article 8) [that refers to a low

level of poverty and inequality; increase human and social capital and economic opportunities for the population that lives in poverty; decrease and alleviate poverty by developing the capacity to generate income; protect vulnerable groups and facilitate their inclusion into society] and Axis 3 (article 9) [a coordinated, innovative economy in the context of a sustainable environment, with a productive structure that generates high sustainable growth. Secondary objectives include the use of the national budget to respond to national development priorities; support for a regulatory framework that provides the climate for investment and competitive business; the promotion of research; and an increase in the productivity, competitiveness and environmental sustainability and finance for the food production chain to contribute to food security, increase exports and generate income and employment for the rural poor].

If marine and inland water capture fisheries can be managed on a sustainable basis, policy must be directed at increasing the benefits from the fishing sector with actions related to developing on-shore activity.

Finally, there is a need to ensure that International commitments are honored.

### 3.2 National Fisheries Plan

#### 3.2.1 Goal

The goal of National Fisheries Policy is

*"To maximise the sustainable economic contribution of the fishery sector to the National Economy from the full use of available marine and inland water resources"*.

The fisheries sector is defined as all fishery related activities including marketing, processing and ancillary services.

#### 3.2.2 Vision

CODOPECSA has a vision for fisheries in the Dominican Republic. This should be refined to take into account human activity and the welfare of key stakeholders and the need to strengthen the multiplier benefits.

*"To establish a sustainable system of fishing and aquaculture based on the principles and norms of the Code of Conduct for Responsible Fishing related to conservation, management and fishery development and promote fishery related on-shore activity and so maximize the long term economic return from the use of the Republic's water resources to the benefit of fishers, their families and their communities"*.

The key word is "establish" – the progress in establishing sustainable fisheries will only become evident over the long term. On that basis, the NFS should consider the need for priority actions in the next 3 years to create the bases, with other activities dependent on the progress achieved over a 10 year horizon.

#### 3.2.3 Mission

The achievement of the objectives of this policy will be dependent to a large extent on the capacity of CODOPECSA to establish and maintain the required work program. A major indicator of success will be the ability of CODOPECSA to meet its mission statement:

*"CODOPECSA establishes policies, strategies, norms, regulations, and other instruments related to the use of fishing resources for the benefit of all persons involved in fishing and aquaculture activities that emphasizes the importance of full and formal participation by stakeholders in the decision making process to ensure that their interaction and long term needs in relation to the environment and resources are fully taken into consideration in the definition and implementation of measures aimed at sustainable and responsible development"*

#### 3.2.4 Purpose

The NFS is intended as a road map to guide the actions of CODOPECSA and other institutions involved in the fishery sector. It starts from the present situation towards a strategic target which is at least partly achievable within the next 10 years. As required by National Policy (see above), the purpose of the NFS must reflect the defined National

priorities as the fishery sector is one of many that comprise the overall economy. The NFS must bring together policy, the Fisheries Law and regulations, linked institutional arrangements and stakeholders..

### **3.2.5 Indicators**

Having defined the Goal, Vision and Purpose, a Logical Framework Matrix is required to consider the risks, assumptions and key indicators which will apply to the NSP (Appendix 1). The indicators are generic in nature, and will serve to assess overall progress towards achieving the purpose.

### **3.2.6 Risks and Assumptions**

For the goal, objective and individual axes a number of risks and assumptions have been identified and defined (Appendix 1). The main assumption is related to the actual ability to implement sustainable fisheries in the context of a growing population and the lack of economic alternatives, especially in fishery dependent communities. If access to fisheries and related catch prove to be uncontrollable there will be little chance of sustainable exploitation. Continued open access will inevitably lead to the continued degradation of the resource base, with a resultant deterioration in livelihoods and living standards and a decline in the contribution of the fisheries sector to the national economy. Also continued overfishing and lack of respect for the norms and regulations governing the use of the Republic's fishery resources may have far reaching consequences; not only in the increased risk of negative impacts on coastal communities from global warming due to the destruction of corals and mangroves, but also in reducing the attractiveness of the country to national and international tourists. It is considered vital there is stability in governance with the strengthening of CODOPESCA as the autonomous body responsible for administration, management and oversight of the fisheries sector in support of the implementation of Government policy and the inclusion of stakeholders in the decision making process. It is equally important that the local economies of fisheries dependent communities are diversified to reduce their dependence on fish production as a source of employment and income.

## **3.3 Strategic Axes**

### **3.3.1 Introduction**

The NFP has undergone several iterations that include outlines of the key policy areas and aspirations of the sector and emphasis on the role of Government, communities and the contribution that the sector will make to poverty reduction.

As a result of stakeholder consultation, five axes have been identified to provide the basis for the definition of a strategic approach to ensuring the sustainable management of the fisheries and aquaculture sector in the Dominican Republic:

- Axis 1: Legal and institutional framework;
- Axis 2: Socio- economic aspects;
- Axis 3: Administration & management;
- Axis 4: Aquaculture; and
- Axis 5: Marketing.

These axes provide the basis for actions aimed at: sustainable capture fisheries and aquaculture; the fishery sector providing stronger benefits to fisheries communities; reduced poverty; strengthening the participatory approach to management; the substitution of imports by national product; an increase in per capita national fish consumption; and equitable aquaculture development.

Policy must respond to stakeholder aspirations in: sustainable management and development of fisheries; decentralization and community involvement in fisheries management; institutional and funding mechanisms; investment in the fishery sector; planning and policy-making; information and communication; the environment and

fisheries; aquaculture; post-harvest quality and added value; fish marketing and trade; human resource development; and research.

The axes are not mutually exclusive; the activities related to some will have a bearing on those contained in others. Some issues are common to all or some of the axes; such as human resource development, stakeholder organisation; participatory planning; and finance.

The various issues and the concerns expressed during wide consultation provide the basis to conclude that significant progress is required in each of these Axis if the fishery sector is to be environmentally sustainable while maximizing the economic return from the use of the Republic's water resources to the benefit of fishers, their families and their communities.

The NFS identifies the constraints and opportunities related to each axis. It builds a road map towards meeting the objectives through axes, including priorities for immediate attention. In considering the practical implementation of the NFS there has to be a clear understanding of the constraints on action. These constraints relate to the need: (i) to adopt initiatives to respond to the current status of the fisheries sector; (ii) to promote sector-wide Institutional strengthening to provide the basis for the implementation of the initiatives in the short, medium and long term; and (iii) for effective funding mechanisms.

At the same time it is recognized that some actions are fundamental if the development process stemming from implementation of the strategic plan is to be quickly established on a firm footing within in the short term and this has led to the identification of Priority Action Areas that should be addressed as soon as possible and certainly within the first three years of the NSP.

Again, it is emphasized that there is cross cutting and there are no boundaries between axes and the achievement of the Strategic Purpose is only attainable through wide and effective cooperation between institutions and stakeholders.

A summary of the NFS is shown in Appendix 2.

### **3.3.2 Axis 1: The existence of a legal and institutional framework that provides the basis for effective and efficient policy implementation that responds to the need to ensure the sustainability of the fisheries sector and co-management with stakeholders.**

#### *Analysis*

This axis is considers the importance of achieving long term stability in institutional responsibility for fisheries management and administration, as substantial additional work is required to make the NFS functional. Once the strategy is defined and validated by stakeholders and higher authorities, related action plans must be prepared to: provide operational guidance; more precisely define activities and responsibilities; and allocate budgets. Operational plans must be up-dated on an annual basis following an evaluation of the progress made in the preceding time period. The NFS is a living document that provides a road map; experience will dictate where the route needs to be changed.

While the modification of the legal framework is not considered urgent, this should be contemplated within the planning period to ensure the context for sustainable management and development. It is important that legislation affecting capture fisheries covers the whole EEZ and is harmonized with that of other Caribbean countries. At the same time, the operability of the existing law must be confirmed by the urgent adoption of enabling regulations and the establishment of mechanisms for integrating the implementation of the policy into the wider policy framework of Government.

This Axis provides the essential route through which fisheries can become a front line player in the national development process. The active integration of sector planning into the national and sector wide policy framework

offers the opportunity for representation which is in line with the contribution fisheries makes to economic growth and poverty eradication.

A primary requirement is for a reorganization of CODOPESCA with associated institutional strengthening to focus on identified strategic needs while recognizing that the scarce human and financial resources available limit the Institution's capacity for action. In turn this leads to the conclusion that a key focus of the NFS must be effective cooperative and collaborative work with a range of stakeholders, including public sector and international agencies, to harness the synergistic benefits attainable by pooling different skills and increased financial possibilities.

Addressing the approach to fisheries co-management will pose a substantial challenge to CODOPESCA in relation to the allocation of resources at the regional level, with the redeployment of staff to respond to the identified priority. Even with such redeployment, it is questionable if the strategic approach can be fully functionalized with the resources currently available and the situation will become more acute if the CODOPESCA budget is not increased.

The implementation of a plan of human resource development would increase the performance of the institution to optimize its organizational structure, design reporting systems and communication protocols and introduce a training plan for staff. This aspect is covered under other axes but it is worthwhile noting that the capacity for effective implementation of co-management and stakeholder recognition of the importance of responsible fisheries will to a large degree be dependent on an effective training and awareness programme.

#### **Activities & Expected Outputs**

- A1.1 The implementation of the NFS
  - O1.1.1: The NFS has been verified by stakeholders and higher authorities (PRIORITY).
  - O1.1.2: Responsibilities for NFS implementation have been identified (PRIORITY).
  - O1.1.3: Mechanisms for inter- institutional cooperation have been established (PRIORITY).
  - O1.1.4: The annual budget available for implementation of the NFS in the first period of 3 years has been confirmed (PRIORITY).
  - O1.1.5: Annual operational plan including risk analysis and monitoring and evaluation programs have been developed.
  - O1.1.6: CODOPESCA personnel have been trained in project identification, preparation, monitoring and evaluation (PRIORITY).
- A1.2 Revision of the legal framework
  - O1.2.1: Norms have been introduced to complement Law 307/04 and its regulation and provide the basis for effective management of fisheries within the context of regional and international policies (PRIORITY).
  - O1.2.2: On the basis of identified needs related to the achievement of the purpose there has been a revision of the legal framework for capture fisheries, aquaculture and food safety.
  - O1.2.3: Modification of the legal framework has taken place in the context of a full stakeholder consultation process and the need to respond to the needs for coherence with the regional approach and international obligations.
  - O1.2.4: Mechanisms have been introduced to ensure that the legal framework (Law 307/04 and secondary supporting regulations) is communicated to stakeholders, with up-dates as required to ensure knowledge and understanding of the fishery management tools that are implemented (PRIORITY).
- A1.3 Institutional Strengthening

- O1.3.1: The role of CODOPESCA as the responsible authority for the administration and management of the fisheries and aquaculture sector as detailed under Law 307/04 and any subsequent amendments or modifications has been confirmed (PRIORITY).
- O1.3.2: A ring fenced consistent funding mechanism for CODOPESCA and other institutions contributing to sustainable resource use has been established and confirms the nature and amount of financial support to CODOPESCA over the period 2013 – 2015 (PRIORITY).
- O1.3.3: Funding has been made available to finance CODOPESCA investment in projects needed to promote development initiatives (PRIORITY).
- O1.3.4: CODOPESCA has been restructured to respond to the identified strategic priorities (PRIORITY).
- O1.3.5: The internal and external channels of communication have been reinforced with the creation of a dedicated communications unit (PRIORITY).
- O1.3.6: A training plan for CODOPESCA personnel and stakeholders with inputs into the various has been designed and implemented (PRIORITY).
- O1.3.7: A CODOPESCA web site has improved the dissemination of information and improved stakeholder awareness of the Agency's activities (PRIORITY).

### **3.3.3 Axis 2: To increase the social capital of fishery dependent communities and increase the on-shore multiplier benefits from capture fisheries and aquaculture**

#### *Analysis*

Fishery dependent communities have a limited range of alternative occupations meaning that the traditional activity is often the only productive option in spite of the declining catch rates and the limited opportunities to escape from poverty. Human capital continues to be focussed on fish catching, while the major proportion of fishers have limited or no physical assets whether or not related to fish e.g. land. Access to fishing is often via the support and patronage of middlemen who are the main beneficiaries of the effort by fishers. This is the context of natural resources that are vulnerable to harvest in an open access fishery. Resource depletion is a cross-cutting concern of many stakeholders, but also relates to the status of fishery dependent communities in the context of the National Policy framework. This appreciation highlights the need to shift from a development mode for marine capture fisheries to one of regulated access with the aim of maximising the sustainable economic returns (increased average fisher incomes and higher employment).

The potential to shift focus will to a large part be dependent on the real involvement of stakeholders in the decision making process. There should be a mechanism for fishery dependent communities to influence the processes and quality of governance through the establishment of a formal basis for stakeholders to share responsibility for management. In turn, this will support stakeholders holding accountable the public sector and politicians due to the regular formal review process. It is anticipated that steps to develop co-management will generate mechanisms for more general empowerment of communities; leading to improved access to public services and pro-fisheries decision making. This approach represents the view that it is not within the scope of a fisheries strategy to define activities aimed at improving the general living conditions in fishery communities; that is the remit of other public sector Institutions. The aim is to strengthen the potential for fisheries communities to make the case for support from Ministries related to energy, roads, education and tourism.

The need for stronger organisation at the community level extends beyond a greater say in the decision making process. The establishment of cooperatives and marketing associations would provide an entrée into private sector commerce and assist in the development of business skills.

To strengthen the marketing possibilities of fishermen while providing the basis for cluster development that would

create more on-shore fishery related employment, strategic landing sites should be identified as foci for development actions, with, for example, the provision of efficient services leading to reduced vessel operating costs.

The potential for community development will be increased if all stakeholders are able to effectively participate; so the focus on gender issues with specific activities directed at promoting a stronger role in for women.

There are a number of cross cutting issues. Axis 3 considers training and increased awareness of sustainability issues. Support for community based aquaculture is covered in Axis 4. Actions considered in Axis 5 will look to improve the marketing of fish that would, if successful, lead to higher first hand sales prices of direct benefit to fishers.

### ***Activities & Expected Outputs***

- A2.1 Strengthening representative organisations
  - O2.1.1: A system for co-management of the resources through zonal, regional and national committees has been established, with assessment of the potential for community based property rights (PRIORITY).
  - O2.1.2: Women are actively involved in the various committee levels.
  - O2.1.3: Communications between CODOPESCA and stakeholders in fishery communities have been improved (PRIORITY).
  - O2.1.4: There is a training programme to support the establishment of effective community based organisations (associations and cooperatives)..
  - O2.1.5: CODOPESCA has collaborated with IDECOOP and relevant NGOs in promoting and developing cooperatives.
  - O2.1.6: CODOPESCA has collaborated with IDECOOP in the strengthening of the umbrella National Cooperative Federation that is functioning as a tool to support the work of individual cooperatives.
  - O2.1.7: There is stakeholder representation in Regional and International meetings.
- A2.2 Cluster development.
  - O2.2.1: A socio-economic study has identified the potential, opportunity and nature for cluster development (PRIORITY).
  - O2.2.2: Investment finance to support cluster development has been identified.
  - O2.2.3: The process of development of strategic landing places has been started.
  - O2.2.4: Projects owned and managed by women have been prioritized.

### **3.3.4 Axis 3: Effective participatory administration and management of capture fisheries and related environmental issues, with sustainable equitable harvest maximizing the long term potential contribution to the national economy and alleviation of poverty.**

#### ***Analysis***

Given the nature of the Republic's marine platform that is characterized as a relatively small area with low productivity, fishing possibilities are limited. Traditional grounds are depleted but the majority of vessels lack the autonomy to venture further afield into deeper waters. As a consequence it is clear that capture fisheries are in a precarious position due to illegal fishing, irresponsible fishing and the degradation of the marine ecosystem.

While lack of research prevents rigorous resource assessments of the major stocks of fish, crustaceans and mollusks, according to fishers' local knowledge (lower catches, reduced catch per unit effort and smaller average sizes) allied with data on increases in the number and fishing power of vessels, the conclusion is that the main commercial stocks are reducing on a continual basis. . The precautionary principle requires that even where there is data deficiency effective actions must be taken to manage fisheries in a sustainable way.

It has been identified that a major step to developing sustainable fishing patterns is co-management of local resources that could lead at a later stage to the founding of community fishing rights e.g. in defined areas including around fish aggregating devices (FADs) that allow targeting of migratory species. Co-management is an accepted concept in the Dominican Republic, however progress has been slow and limited to pilot projects and negotiated agreements on co-management. The basic concept is stakeholder and CODOPESCA accountability for ensuring responsible fishing. A close partnership will establish a basis for trust, transparency and improved governance. The approach seeks to reduce conflict, ensure sustainable resource management, improve the performance and capacity of CODOPESCA, and empower communities (see O2.1.1).

A basis for such an initiative is improved understanding of the nature and characteristics of stocks; in an overall context there must be a research plan at the national and regional level to assess stock status, while at the local level information will be needed to support the efforts of co-management to establish the potential for the introduction for administrative and new technical fishing measures. CODOPESCA will need to take the lead in establishing the agreement of competent institutions to collaborate in completing the required research plan.

A range of management measures may be considered appropriate, with the need to limit effort (number and type of vessels, size of engines, types and amount of gear) and how that effort is deployed (closed areas and closed seasons).

In addition, the fisheries sector must be formalised so that there is a clear idea of the fishing capacity and effort and to ensure that those who cooperate in introducing responsible and sustainable fishing are able to benefit from any future improved catch possibilities. Currently, CODOPESCA is in the process of collecting data and issuing licenses to fishermen and boats and this will be complete in 2013. This will help determine the approach to the licensing of vessels, gears and fishermen.

A major issue is MCS. A compliance plan needs to be established to ensure that the regulations are respected and that infringements are sanctioned. While co-management will support this objective, with fishery communities assuming some responsibilities for the implementation of local management measures, there needs to be recognition of the need to make CODOPESCA more efficient in order to eliminate IUU fishing, with a new approach in collaboration with the Marine de Guerra and (where applicable) the Ministry of Environment, based on regional teams, a risk based methodology and improved logistical support.

An issue raised by stakeholders was the need to raise awareness of the need for responsible fishing. A limited programme of workshops and seminars will not lead to the required changes; fundamental issues must be addressed by taking advantage of the increased consciousness of younger generations about the need to maintain ecosystem health. CODOPESCA should ensure with the Ministry of Education that the subject of responsible fishing in the context of sustainable use of the ecosystem is included in school curriculum. This should be supported by the distribution of targeted material such as videos, posters and brochures to a wider segment of the population.

The potential to reduce fishing effort in traditional waters not only depends on the ability to generate alternative employment on-shore (whether or not this is fishing related) but also the extension of fishing by the current fleet in more distant waters with the use of mother ships and an increase in the number of FADs. Continued research is required to establish new fishing possibilities, whether these be on the more distant banks, highly migratory species or under exploited species (such as giant squid). Any new effort must be carefully managed to avoid a domino effect and the over-harvest of newly developed fisheries, while it may be considered prudent for fishing capacity supported by any developed programs must be excluded from their traditional fishing areas.

Success in implementing the management approach will require that fishery managers who work with community leaders and stakeholders have an understanding of the specific needs of an effective approach. Training should take place to ensure the skills are available (see O1.3.6); including the preparation of national and local fishery management plans.

Given the shared nature of fishery resources, management measures will need to be compatible to and complement those taken on a regional basis. CODOPESCA has the responsibility of guaranteeing fishing activity by national vessels in the EEZ, in international seas and the EEZs of neighbouring countries (see O1.2.3) is undertaken legally.

Another stakeholder issue was the quality of information. The limited collection, analysis and dissemination of information is a constraint to sector development. A coherent and all-inclusive communication strategy is thus regarded as a priority. The establishment of a comprehensive Fisheries Information System (FIS) will be an important activity. This is related to the Axis 1 activity of improving communications. In the context of preparing for a FIS there should be an evaluation of the current role of data collectors and the approach to gaining landing statistics. Given the proportion of total CODOPESCA resources spent in this area it must be ensured that the statistics generated are reliable. If the data collection process was made more efficient with the introduction of electronic records that allow data to be inputted directly to the central data base that automatically generates the analyses required, significant resources may be redeployed from this element to focus on the formation of the co-management committees. As with other parts of the CODOPESCA work plan, a key assumption is that funds to provide logistical support will be available.

There is limited knowledge about capture fisheries in inland waters, but the same principles apply. The main difference is the potential to enhance resource availability through stock enhancement processes.

Given the need to consider fisheries within an eco-system based approach, all elements noted above must cover the relevant issues, such as the protection of mangroves, thalassia fields and coral reefs.

### ***Lines of Action & Expected Outputs***

- A3.1 Formalisation of the fishery sector
  - O3.1.1: Only licensed fishing vessels operating licensed gear and working with licensed fishermen are permitted to fish the waters of the Dominican Republic.
  - O3.1.2: All fish buyers and sellers in the market are registered and submit information to CODOPESCA to allow the traceability of catches.
  - O3.1.3: All representative organisations in the fishery sector have been registered and operate according to the prescribed regulations.
  - O3.1.4: National, regional and local fishery management plans have been prepared and implemented.
- A3.2 Improved information
  - O3.2.1: A fishery information system has been established to provide data on: the fishing fleet, gear and fishermen; the fish market; and trade.
  - O3.2.2: The collection of reliable data is done cost effectively providing catch estimates based on vessel characteristics (metier) rather than landing place, with the electronic logging and submission of data (PRIORITY).
- A3.3 Improved research
  - O3.3.1: There are MOUs between CODOPESCA and relevant bodies and individuals on the implementation of a research plan that provides fishery resource information to interested parties and advises local co-management committees on the need and potential to introduce technical and administrative management measures.
- A3.4 MCS
  - O3.4.1: Regional teams of fish inspectors have been formed (PRIORITY).
  - O3.4.2: There are MOUs between CODOPESCA and the Marina de Guerra and the Ministry of Environment to support, as appropriate, programmed monthly enforcement activities based on a risk based approach (PRIORITY).

- O3.4.3: The regional teams are provided with the logistical support required for implementation of an effective compliance plan both on-shore and at-sea (PRIORITY).
- O3.4.4: Fishery authorities report to stakeholders at each meeting of the co-management committees.
- O3.4.5: CODOPESCA monitors the effectiveness of the legal system in sanctioning infringements.
- A3.5 Increased awareness
  - O3.5.1: Environmental and fishery related studies are included in the national school curriculum.
  - O3.5.2: An awareness & training campaign comprising television programmes, videos, posters, manuals, brochures targeting specific segments of society has been established and is being maintained (PRIORITY).
- A3.6 Identification of alternative fishing activities
  - O3.6.1: The options for mother ship operations have been analysed and individual projects have been established through public / private sector initiatives (PRIORITY).
  - O3.6.2: The options to increase the number of FADs have been analysed and new FADs (PRIORITY).
  - O3.6.3: Investigations have been concluded on the potential for harvest of non-traditional species.
- A3.7. Improved ecosystem.
  - O3.7.1 In cooperation with the Vice-ministerio de Recursos Costeros y Marinos, a programme has been developed for coastal zone management that includes the creation of managed areas (mangroves and corals) and includes the completion of actions to restore damaged populations.
- A3.8 Inland fisheries
  - O3.8.1: The carrying capacities of individual water bodies and the maximum number of vessels required to complete profitable harvest have been assessed.
  - O3.8.2: CODOPESCA has worked with previously created Local Management Council in individual water bodies to develop a specific management approach and this will have been detailed in a fisheries management plan.
  - O3.8.3: The effectiveness of stock enhancement programs has been validated and restocking plans are in place.

### **3.3.5 Axis 4: The increased contribution of aquaculture to economic growth and food supply, and the diversification of local fishery economies and poverty reduction.**

#### ***Analysis***

By law, the CODOPESCA has an obligation to promote and facilitate the development of both capture fisheries and aquaculture. While the situation was different previously with a range of National activities centred on the development of fish farming, in recent years, aquaculture related development work programmes have been reduced. This is at a time when the best option to increase domestic production of fish depends on successful investments in fish farming, bringing the benefits of increased national food supply, enhanced employment and income and the potential to reduce the trade deficit in fish and fish products. Community based aquaculture operations provide the basis for the diversification of income from fish catching while presenting an opportunity for incorporation of women's groups into the cash economy, as exemplified by the project in Barahona. Aquaculture can also form part of diversified income strategy using water areas in farms offer the possibility of diversifying agriculture effort, if not by the production of commercial quantities, at least as a supplement to the household diet.

Although there are examples of success, many fish farms are inactive and there is limited production. Over recent years, ADOA has drawn attention to the various issues in a series of strategic analyses, with the last one being in late 2011.

Given the plethora of quality water resources enjoyed by the Dominican Republic there are strong possibilities to increase fish farming activities. At the same time, there is a need to increase total fisheries production through the sustainable development of aquaculture. The contribution of aquaculture to the national economy could be

significantly enhanced.

Increased fish farming activity is a key priority for the NFS; it is considered essential that aquaculture has a high profile within CODOPESCA.

The sector needs to develop to feed increasing demand from a growing population, reduce the trade deficit in fish and fish products and contribute to combatting the problems of rural poverty.

There are three strategic options that are not mutually exclusive, although care needs to be taken to ensure that success in one does not impact the potential in others by reducing the ability of the final product to compete in the market. Firstly, how to attract national and international finance for new investment in technically advanced fish farms producing large quantities mainly for export but also to supply national demand. Secondly, how to invigorate the existing sector of fish farms, thus bringing production up to installed capacity. Thirdly, how to develop community based fish farming, to support existing initiatives such as in Sanchez and Barahona while progressing new opportunities such as the cage culture of tilapia in the reservoir Rincon. CODOPESCA needs to provide input into each sub-sector with the aim of supporting private sector initiatives while providing strong assistance in promoting community based fish farms. This approach maximizes the value of CODOPESCA activities – with a range of public sector / private sector partnerships.

One vehicle to drive commercial development would be the establishment of commercial aquaculture parks. The concept of such parks is that there is a shared cost to the investment required in infrastructure and support, while there may be cooperative work in marketing and sourcing inputs. It is a type of cluster development based on a similar approach to industrial parks.

It is anticipated that success across the three sub-sectors with increased production will be a driver for new investment in ancillary activities; notably the production of fingerlings and the national production of feed based on the import of fish meal. The lack of suitable national production should not form a constraint to development; rather CODOPESCA should strive to identify options to provide the basic inputs on a continuous basis at a competitive price.

Fish farming in the country is based on a limited number of species. It is considered that emphasis should be on developing the farming of those species rather than looking to widen the range with the inherent risks. Mechanisms should be developed for cooperative work between the public and private sectors to establish the feasibility of projects related to new species taking into account experience in other countries that have a stronger base in such activities.

There are strong cross cutting issues between this axis and those relating to institutions, socio-economics and marketing.

### ***Lines of Action & Expected Outputs***

- A4.1 Increasing community based fish farming
  - O4.1.1: The locations with the highest potential for community owned fish farms have been identified in the context of the potential to establish commercial aquaculture parks (PRIORITY).
  - O4.1.2: Finance for funding through revolving credit has been identified (PRIORITY).
  - O4.1.3: An on-going training programme has been developed and implemented (PRIORITY)
  - O4.1.4: Mechanisms have been developed and implemented to monitor activity in the sub-sector on an on-going basis (PRIORITY).
  - O4.1.5: At least 5 community based projects are functioning on a sustainable basis.
  - O4.1.6: At least 10 community based projects are in the process of implementation.
- A4.2 Increased production from small and medium scale fish farms.

- O4.2.1: There is agreement between ADOA, CODOPESCA, IDIAF and other relevant bodies to identify areas of responsibility for implementation of the strategy (PRIORITY).
- O4.2.2: A feasible action plan has been drafted and implemented (PRIORITY).
- O4.2.3: An on-going training programme has been developed and implemented (PRIORITY)
- O4.2.4: Access to formal credit has been improved (PRIORITY).
- O4.2.5: Standards have been introduced to guarantee the quality of the product from national fish farms.
- A4.3 Increased production from large scale commercial fish farms.
  - O4.3.1: There has been an assessment of the potential to provide incentives for international investment (PRIORITY).
  - O4.3.2: Locations suitable for development of large scale commercial fish farms have been identified (PRIORITY).
  - O4.3.3: CODOPESCA provides improved support to encourage new and increased investments in commercial large scale fish farming.
- A4.4 Guaranteeing the supply of essential inputs (fingerlings / PL / feed).
  - O4.4.1: A business plan has been prepared to assess the options to provide the supply of essential inputs (PRIORITY).
  - O4.4.2: CODOPESCA has been provided with the investment funds to make required purchases of fingerlings and fish feed to provide support to fish farming projects (PRIORITY).
  - O4.4.3: There has been an assessment of the potential to provide incentives for new investment in the Dominican Republic to supply essential inputs.

### **3.3.6 Axis 5 – To increase benefits derived from fish production through improved utilisation of the catch with better fish handling, a more efficient fish market and value added processing.**

#### *Analysis*

While it may appear somewhat contradictory to review the potential to improve markets at a time when it is concluded that many fish stocks are overfished and the aquaculture sector has in the past 20 years failed to deliver on potential, the NFS must establish the bases for more efficient marketing in order to maximize the value of production and support an increase in the level of on-shore related employment. Given the low level of production and quality related issues it is unlikely that general exports (as opposed to niche markets) will become an important part of the overall sector; however improving quality to export standards would tend, in a free and equitable market, to increase demand and increase the first hand sale price of landed product.

The contribution of the fisheries sector to the National economy is heavily dependent on the optimum utilization of the product from capture fisheries and fish farming. Losses in quantity and quality stemming from poor on-board / farm and on-shore handling, limited preservation options, poor processing and lack of added value products are directly reflected in reduced market value and difficulties in accessing export markets. The safety of fisheries products is a concern for both domestic consumers and to export clients. The introduction of relevant standards of hygiene and processing practices supported by a monitoring system will improve market possibilities.

While CODOPESCA is the nominated CA to certify processing plants and semi-industrial fishing vessels for the purpose of gaining access to the market in the European Union, currently it is not in the position to embark on a major work programme to identify and train the staff to undertake the required duties working in cooperation with the public and private sector. While this is a long term ambition, in the face of more pressing needs and limited resources no priority should be given to it, at least in the medium term.

Improved landing sites in strategic locations will have a tendency to concentrate landings thus making the market more competitive, attracting a number of buyers and reducing the dependence of fishermen a monopsonistic situation. Increased first hand sales values will provide an incentive for sustainable fishing.

The development of on-shore activity (marketing and ancillary services) at selected landing sites resulting from the concentration of landings should increase the potential for growth of fishery related employment and widen the range of employment options in specific fishery communities, thus reducing the need to fish in order to provide income. The development of clusters should have the tendency to reduce the costs of inputs though encouraging investments that will benefit from economies of scale and reduced transaction costs. Another benefit will be the facilitation of more cost effective inspection services, not only from the point of view of MCS but also quality. The limitation on permitted landing places will make it easier to identify IUU fishing activities.

Once there is some certainty that better handling practices have been successfully introduced and the level of aquaculture production is increasing, consideration should be given to the introduction of a marketing campaign to increase consumption of domestic product that substitutes for imports.

Value added production would benefit the fishery sector in two main ways: firstly, it would even out demand with the processing of product on offer at times of weak demand; secondly, it would increase the benefit of the catch if processing was carried in the communities. Value added processing does not have to be sophisticated (frozen filleted fish or smoked product) but the consumer must have a guarantee of product quality and it should not be the case that fish unsold at the end of the day is frozen or processed.

There is considerable overlap of this Axis with Axis 2. Benefits from the improved investment climate should provide the basis for involvement by small scale, community based, businesses or Associations / Cooperatives.

#### ***Lines of Action & Expected Outputs***

- A5.1 Better organisation of the market.
  - O5.1.1: There has been an analysis of the value added chain for national fisheries production (PRIORITY).
  - O5.1.2: Landings are concentrated in designed sites that have been provided with support services (ice, fuelling points, water, market buildings, equipment repair and maintenance).
  - O5.1.3: The buying of and selling of fish has been formalised to allow for product traceability and to reduce the potential for fraud and bad debt.
  - O5.1.4: Market information is posted on the CODOPESCA web site to facilitate better understanding of prices and demand.
- A5.2 Improved handling and conservation
  - O5.2.1: Manuals have been prepared and distributed on better handling practices and how to improve the value of the catch.
  - O5.2.2: Good handling practices and HACCP procedures have become standard in the sector following the preparation of model HACCP plans for each activity by CODOPESCA.
  - O5.2.3: CODOPESCA has established a plan to assume responsibilities as the designated competent authority or it has assigned duties to another State body.
  - O5.2.4: The availability of food safety laboratories with ISO certification and accredited according to international standards has been assessed and an investment plan has been made for the required up-grades including staffing and equipment.
- A5.3: Added value production
  - O5.3.1: The potential for added value processing in relation to activity in fishery dependent communities have been assessed with the preparation of template business plans.
  - O5.3.2: Sources of finance have been identified.
  - O5.3.3: At least two community based added value processing facilities have been established and are functioning.
- A5.4: Promotion

- O5.4.1: A market strategy has been defined to improve the potential for domestically produced farmed product to penetrate the national and international markets (PRIORITY).
- O5.4.2: Improved product grading based on defined standards has been introduced and a system has been established to provide kite marks for domestic production meeting those standards.
- O5.4.3: Consumer interest in domestic product has been increased following a promotion campaign.

#### **4 From Axes to Actions**

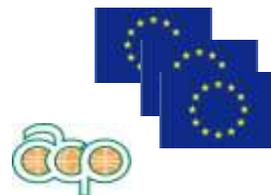
The problems facing the fishery sector of the Dominican Republic are many and varied over a wide range of constituent activities. In the light of those problems, it would be unrealistic to expect to achieve any significant advances in the first period of implementation; rather the objective in the initial three years is to create the bases for subsequent development.

A total of 21 lines of action have been identified for the 5 axes; it is sure there is more to do but these are considered the keys on which the development of other activities must be based as over the years the Strategy is modified to reflect the degree of progress and changed conditions. A total of 79 results have been identified of which 35 are considered as priorities. Reflecting the urgency to take action, the great majority of institutional results are considered a priority, as are those related to aquaculture. It is emphasised that there is limited potential for successful implementation of the strategy if there is no restructuring and strengthening of CODOPESCA, and in itself this may not be sufficient to guarantee success if required finance is not available.

With an agreed National Fisheries Policy and National Fisheries Strategy, the job in hand is to translate these into a National Operational Plan that should consist of individual Plans of Action (POA) for each Axis. POAs should develop time bound plans for actions and the achievement of results and estimate the amount of funds needed and the proposed sources. The POAs are then supported by Annual Operational Plans that plan activities for 12-month periods based on an evaluation of the preceding 12 months and confirmation of the finance available.



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**Appendix 1: National Fisheries Strategy: Logical Framework – Verifiable Indicators & Assumptions**

	<b>Objective</b>	<b>Objectively Verifiable Indicators</b>	<b>Assumptions</b>
Goal (long term)	To maximise the sustainable economic contribution of the fishery sector to the National Economy from the sustainable use of available marine and inland water resources	<ol style="list-style-type: none"> <li>1. The increase of the employment and income generated in the fishery sector from production through to consumption.</li> <li>2. The increase in the proportion of GDP created by fishery related activity.</li> </ol>	<ol style="list-style-type: none"> <li>1. National government recognises the importance of the fisheries sector and its concurrence with the aims of the National Strategy.</li> <li>2. Fishermen fish responsibly.</li> </ol>
Vision (10 years)	To establish a sustainable system of fishing and aquaculture based on the principles and norms of the Code of Conduct for Responsible Fishing related to conservation, management and fishery development and promote fishery related on-shore activity and so maximize the long term economic return from the use of the Republic’s water resources to the benefit of fishers, their families and their communities”.	<ol style="list-style-type: none"> <li>3. The increase in the consumption of domestically produced fish &amp; shellfish is in greater demand than imported.</li> <li>4. There are increased exports of nationally produced fish &amp; shellfish.</li> <li>5. There are decreased imports of fish and fish products</li> <li>6. Research indicates that over fishing is not occurring and over fished resources are in the process of recuperation.</li> <li>7. Studies indicate that fishery related activity is carried out in harmony with other elements of the ecosystem.</li> </ol>	<ol style="list-style-type: none"> <li>3. Fishery management measures aimed at sustainable fisheries are successfully introduced with regulations enforced.</li> <li>4. Finance is available for investment in fisheries and aquaculture.</li> <li>5. Success is achieved in policies aimed at increasing on-shore fishery related employment.</li> <li>6. National production is able to compete in terms of price and quality with imports.</li> <li>7. There is increased recognition of the need for an eco-system based approach to fisheries management.</li> <li>8. National consumers accept that domestic fish production.</li> </ol>
Mission (10 years)	CODOPESCA establishes policies, strategies, norms, regulations, and other instruments related to the use of fishing resources for the benefit of all persons involved in fishing and aquaculture activities that emphasizes the importance of full	<ol style="list-style-type: none"> <li>1. A monitoring and evaluation program has been designed and it is implemented on an annual basis.</li> <li>2. Number of supporting secondary legislation produced to provide the base for development of the capture fisheries and aquaculture sectors.</li> </ol>	<ol style="list-style-type: none"> <li>1. There is a stable national policy and CODOPESCA is maintained with its existing functions.</li> <li>2. CODOPESCA receives appropriate funding.</li> <li>3. CODOPESCAS accepts the need for internal</li> </ol>



	and formal participation by stakeholders in the decision making process to ensure that their interaction and long term needs in relation to the environment and resources are fully taken into consideration in the definition and implementation of measures aimed at sustainable development.	3. Number of formal stakeholder consultation actions carried out by CODOPESCAS and other institutions related to activity in the fishery sector	reorganisation and restructuring. 4. CODOPESCASA accepts the need for a formal mechanism for stakeholder consultation and resource co-management. 5. Other Institutions support implementation of the NFS. 6. Stakeholders are aware of the need for sustainable fishing and respond accordingly.
Axis 1: Legal & Institutional Framework	The existence of a legal and institutional framework that provides the basis for effective and efficient policy implementation that responds to the need to ensure the sustainability of the fisheries sector and co-management with stakeholders	1. The increase of the amount of finance for CODOPESCA. 2. Number of operational plans that are reviewed and updated in annual basis with associated required monitoring and evaluation. 3. Number of supporting secondary legislation produced 4. Number of working groups from key institutions actively working together to implement policy aimed at sustainable fishing reacted activity. 5. Number of training and communications strategies designed and implemented. 6. Number of local, regional and national fishery committees established and functioning.	1. Other institutions are prepared to commit to implementation of the strategy and to fully cooperate with CODOPESCA. 2. CODOPESCA accepts the need to reorganise and restructure. 3. There is acceptance of the need for co-management and greater formal stakeholder input into the decision making process.
Axis 2: Socio-economic Aspects	To increase benefits derived from fish production through improved utilisation of the catch with better fish handling, a more efficient fish market and value added processing.	1. The increase in the number of co-management committees. 2. There is a higher on-shore employment as verified by up-dated socio-economic data / studies. 3. There is stronger participation by women in the fisheries sector. 4. The number of functioning cooperatives and other	1. There is funding available to support new initiatives at the community level. 2. Fishermen accept the need for greater participation by women. 3. Stakeholders accept the need to participate in co-management.

		representative organisations.	
Axis 3: Admin. & Management	Effective participatory administration and management of capture fisheries and related environmental issues, with sustainable equitable harvest maximizing the long term potential contribution to the national economy and alleviation of poverty.	<ol style="list-style-type: none"> <li>1. Number of national FMP and local FMPs.</li> <li>2. The increase of the number of licenses (vessel, gear, fishers and buyers).</li> <li>3. Number of MOUs between CODOPESCA and cooperating institutions that that have been implemented at the practical level.</li> <li>4. The number of functioning co-management committees.</li> <li>5. The increase in the number of parameters collected by the Data Collection System .</li> <li>6. Number of sampling programmes developed and in use.</li> <li>7. Scientific material produced (reports, publications, etc.)</li> <li>8. Number of inspection plans designed and implemented</li> <li>9. The increase in the quantity of visibility material on sustainable fisheries developed and disseminated.</li> <li>10. The fishing pressure in traditional grounds has been reduced</li> </ol>	<ol style="list-style-type: none"> <li>1. CODOPESCA has the capacity and interest to define and implement FMPs.</li> <li>2. There is funding available.</li> <li>3. Enforcement personnel have been provided with logistical support for implementation of the compliance.</li> <li>4. Stakeholder participation in co-management is accepted.</li> <li>5. Stakeholder participation in co-management is effective.</li> <li>6. Institutions agree to a cooperative work programme.</li> <li>7. The judiciary is effective in sanctioning infringements of regulations.</li> </ol>
Axis 4: Aquaculture	The increased contribution of aquaculture to economic growth and food supply, and the diversification of local fishery economies and poverty reduction.	<ol style="list-style-type: none"> <li>1. The increase of the number of community based fish farming operations.</li> <li>2. The increase of the number of fish farms that are active.</li> <li>3. The increase in the amount of investment by national and international companies.</li> <li>4. The increase of the aquaculture production</li> </ol>	<ol style="list-style-type: none"> <li>1. Aquaculture development is a national priority.</li> <li>2. CODOPESCAS has the technical capacity to implement the strategy.</li> <li>3. ADOA is able to effectively as a strategic partner.</li> <li>4. Funds are available for aquaculture.</li> <li>5. There is interest in developing farming activity and ancillary production (feed and fingerlings).</li> </ol>

		<ol style="list-style-type: none"> <li>5. The increase in the quantity and quality of nationally produced fish meal.</li> <li>6. The increase in the quantity and quality of nationally produced fingerlings.</li> <li>7. The increase in the number of monitoring activities by trained personnel.</li> <li>8. The increase of the number of training courses to fish farmers.</li> </ol>	<ol style="list-style-type: none"> <li>6. There is the technical capacity to develop the aquaculture sector.</li> <li>7. There is cooperation between institutions to develop the sector.</li> </ol>
Axis 5: Marketing	To increase benefits derived from fish production through improved utilisation of the catch with better fish handling, a more efficient fish market and value added processing.	<ol style="list-style-type: none"> <li>1. The number of cluster developments.</li> <li>2. The increase of the daily ice production in fish landing sites.</li> <li>3. The increase of cold and chill storage capacity.</li> <li>4. The increase of the number of companies applying HACCP manuals.</li> <li>5. The increase of new products/presentations introduced in the market</li> <li>6. Number of actions towards establishing a CA.</li> <li>7. The number of campaigns to promote fishing and aquaculture products</li> <li>8. The existence of local kite marks.</li> <li>9. The increase of the national consumption of domestic production.</li> <li>10. The increase of the level of exports.</li> <li>11. The decrease of the level of imports.</li> </ol>	<ol style="list-style-type: none"> <li>1. Funding is available to improve marketing.</li> <li>2. Stakeholders work together to develop the market.</li> <li>3. CODOPESCA has the capacity and means to define and implement market strategies.</li> </ol>

**Appendix 2: Overview of the National Fisheries Strategy**

<b>Goal</b>	To maximize the sustainable economic contribution of the fishery sector to the National Economy from the sustainable use of available marine & inland water resources.				
<b>Vision</b>	To establish a sustainable system of fishing and aquaculture based on the principles and norms of the Code of Conduct for Responsible Fishing related to conservation, management and fishery development and promote fishery related on-shore activity and so maximize the long term economic return from the use of the Republic's water resources to the benefit of fishers, their families and their communities.				
<b>Policy Area</b>	<b>Axis 1</b>	<b>Axis 2</b>	<b>Axis 3</b>	<b>Axis 4</b>	<b>Axis 5</b>
<b>Objective of Axis</b>	The existence of a legal and institutional framework that provides the basis for effective and efficient policy implementation that responds to the need to ensure the sustainability of the fisheries sector and co-management with stakeholders	To increase the social capital of fishery dependent communities and increase the on-shore multiplier benefits from capture fisheries and aquaculture	Effective participatory administration and management of capture fisheries and related environmental issues, with sustainable equitable harvest maximizing the long term potential contribution to the national economy and alleviation of poverty.	The increased contribution of aquaculture to economic growth and food supply, and the diversification of local fishery economies and poverty reduction.	To increase benefits derived from fish production through improved utilization of the catch with better fish handling, a more efficient fish market and value added processing.
<b>Lines of Action</b>	A1.1 The implementation of the NFS A1.2 Revision of the legal framework A1.3 Institutional Strengthening	A2.1 Strengthening representative organisations A2.2 Cluster development.	A3.1 Formalization of the fishery sector A3.2 Improved information A3.3 Improved research A3.4 MCS A3.5 Increased awareness A3.6 Identification of alternative fishing activities	A4.1 Increasing community based fish farming in the context of the potential to establish commercial aquaculture parks A4.2 Increased production from small and medium scale fish farms.	A5.1 Better organisation of the market. A5.2 Improved handling and conservation A5.3: Added value production A5.4: Promotion

			A3.7. Improved ecosystem. A3.8 Inland fisheries	A4.3 Increased production from large scale commercial fish farms. A4.4 Guaranteeing the supply of essential inputs (fingerlings / PL / feed).	
Expected Outputs	<p>O1.1.1: The NFS has been verified by stakeholders and higher authorities (PRIORITY).</p> <p>O1.1.2: Responsibilities for NFS implementation have been identified (PRIORITY).</p> <p>O1.1.3: Mechanisms for inter- institutional cooperation have been established (PRIORITY).</p> <p>O1.1.4: The annual budget available for implementation of the NFS in the first period of 3 years has been confirmed (PRIORITY).</p> <p>O1.1.5: Annual operational plan including risk analysis and monitoring and evaluation programs have been</p>	<p>O2.1.1: A system for co-management of the resources through zonal, regional and national committees has been established, with assessment of the potential for community based property rights (PRIORITY).</p> <p>O2.1.2: Women are actively involved in the various committee levels.</p> <p>O2.1.3: Communications between CODOPESCA and stakeholders in fishery communities have been improved (PRIORITY).</p> <p>O2.1.4: There is a training programme to support the establishment of effective community based</p>	<p>O3.1.1: Only licensed fishing vessels operating licensed gear and working with licensed fishermen are permitted to fish the waters of the Dominican Republic.</p> <p>O3.1.2: All fish buyers and sellers in the market are registered and submit information to CODOPESCA to allow the traceability of catches.</p> <p>O3.1.3: All representative organisations in the fishery sector have been registered and operate according to the prescribed regulations.</p> <p>O3.1.4: National, regional and local fishery management plans have</p>	<p>O4.1.1: The locations with the highest potential for community owned fish farms have been identified in the context of the potential to establish commercial aquaculture parks (PRIORITY).</p> <p>O4.1.2: Finance for funding through revolving credit has been identified (PRIORITY).</p> <p>O4.1.3: An on-going training programme has been developed and implemented (PRIORITY)</p> <p>O4.1.4: Mechanisms have been developed and implemented to monitor activity in the sub-sector on an on-going basis (PRIORITY).</p>	<p>O5.1.1: There has been an analysis of the value added chain for national fisheries production (PRIORITY).</p> <p>O5.1.2: Landings are concentrated in designed sites that have been provided with support services (ice, fuelling points, water, market buildings, equipment repair and maintenance).</p> <p>O5.1.3: The buying of and selling of fish has been formalised to allow for product traceability and to reduce the potential for fraud and bad debt.</p> <p>O5.1.4: Market information is posted on the CODOPESCA web site to facilitate better understanding of prices and demand.</p> <p>O5.2.1: Manuals have been</p>

	<p>developed. O1.1.6: CODOPESCA personnel have been trained in project identification, preparation, monitoring and evaluation (PRIORITY). O1.2.1: Norms have been introduced to complement Law 307/04 and its regulations and provide the basis for effective management of fisheries within the context of regional and international policies (PRIORITY). O1.2.2: On the basis of identified needs related to the achievement of the purpose there has been a revision of the legal framework for capture fisheries, aquaculture and food safety. O1.2.3: Modification of the legal framework has taken place in the context of a full stakeholder consultation process and the need to respond to the</p>	<p>organisations. O2.1.5: CODOPESCA has collaborated with IDECOOP and selected NGOs in promote and developing cooperatives. O2.1.6: CODOPESCA has collaborated with IDECOOP in forming an umbrella National Cooperative Federation that is functioning as a tool to support the work of individual cooperatives. O2.1.7: There is stakeholder representation in Regional and International meetings. . O2.2.1: A socio-economic study has identified the potential, opportunity and nature for cluster development (PRIORITY). O2.2.2: Investment finance to support cluster development has been identified. O2.2.3: The process of development of strategic</p>	<p>been prepared and implemented. O3.2.1: A fishery information system has been established to provide data on: the fishing fleet, gear and fishermen; the fish market; and trade. O3.2.2: The collection of reliable data is done cost effectively providing catch estimates based on vessel characteristics (metier) rather than landing place, with the electronic logging and submission of data (PRIORITY). O3.3.1: There are MOUs between CODOPESCA and relevant bodies and individuals on the implementation of a research plan that provides fishery resource information to interested parties and advises local co-management committees on the need</p>	<p>O4.1.5: At least 5 community based projects are functioning on a sustainable basis. O4.1.6: At least 10 community based projects are in the process of implementation. O4.2.1: There is agreement between ADOA, CODOPESCA, IDIAF and other relevant bodies to identify areas of responsibility for implementation of the strategy (PRIORITY). O4.2.2: A feasible action plan has been drafted and implemented (PRIORITY). O4.2.3: An on-going training programme has been developed and implemented (PRIORITY) O4.2.4: Access to formal credit has been improved (PRIORITY). O4.2.5: Standards have been introduced to</p>	<p>prepared and distributed on better handling practices and how to improve the value of the catch. O5.2.2: Good handling practices and HACCP procedures have become standard in the sector following the preparation of model HACCP plans for each activity by CODOPESCA. O5.2.3: CODOPESCA has established a plan to assume responsibilities as the designated competent authority or it has assigned duties to another State body. O5.2.4: The availability of food safety laboratories with ISO certification and accredited according to international standards has been assessed and an investment plan has been made for the required up-grades including staffing and equipment. O5.3.1: The potential for added value processing in relation to activity in fishery</p>
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	<p>needs for coherence with the regional approach and international obligations. O1.2.4: Mechanisms have been introduced to ensure that the legal framework (Law 307/04 and secondary supporting regulations is communicated to stakeholders, with updates as required to ensure knowledge and understanding of the fishery management tools that are implemented (PRIORITY). O1.3.1: The role of CODOPESCA as the responsible authority for the administration and management of the fisheries &amp; aquaculture sector as detailed under Law 307/04 and any subsequent amendments or modifications has been confirmed (PRIORITY). O1.3.2: A ring fenced consistent funding</p>	<p>landing places has been started. O2.2.4: Projects owned and managed by women have been prioritized.</p>	<p>and potential to introduce technical and administrative management measures. O3.4.1: Regional teams of fish inspectors have been formed (PRIORITY). O3.4.2: There are MOUs between CODOPESCA and the Marina de Guerra and the Ministry of Environment to support, as appropriate, programmed monthly enforcement activities based on a risk based approach (PRIORITY). O3.4.3: The regional teams are provided with the logistical support required for implementation of an effective compliance plan both on-shore and at-sea (PRIORITY). O3.4.4: Fishery authorities report to stakeholders at each meeting of the co-</p>	<p>guarantee the quality of the product from national fish farms. O4.3.1: There has been an assessment of the potential to provide incentives for international investment (PRIORITY). O4.3.2: Locations suitable for development of large scale commercial fish farms have been identified (PRIORITY). O4.3.3: CODOPESCA provides improved support to encourage new and increased investments in commercial large scale fish farming. O4.4.1: A business plan has been prepared to assess the options to provide the supply of essential inputs (PRIORITY). O4.4.2: CODOPESCA has been provided with the investment funds to make required purchases</p>	<p>dependent communities have been assessed with the preparation of template business plans. O5.3.2: Sources of finance have been identified. O5.3.3: At least two community based added value processing facilities have been established and are functioning. O5.4.1: A market strategy has been defined to improve the potential for domestically produced farmed product to penetrate the national and international markets. (PRIORITY). O5.4.2: Improved product grading based on defined standards has been introduced and a system has been established to provide kite marks for domestic production meeting those standards. O5.4.3: Consumer interest in domestic product has been increased following a promotion campaign.</p>
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	<p>mechanism for CODOPESCA and other institutions contributing to sustainable resource use has been established and confirms the nature and amount of financial support to CODOPESCA over the period 2013 – 2015 (PRIORITY).</p> <p>O1.3.3: Funding has been made available to finance CODOPESCA investment in projects needed to promote development initiatives (PRIORITY).</p> <p>O1.3.4: CODOPESCA has been restructured to respond to the identified strategic priorities (PRIORITY).</p> <p>O1.3.5: The internal and external channels of communication have been reinforced with the creation of a dedicated communications unit (PRIORITY).</p> <p>O1.3.6: A training plan for CODOPESCA personnel</p>		<p>management committees.</p> <p>O3.4.5: CODOPESCA monitors the effectiveness of the legal system in sanctioning infringements.</p> <p>O3.5.1: Environmental and fishery related studies are included in the national school curriculum.</p> <p>O3.5.2: An awareness &amp; training campaign comprising television programmes, videos, posters, manuals, brochures targeting specific segments of society has been established and is being maintained (PRIORITY).</p> <p>O3.6.1: The options for mother ship operations have been analysed and individual projects have been established through public / private sector initiatives (PRIORITY).</p> <p>O3.6.2: The options to increase the number of FADs have been analysed</p>	<p>of fingerlings and fish feed to provide support to fish farming projects (PRIORITY).</p> <p>O4.4.3: There has been an assessment of the potential to provide incentives for new investment in the Dominican Republic to supply essential inputs.</p>	
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	<p>and stakeholders with inputs into the various has been designed and implemented (PRIORITY).          O1.3.7: A CODOPESCA web site has improved the dissemination of information and improved stakeholder awareness of the Agency's activities (PRIORITY).</p>		<p>and new FADs (PRIORITY).          O3.6.3: Investigations have been concluded on the potential for harvest of non-traditional species          O3.7.1 A programme has been developed for coastal zone management that includes the creation of managed areas (mangroves &amp; corals) and includes the completion of actions to restore damaged populations.          O3.8.1: The carrying capacities of individual water bodies &amp; the maximum number of vessels required to complete profitable harvest have been assessed.          O3.8.2: CODOPESCA has worked with previously created Local Management Council in individual water bodies to develop a specific management approach &amp;</p>		
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			<p>this will have been detailed in a specific fisheries management plan.</p> <p>O3.8.3: The effectiveness of stock enhancement programs has been validated and restocking plans are in place.</p>		
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