

Republic of Yemen
Ministry of Fish Wealth
National Fisheries Strategy
(2012-2025)



June 2012

Formulation supported by



IFAD
Enabling poor rural people
to overcome poverty

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EXECUTIVE SUMMARY

Fisheries are a major piece of the global economy and a major source of jobs for people both in the developed and the developing world. As well, Fish are a major piece in the global environment and a close attention to this issue is mandatory to sustain and maintain healthy and productive oceans going forward.¹ Currently, global fisheries are undergoing a dramatic change – under changing climates, environmental concerns, food security needs and technological development. Adapting to these changes, whilst ensuring the resource sustainability, has become the primary need and focus of today's fisheries.

Yemen's Fisheries, one of the four promising sectors as identified in its Strategic Vision 2025, has significant potential to achieve diversification in country's economy and in realizing the job-creating pro-poor economic growth for country's socio-economic development. The country's long coastline of 2,520 km is endowed with diverse coastal habitats and harbours a rich marine resource wealth. However, persistent challenges currently impede the sectoral development, which further exacerbated by the current socio-economic situations.

These emphasized the need for a long-term strategy with a coherent approach integrating the resource, environment, livelihoods, economic and research concerns as well as identifying the priority needs to generate synergetic benefits for enhancing fisheries sector utilization. The Terms of Reference (ToR) for the National Fisheries Strategy (NFS) formulation was approved by the cabinet on 19.03.2010 (cabinet decree no: 71).

Accordingly, the NFS formulation was the subject of an intensive, interactive and complex policy development and planning processes, using participatory and consultative approaches involving all the stakeholders in its planning, formulation and validation. Thus, the NFS establishes a living dynamic document that directs the country's fisheries sector development in the medium to long term and specifies the key areas for development thus providing the essential route through which fisheries can become a front line player in the national development process. Also, the strategy comprises a dynamic action & working plan along with a monitoring-evaluation framework to support its implementation and to review, examine and update its progress from time to time.

The overall "GOAL" of the NFS is *"to enhance the fisheries sector contribution to the national economic growth whilst ensuring the environmental and resource sustainability, improving community livelihoods, strengthening the food security needs, and job-creating economic empowerment opportunities with a focus on youth and women"*.

The overall goal is what NFS aims to achieve in the long-term. In the short-term (2012-2015), in line with the GoY's Transitional Plan for Stabilization and Development (TPSD 2012-2014), the core focus will be on securing and improving the fishers' (men and women) community livelihoods, efficient institutional structures together with effective legal frameworks and enhanced partnerships. In the short- to mid-term (2016-2020) enhanced sectoral capacities and private-sector led community-based equitable inclusive economic growth through SME's and Aquaculture development, domestic and export market development, together with gradual improvement of operational and functional infrastructural systems will form the focal areas. In the long-term (2021-2025), the major interventions will be sustainable stock management systems together with regional and international fisheries management initiatives.

In line with these, NFS builds a road map towards via a series of carefully selected prioritized 'programmes' that provide framework for 'Objectives and Actions' over short, medium and long-term. 'Actions' should be seen as the coherent approach and concrete steps to follow to implement the strategy. Details regarding each "ACTION/ACTIVITY", i.e. identification of partnerships to form, timeframes for completion, funding, are detailed in the NFS Action Plan Matrix. The "matrices" form the core of the implementation plan and should be used as guidelines and, as well as a monitoring tool to ensure that progress is made towards the achievement of the plan objectives, and ultimately the outcomes to the goal.

¹ UNDP (UN News Centre), Article: "UN Highlights Importance Of Investing In Initiatives That Support Sustainable Fishing". April 2012.

<http://www.un.org/apps/news/story.asp?NewsID=41871&Cr=sustainable+development&Cr1=>.



The total estimated cost of the NFS over its 14 years period is USD 817 million; and in the short-term, 291; medium-term, 460; and in the long-term USD 64 million. Of this, USD 425 million is the cost for the infrastructure development, 146 million for community livelihoods and women empowerment, 68 million for fisheries value chain systems, 56 million for sustainable resource management, 44 million for aquaculture development, 38 million for sectoral capacity enhancement, 34 million for SMEs, and USD 25 million for institutional development. It is highlighted in this regard that whilst the costs in years 1-5 are considered realistic on the basis of current knowledge, the extrapolation to years 6-14 are inevitably based on best estimates, and will undoubtedly change over time.

The NFS document is presented in 5 chapters. Chapter-1 provides the background information along with a brief on NFS formulation processes. Chapter-2 gives an overview of the country's fisheries sector together with the sectoral challenges, the way forward, and the synthesis of NFS guiding principles and crosscutting issues. The actual Strategy for the sustainable management and development of fisheries in Yemen together with the vision, goal, programmes and objectives along with 2012-2015 implementation matrix and estimated cost are presented in Chapters-3. Chapter-4 elucidates the Monitoring and Evaluation Framework for NFS implementation, including the role of stakeholders in NFS implementation. Chapter-5 explains the NFS Finance and Budgetary requirements with a note on Resource mobilization.

Annexed to this document are: Comprehensive assessment study matrices (Annexure-I); 1st and 2nd National Consultative Workshop Reports (Annexure-II and III); Sectoral report on Joint Socio Economic Assessment Study (Annexure-IV); and NFS 2012-2025 detailed implementation matrix from (Annexure-V).

The processes of NFS formulation were supported by UNDP and IFAD under the respective Economic Diversification Support Programme (EDSP) Fisheries and Fisheries Investment Project (FIP).



H.E. ENG. AWADH SAAD AL-SOQATRI, THE MINISTER OF FISH WEALTH (SPEECH)



ACRONYMS

ARC	Aquaculture Research Centre
BMP	Best Management Practice(s)
CBM	Community Based Management
CBO	Community-Based Organization
CC	Climate Change
CCRF	Code of Conduct for Responsible Fisheries
CCSFS	Community Centralized Services and Facilities System
CFC	Coastal Fisheries Corporation
CSO	Civil Society Organization
DPPR	Development Plan for Poverty Reduction
EDSP	Economic Diversification Supportive Programme (UNDP)
EEZ	Exclusive Economic Zone
EIF	Enhanced Integrated Framework
EPA	Environmental Protection Authority (Republic of Yemen)
FA	Fisheries Authority
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organization of the United Nations
FCU	Fishermen Cooperative Union
FDI	Foreign Direct Investment
FIP	Fisheries Investment Project (IFAD)
FIS	Fisheries Information System
FSGF	Fisheries Sector Gender Forums
FTI	Fisheries Training Institute
GAD	Gender and Development studies
GCDPI	General Corporation for Development and Promotion of Yemeni Islands
GCFMS	General Corporation for Fish Marketing and Services
GDCW	General Department for Coastal Women
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information Systems
GoY	Government of Yemen
GPS	Global Position System
HACCP	Hazard Analysis and Critical Control Point
HCUP	High Council for Urban Planning
HPZ	High Potential Zone
ICZM	Integrated Coastal Zone Management
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
ILO	International Labour Organization



IRO	Industrial Relation Ordinance
ISO	International Standards Organization
IsDB	Islamic Development Bank
ITC	International Trade Centre
IUU	Illegal, Unreported and Unregulated (fishing)
JICA	Japan International Cooperation Agency
JSEA	Joint Socio Economic Assessmetn Study (Republic of Yemen)
LDC	Least Developed Country
MAA	Maritime Affairs Authority
MCS	Monitoring, Control and Surveillance
MFW	Ministry of Fish Wealth
MoIT	Ministry of Industry and Trade
MSBRA	Marine Science and Biological Research Authority
MSRRC	Marine Sciences and Resources Research Centre
MTC	Maritime Training Centre
NCSFM	National Corporation for Services and Fish Marketing
NFS	National Fisheries Strategy
NFSC	National Fisheries Strategy Steering Committee
NGO	Non-Governmental Organization
ODA	Official Development Assistance
PPCR	Pilot Programme for Climate Resilience
PRS	Poverty Reduction Strategy
PRSP	Poverty Reduction Strategy
QC	Quality Control
RS	Remote Sensing
SME	Small and Medium scale Enterprises
SMEPS	Small Micro Enterprises Promotion Service
SSC	South-South cooperation
ToR	Terms of Reference
TDA	Tourism Development Authority
TQMS	Total Quality Management System
TPSD	Transitional Plan for Stabilization and Development (Republic of Yemen)
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation
UNIFEM	United Nations Development Fund for Women
USAID	United States Agency for International Development
USD	United States Dollar (currency)
VMS	Vessel Monitoring System
WAN	Wide Area Network



WFCU	Women's Fishermen's Cooperative Union
WNC	Women National Committee
YER	Yemeni Rial (currency)
YWU	Yemen Women Union



ACKNOWLEDGEMENTS



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CHAPTER-1: INTRODUCTION

1.1. Background information

Fisheries is considered as one of the promising sectors for Yemen's socio-economic development (Yemen's Strategic Vision 2025). During the past decades considerable effort has been made by the National government, international donor agencies and the private sector to develop the Yemeni fishery sector. Yet, while the fisheries sector was expected to absorb a greater proportion of the national workforce, it has not yet realized its potential due to numerous challenges and constraints that threatens the sector's future and sustainability. There is also a strong concern about the lack of strategic planning and a long-term vision for the sector and also the implementation of a policy that ensures the sustainable harvest and utilization of fishery resources.

In addition, with the current social and economic situations, the country needs to ensure effective and efficient use and utilization of its resources. These emphasized the need for a long-term strategy with a coherent approach integrating the resource, environment, livelihoods, economic and research concerns as well as identifying the priority needs to generate synergetic benefits for enhancing fisheries sector utilization.

1.2. NFS Formulation Process

The Terms of Reference (ToR) for the National Fisheries Strategy (NFS) formulation was approved by the National Cabinet on 19.03.2010 (decree no: 71).

The National Fisheries Strategy is formulated through consultative and participatory processes, involving all the sectoral stakeholders in its design, formulation and verification. NFS formulation comprised of 6 phases, and are outlined below:

Phase-1: Comprehensive Sectoral Assessment

A thorough desk review and study along with the comprehensive sectoral assessment identifying the issues and challenges hindering the fisheries sector development together with the causes and their impacts formed the Phase-1. The NFS expert team team conducted a 'comprehensive assessment of the fisheries sector during October-December 2010 along the country's long coastline of 2,520 km covering all 9 coastal governorates and the Socotra Archipelago.

The issues and challenges with the causes and their impact on the fisheries sector development, identified during this phase were summarized to fit into 6 key categorical areas. These summarized 6 areas are: Inadequacies in strategic planning & implementation; Unknown fisheries stock carrying capacity and uncertainties in fishery status & declining stocks; Low quality of fish/fisheries product limiting fisheries trade potentialities; Low-productivity of Fisher's communities & Under utilization of Fisher women potential; and Limited Private Sector Development & Promotion.

Accordingly, initial draft matrices for these 6 key areas outlining the challenges currently facing Yemen's fisheries sector together with the causes and impacts as well as potential goals to address these key issues, were prepared as an input for the 1st consultative workshop. These matrices were prepared to facilitate discussions and provide participants a list of findings, as a basis for their inputs and also to organize and guide their inputs. These matrices are presented in Annexure-1.



Phase-2: NFS 1st National Consultative Workshop

The 1st consultative workshop, organized by the Ministry of Fish Wealth and supported by United Nations Development Programme (UNDP), was held from 16th-17th January 2011, at the Mercure Hotel in Aden. The aims and objectives of the workshop were:

- To review the weaknesses and threats that impede the fisheries sector development and build on strengths & opportunities to further boost the contribution of fisheries sector to national economy through a job-creating pro-poor economic growth, whilst ensuring the sustainability.
- To identify, prioritize and validate the findings of fisheries sector assessment studies and reach consensus on priority issues, challenges and impacts, and set short, medium and long term goals for the sectoral sustainable development.

In all, 150 participants attended the workshop representing MFW, government authorities and organizations, local authorities, CBO's, NGOs, fishermen communities, fisherwomen, fish cooperatives, national institutions, academia, private sector, external development partners and the donor organizations. The dynamics of the discussions were organized through plenary sessions and focused group discussions and were informed by expert presentations.

The stakeholders agreed to the 6 categorical areas under which the NFSS goals and targets are to be determined. The groups subsequent to the review of the matrix provided inputs on the issues that were further deliberated upon by the plenary. Consensus was reached on the issues and way to go forward (Goals). The revised and updated matrices on the 6 categorical areas together with the 1st consultative workshop report are provided in Annexure-II.

Phase-3: Review of Prioritized Issues from Policy and Management Tools

Review of prioritized issues and goals through different policy and management tools identifying the existing frameworks and outlining the gaps with proposed measures of actions formed the Phase-3 processes. The policy and management tools included institutional measures, legal/legislative tools, information systems, financial investment, community involvement and awareness and gender-related concerns. Accordingly, the matrices were prepared as an input into the 2nd National Workshop. The attempt is done to facilitate discussions and provide participants a list of findings, as a basis for their inputs and to organize and guide their inputs.

However, owing to the political instability and unrest, the 2nd workshop was postponed. Keeping this in view and in line with the recommendation from the Ministry the expert team started preparing a zero draft of NFS to be presented at the 2nd Workshop for guiding the discussions. Also, the detailed implementation matrix setting out the timeframe and budgetary frameworks was also prepared.

Phase-4: NFS 2nd National Consultative Workshop

The 2nd consultative workshop, organized by the Ministry of Fish Wealth and supported by United Nations Development Programme (UNDP) and International Fund for Agriculture Development (IFAD), was held from 29-30 April 2012, at the Sheba Hotel in Sana'a. The aims and objectives of the workshop were:

- To reach a consensus on the proposed measures of actions with clear short, medium and long term objectives based on the 'policy options and management tools' for the prioritized issues & goals (as identified in the 1st workshop).
- To review, revise and update the draft National Fisheries Sector Strategy and its programme of actions together with the budget, timeframe and monitoring-evaluation frameworks.

The matrices along with the 'zero draft NFS' were presented to inform and guide the discussions. The dynamics of the discussions were organized through plenary sessions and focused group discussions and were informed by expert presentations. The groups



subsequent to the review of the matrix provided inputs on the issues that were further deliberated upon by the plenary.

In all, 160 participants attended the workshop representing MFW, government authorities and organizations, local authorities, CBO's, NGOs, fishermen communities, fisherwomen, fish cooperatives, national institutions, academia, private sector, external development partners and the donor organizations.

Consensus was reached on the elements of the 'programme actions' with definite short, medium and long-term goals together with the budget, time frame and monitoring-evaluation frameworks. Also, a National Committee, with representation from all stakeholders, was constituted for NFS finalization.

The revised and updated matrices along with the 2nd consultative workshop report are provided in Annexure-III.

Phase-5: NFS Finalization

The results and consensus reached following the short, medium and long-term action prioritization formed the baseline elements for strategy formulation as well as the programme action plan. From these, the strategy core guiding principles were defined along with the goal, programmes and measurable objectives of action.

During this, the NFS is informed by the Sectoral report on Joint Socio Economic Assessment (JSEA, see Annexure-IV) and Government of Yemen's National Transitional Plan for Stabilization and Development (TPSD, 2012-2014), focusing on the economic stabilization and rural community livelihoods recovery, diversification and improvement. Accordingly, the NFS is aligned to fit into these priorities.

The NFS National Committee met regularly to draft and finalize the National Fisheries Strategy.

In line with the above, the National Fisheries Strategy was drafted with definite short (2012-2015), medium (2016-2020) and long-term (2021-2025) actions, implementation, budgetary and monitoring-evaluation frameworks.

Phase-6: NFS Finalization and Submission

The National Committee presented the final NFS draft to H.E., the Minister of Fish Wealth on - July 2012. Also, the final NFS draft was shared with stakeholders, donors and international external experts for their review and comments. In line with the comments, the NFS was finalized and to be presented to the National Cabinet for approval.

The Ministry submitted the NFS to the National Cabinet on - July 2012.



CHAPTER-2: SECTORAL CONTEXT AND THE WAY FORWARD

1.1. Country context

Yemen is one of the poorest countries in the Arab region ranking 154 of 187 in Human development Index (UNDP, 2011) with a 3 percent population growth rate, considered to be one of the highest in the region and the world. The population is widely dispersed (75% residing in rural parts) confronted with high rates of unemployment (47%), poverty (42.9%) and food insecurity (32%). In addition, the country has limited natural resources, most notably scarcity of water and limited arable land (2.91% of total land area), and the country's oil reserves, principle source of national revenue, are on continuing decline.

Further, Yemen has the lowest Official Development Assistance (ODA) in the Arab region; with ODA per capita of \$12.7 or just 2.2 percent of GDP, compared to an average of \$33.4 per capita (18.7% of GDP) for least developed countries. Although, indications are that Yemen has advanced in many development fronts recently, however still is encrusted within daunting social, economic and security challenges simultaneously to continue sustain its economic development.

During the past decades, Yemen's development commitment is centered to alleviating poverty and achieving the MDGs, manifested in several programmes and plans (e.g. 1st and 2nd Development Plan for Poverty Reduction, DPRR; Poverty Reduction Strategy, PRS). The series of policies and measures adopted by the government had contributed positively to economic stabilization, liberation of trade, improving Human Development Indicators, and enhancing the private sector role in economic activity. Further, the government's scaled up efforts to spur non-oil growth and create jobs in agriculture, fisheries, manufacturing and tourism (adoption of the 3rd DPRR, 2006-2010) reinforced these initiatives. The major targets of National Planning Frameworks over the next two decades are: to move Yemen from Low Human Development Group to Middle Human Development Group by 2025; to sustain higher economic growth (beyond 7%) during the upcoming plans; and half poverty by 2015.

1.2. Sectoral context

Fisheries, regarded as the Yemeni economy's third sector in order of importance, contributes up to 3% share to the country's GDP, and is the major source of employment, income and food security throughout the coastal areas. After oil, fisheries constitutes Yemen's main source of export earnings and accounts for 1.5% of the national labour force supporting the livelihoods of 3.2% national population. The *Third Five Year Plan for Socioeconomic Development and Poverty Reduction* sees fisheries as a key sector in ensuring the national economic growth (at least at 8%) through job creation and economic diversification. Also, the *Yemen's Strategic Vision 2025* identifies the fisheries sector as "one of the most promising economic sectors" for national development and emphasizes the need to "raise productivity and improve quality and competitiveness" of fish products through private-sector led equitable economic growth and stronger public private partnerships.

The country's fisheries sector mainly consists of two sub-sectors, viz. the *marine fisheries* and *aquaculture* (mainly shrimp farming). While artisanal fisheries dominate the marine sub-sector, accounting for almost 98% of the total fisheries production, the development of aquaculture is very much confined². An overview of the country's Fisheries Sector (2000-2011) detailing on production, exports, revenues, fishermen, boats together with its average annual growth, is presented in Table 1.

² Aquaculture is practically inexistent in Yemen. The only operating aquaculture farm is Musallam Trading Company based north of Hodeidah on the Red Sea coast. The farm consists of 50 ha shrimp ponds with annual production of 400 tons (mainly *Penaeus indicus* and *P. monodon*).



In the country's long coastline of 2,520 km (552,669km² Exclusive Economic Zone, EEZ, area), endowed with diverse coastal habitats that include some of the richest marine resources in the world,³ the Republic of Yemen has significant potential for expanding its marine fisheries.

The entire fisheries sectors operations are governed by Ministry of Fish wealth (MFW) with its central office located in Sana'a and supported by 9 branch offices in 9 coastal governorates, General Corporation for Fish Marketing Services (GCFMS), Coastal Fisheries Corporation (CFC), Marine Science Biological and Research Authority (MSBRA), Aquaculture Research Centre (ARC), and Fish quality control laboratories. A total of 2636 employees are engaged in operationalizing the fisheries sector activities.

The artisanal fishery dominates the Yemen coastal/marine fisheries, operating with over 20,000 fishing boats. There are about 45 coastal/industrial⁴ vessels, licensed to operate in Yemeni waters. The majority of small-scale fishing is done using either fiberglass or wooden vessels (locally known as *Huri*, *Sambuk*, and *Abri*)⁵, and is carried out by hook and line and/or gillnets, traps and small trawls. During the last decade (2000-2011), the no of boats are increased from 12560 in the year 2000 to 20803 in 2010, at 5% per annum.

Almost 75,000 fishermen represented under 129 Fish Cooperative Unions (FCU) are engaged in the fisheries sector activities. During 2000-2010, the no of fishermen grew at 7% annum, from 32,182 in 2000 to 74,857 in 2010. In general, based on the boat ownership, fishers can be classified into: multiple boat owners (consisting of 3% of the fishers); single boat owners (12%); fishers with a share/part of boat ownership (17%); and fishers without a share of boat ownership (64%).

The total workforce in fisheries sector is at about 94,214. While fishermen represents vast majority of the sectoral workforce (79.5%), the public and private sectors represents 2.8 and 17.7% respectively. Domestic-wholesale-retail-trade and regional-fresh-fish-export dominates the private sector operations, accounting to 5.8 and 6.2% of the labour respectively. The fish processing plants employs only 1.9% of the entire sectoral workforce.

On an average, the total input costs for fishing operations accounts to 41 to 45% of the total revenue from a fishing trip. Of this, costs of fuel account for almost 19%. Further, fishers pay a significant share of the gross value of their catch in a variety of taxes, ranging from 8 to 11%, imposed at the source or landing centre.

The participation of women in country's fisheries sector operations is very limited. There are only a few places (Lahej and Al-Mahara) where women, mostly from the low social status groups, are actively involved in fisheries-related work. In urban areas women are more commonly employed in fisheries related activities: some 45% of the employees of fish processing plants are women, as are many employees of quality control laboratories.

The average total fish production during the last 10 years (2000 to 2010) was 185,471 tons and the (average) total production value, USD 213 million with an annual growth rate(s) of 1.2% 5.7% respectively. The average annual production per boat was 11.1 tons, for fishermen 3.1 tons.⁶

The average total fish export during the last 10 years (2000 to 2010) was 75,600 tons and the total market value, USD 188 million with annual growth rate(s) of 13% and 15%

³ A variety of important ecosystems such as coral reefs and mangroves, including around 185 offshore islands, support about 65 commercially important species including invertebrates (shrimp, lobsters, cuttlefish, sea cucumbers), pelagic (Yellowfin and longtail tuna, kingfish, queenfish, Indian mackerel, Indian oil sardines) and demersal species (groupers, emperors, jacks, bream).

⁴ Yemeni law divides fishing vessels into three categories – artisanal, coastal and industrial – with different licensing requirements and restrictions on fishing area. Vessels are categorized according to criteria of size, engine power and equipment.

⁵ *Huri*, a long narrow open decked boats (7-16m, 3-7 crew, 40-75hp outboard engine) based on a traditional design. *Sambuk*, wooden larger wider vessels with much greater storage capacity (10-20m, 6-10crew, 40-75hp outboard engine, or diesel inboard engine); and *Abri*, larger vessels (20-25m), are used as mother-ships, transport boats and for fishing.

⁶ Data from Department of Planning, MFW



respectively. The value of fisheries exports had grown from USD 69.2 million in 2001 (an average of \$US1.23 per Kg) to USD 272 million in 2010, an average of USD 2.43 per kilo. There are 43 fish processing plants (including the 17 EU certified) and 52 licensed exporters involved in fish export business, both regional (Saudi and Oman) and overseas. The entire post-harvesting (market-supply-value) chain supports around 13,000 people, 14% of the total sectoral workforce. Fish processing establishments accounts for only 1.9%.

The operational costs involved in these businesses are high and are estimated at 89% for a domestic-trader, 60%, Trader-exporter and 69% for Processor-exporter (69%). Of this, the raw material and the administrative-maintenance costs accounts for 83% and 1%; 42.7, 1.7; and 43.7% and 22% respectively. For the fish processing plants, the highest maintenance costs are owing to the high electricity and diesel consumption (and as well their tariff rates)⁷ to maintain the bulk cold storage units.

The economic returns from fisheries sector for different sectoral players (viz. fishers, boat owners, traders and exporters) are estimated as follows:⁸

The daily actual returns for a fishermen is between 0.3 to 5% of that total fishing trip revenue i.e. at USD 3.67 for a multiple boat owner; 2.15, a single boat owner; 1.53, part owner; and for a crew member, it is USD 1.19. For any other on-land fisheries related labour it is estimated at around USD 0.54 a day. For the trader-exporter and domestic trader, the daily income is between USD 60 to 80. The annual return to exporter is very low and is estimated at around USD 6000.

The poverty level in Fisher's communities is very high. Based on their average daily income, 67% are very poor, 10% are poor and only 2% are above poverty line. Of the 94,000 households involved in fisheries, including the onshore activities, the vast majority (71%) are very poor and 25%, poor. Only 4% are above the poverty line, but however are considered to be vulnerable to external shocks.

During the past decades, in line with the broad national development goals, fisheries policies have centered on the institutional and infrastructure development, and efficient management and maintenance of fish landing sites. Policies have also encouraged, in particular the private sector, to increase fish production, develop the fishing industry and fish products to meet the growing needs and increased demand of the domestic market and as well as to bolster fish exports.

Yet, the sector has not realized its potential owing to persistent challenges that it is currently facing. By effectively addressing these challenges, in particular the resource management and utilization, and the sectoral structural capacities, fisheries sector has the utmost potential to become a front line player in the national economic and development process.

1.2.1. Sectoral Challenges

The challenges impeding the fisheries sector performance were identified through the Phase-1 of the formulation processes, as outlined above in Chapter-1. These were categorized under 6

⁷ In the process of developing of National Fisheries Strategy, during the comprehensive sectoral assessment study (October-December 2010), the issue of the differential pricing structure for electricity and diesel consumption, in particular for the commercial establishments viz. the private sector industries involved in fisheries business, were assessed against the domestic pricing system. The Electricity corporation charges commercial establishments almost twice the price as compared to the domestic users. The price index for commercial establishment vs. domestic consumption is as follows: For less than 300 KW consumption, price per unit for commercial establishments is YER 22 and for domestic use is YER 7. For more than 300 KW, YER 25 and YER 12. For 3-phase connections of commercial establishment it is YER 35 at flat rate irrespective of the consumption rates. The Petroleum Public Corporation charges the commercial industrial establishments YER 50 and YER 80 per liter in accordance with the consumption rates of <30,000 lts and > 30,000 lts respectively. This compared to domestic diesel price YER 35 per liter of diesel. It should be noted that all the fish processing units are registered under the classification of SME's. These were the main concerns of the private sector as these directly increase production costs and therefore it is very difficult to maintain the market competitiveness and thereby affecting the product profitability and further endangering the survivability of SME's in the sector. This is one of the reasons for limited private investments in the sector.

⁸ Based on the financial investment models (IFAD, 2010) and average calculations of effort data (UNDP, 2010)



thematic areas, and were prioritized and validated during the Phase-2 of NFS formulation processes (viz. the 1st National Consultative Workshop). These are summarized in brief below.

1. Weak institutional management and capacities for strategic planning and implementation:

MFW is the principal institution responsible for fisheries sector management with the main mandate of: “planning and implementing national policies and projects linked to the sector; fisheries research; collection of statistical data relevant to the fisheries sector; monitoring, control and surveillance and fisheries regulation; controlling the quality of fish production; supervise the activities of fishing cooperatives, research and education institutions; and supervise the activities of public corporations in the fisheries sector e.g. NCSFM, CFC and the publicly owned canneries”.

However, the limited institutional, administrative, regulatory, human-resource, technical, technological, and research capacities of MFW together with the insufficient information-base, budgetary arrangements, and ineffective institutional structures compromised the smooth running of the sectoral systems thereby severely affecting the fisheries sector development, management and strategic planning towards sustainability. Further, the weak coordination mechanisms at the national (inter- and intra-sectoral), regional and international levels has lead to the weak harmonization of fishing policies for the effective planning and management of shared marine environment and its resources. And, the absence of proper database management systems and services together with inept mechanisms in data collection, processing, utilization and dissemination undermined the right policy development and strong fisheries management system at the national and local (governorate) levels. Furthermore, the efficiency and competitiveness of fishing operations is limited by the weak post-harvest services and facilities that are spread out over the long coastline of 2,520 km.

The combination of great levels of biodiversity, great biogeographic complexity, and high levels of endemism (Red Sea and Gulf of Aden) identify Yemen as of global importance for marine ecology & conservation. Currently, Yemen’s natural habitats in the coastal areas are seriously threatened by factors such as urban development, pollution from oil and rapid population growth among others to which the impacts of **climate change** could have an important compounding effect. Besides impairing the ecosystem’s resilience, these factors will (1) increase the vulnerability of the fishery resource production & yields; and (2) exacerbate the stability, access, utilization and availability of fish as food - thereby affecting the vulnerability of fishers’ livelihoods and increasing the food security⁹ and safety risks. Recent studies (Allison et al., 2009) indicate that Yemen fisheries sector is one of the most vulnerable¹⁰ (4th among Asian countries and 19th in the world) to the potential impacts of climate change. However, the basic data allowing an understanding of the vulnerability of country’s fisheries sector to climate change and other environmental challenges is currently lacking and, therefore, bases for prioritizing adaptive strategies through policy formulation and planning, to mitigate these impacts, to reinforce existing efforts to improve fisheries sustainability and support country’s food security concerns are severely constrained.

⁹ The Food and Agriculture Organization (FAO) defines food security as a “situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life”. This comprises four key dimensions of food supplies: availability, stability, access, and utilization. The compounding effect of CC, along with other anthropogenic disturbances, will affect the: (1) *Stability* of fish supply by changes in seasonality, increased variance of ecosystem productivity, increased supply risks and reduced supply predictability; (2) *Access* to fish for food by changes in distribution of fish species and in livelihoods, competition for supply, and information asymmetries; (3) *Utilization* of the fishery products nutritional value by changes in supply quality and market chain disruptions, and (4) *Availability* of fish for food by increasing the postharvest-losses and decreasing the percentage of use for direct human consumption. Thus, increasing the vulnerability of fishery-dependent communities and decreasing in availability and/or quality of fish for food.

¹⁰ The Yemen’s fisheries sector vulnerability to CC is due to the combined effect of predicted warming, the relative importance of fisheries to national economies and diets, and limited societal capacity to adapt to potential impacts and opportunities.



2. Unknown fisheries stock carrying capacity:

Commercially exploited living resources are an integral part of the marine and coastal ecosystems and sustainable use of these resources depends on proper management of fishing activities, clear legislation and law enforcement mechanisms. Country's fisheries, a rich source of income and employment for coastal population are at the serious risk of depletion for the lack of appropriate management measures to stabilize valuable stocks. Large amounts of fish catch are not being properly utilized and processed for inadequacies in infrastructural facilities and poor understanding of ecosystem functioning and ecological service appropriations. Without the efforts in conservation and management of this valuable resource base, the economy is likely to face shrinking procedures in the fisheries sector (e.g. environment degradation; stock exploitation and depletion), coupled with rising demand.

According to the Yemen's strategic vision and PRSP 2005, a prime national objective is to optimize the utilization of fish wealth by increasing production and revenues in real terms without affecting the stock. However, current statistics indicate a decline in fish landing during the last few years owing mainly to the inadequate management of fishery resources combined with ineffective regulatory frameworks at the public policy (MFW) level. Also, comprehensive quantitative information on stocks is unavailable owing to the complete absence of stock assessment studies. The lack of reliable scientific data (since 1989) on the fishing areas, fisheries breeding sites and the coastal and marine ecosystems have impaired the informed decision making at the policy level thereby leading to the over-exploitation of the resources and marine environmental degradation. The weak infrastructural facilities and limited institutional capacities of Marine Science and Biological Research Authority (MSBRA)¹¹ and its research centres have hindered the scientific research and development in the region. Together with these, weak monitoring-control-surveillance system (MCS), and the weak enforcement of available legislations has resulted in overexploitation of resources, IUU fishing, habitat degradation and loss of national revenues and among others, the increased poverty among fishermen communities.

3. Low quality of fish/fisheries products:

The fishing industry, which contributes substantially to socio-economic conditions of coastal population and also to the food security for the people of Yemen, has made considerable progress during the past twenty years, and has begun to gain a significant position in the global fish trade map. During the past few years, these include the regional Middle East countries (amounting to 70%) and Asian countries (26%). Exports to Europe and America are minor (4%), owing mainly to the inadequacies of food-processing establishments in complying with the international food safety standards. Additionally, the poor quality of the fish, bad handling practices throughout the supply chain (i.e. pre-, during- and post- harvest operations), lack of hygienic facilities at the fish landing centers, ineffective regulations of Quality Control and Quality Assurance had major implications on the expansion of fish/fishery trade. This is further exacerbated by the lack of awareness on quality, control and hygiene throughout the fish supply chain and improper on-shore and in-shore waste management practices, altogether leading to the major post-harvest losses.

Further, the lack of accredited laboratory facility for fish product testing together with the limited technical capacities has affected the fish export sector to reach to the major international markets. Complete absence of value-added fishery and product diversification together with the limited technological and technical capacities of the industry further undermined the development of export sector. Further, the lack of credit facilities at the different stages of the value chain, severe competition at the auctions, high taxes and customs on imported fishes, no subsidy on exported fish products has made the sector less

¹¹ **MSBRA**, depending directly on the Ministry of Fish Wealth, was established in 2007 by Presidential Decree N° 149. Its role is to conduct studies on marine living resources and their environment. MSBRA is the successor of the Marine Sciences and Resources Research Centre (MSRRC), founded in 1976. The main office of MSBRA is in Aden with 4 affiliates: two branches for fisheries studies in Hodeida and Mukalla; and the Aquaculture Research Centre and the Marine Environment Pollution Research both located in Little Aden.



attractive to the business. The lack of proper hygienic facilities at the local retail markets in major urban centres, lack of monitoring on prices, weak quality of products together with improper facilities for transport had severe implications on domestic fish trade.

4. Limited Aquaculture and SME's Development:

The fisheries sector has always been important for the Yemen, and the Government, assisted by external development partners, continues to be engaged in the development of this sector. However, as noted above, over-exploitation of fishery resources, negative modification of ecosystems, and economic losses arising from possible international conflicts threaten the long-term sustainability of fisheries and its contribution to the national food security. In this regard, there is an urgent need to look into alternative approaches, such as enhanced aquaculture production, seaweed farming, fish by-products processing etc., in order, first, to sustain food security for the country's growing population and, second, to increase the export potential of the fishery sector for national economic growth. However, the lack of awareness and limited technical knowledge among private sector on Aquaculture development, uncertainties on responsibility and authority for aquaculture issues between ministries and governorate levels, difficulties in permitting procedures and land acquisition, uncertainties in the land tenure, Insufficient legal/regulatory frameworks for aquaculture governance and planning, and unsuitable operational tariffs (diesel & electricity) have lead to the unfriendly business environment.

Further, lack of utilization of latest technologies in Aquaculture planning, limited institutional, technical, technological, research capacities and insufficient budgetary arrangements for ARC, absence of comprehensive information on potential aquaculture sites along the coastline, limited feasibility studies on potential aquaculture development and candidate species, lack of clear policy and legislative frameworks, are many among other limiting factors for country's Aquaculture development.

The lack of feasibility/identification studies on SME's, lack of drive for SME's as development potential, lack of awareness among private sector on new business opportunities, limited technical capacities at all the levels to foster SME's development, and lack of credit facilities for small and medium enterprises have hindered the SMEs development and promotion.

5. Low Productivity of Fishermen Community:

A major constraint to the development of the country's fishing sector is lack of direct support to the fishing communities. The weak structural arrangement of fisher's communities, together with limited access to social services (e.g. health, sanitation, education), and high illiteracy levels has lead to their economic and social deprivation. The lack of limited services and facilities at landing centres (pre-, during- & post-harvesting operations); limited awareness among fishing communities (e.g. marine conservation, protection, disaster preparedness, quality, control, hygiene, alternative livelihoods, GPS operations etc.); lack of security and safety services for fishermen (e.g. on-board health, safety and insurance, disaster preparedness and management); piracy at the sea; increased fishing costs (e.g. high Diesel prices); conflicts among Industrial vs. Artisanal fishing; and the lack of credit/loan facilities have further limited the community development.

At present, there are around 128 fish cooperatives represented by Yemeni Fishery Cooperative Union at the national level. However, comprehensive database and reliable systems recording the fish co-operative operations, duties, tasks, and their supporting activities to fishermen are not in place. The lack of organized systems, limited technical, financial and institutional capacities are the major factors limiting the FCU's performance in addressing the social and development contexts of fishermen.

6. Underutilized potential of Fisherwomen:



Women's roles in fisheries and development are matched to the pattern and scale of fishery resources, their uses and state of exploitation. In general, in Yemen, rural women, including the fisher women communities, continue to struggle under the dual burden of production and domestic labor and are confronted by poverty, lack of access to productive resources, illiteracy, high health risks and denial of market access in profitable food sectors.

The fisheries are predominantly perceived as the activity of men. In general the male perception, fostered by cultural traditions and social biases that women cannot be heads of household continues to persist and creates barriers for women to access to economic opportunities. Thus, the participation of women in fishery sector is very limited.

Women employees within the MFW constitute 28% with majority of them represented at the lower-tiers of the system and a marginal 6% at the higher management levels. Exclusion of women from management functions had a doubled effect, firstly, not allowing the strengthening of community's capabilities and secondly, ignoring the important portion of social knowledge and thus leading to inefficiencies in resource use and retarding the overall development of the community's social capital. In the private sector (fish processing plants), women are involved actively and constitute 40 – 60% of the work force.

Currently, there are about 44 women's associations involved in traditional fish processing and crafts making. There is a disorganized cooperative union that exists, which lack the institutional and organizational structures and a national representation body. At the community level, in some regions (near Al-Kowkha) women are involved in catching small fish using small ring/swing nets near the coastal beach line for local markets. It is reported that in some regions (Al-Khowbha) they were involved in smoking, drying and salting of the fish for local markets. In some regions (Abyan), they help fishermen during the post-harvest operations of handling and transportation.

Further, it was found that women's participation in fisheries was recognized by many researchers and practitioners, but largely from an instrumental perspective. Women are excluded from participation in community-level natural resource management initiatives, relations with external agencies and from political representation.

1.3. The way forward

In view of the above, there is an urgent necessity to manage country's fisheries sustainability in order to help guarantee and enhance its contribution to the country's socio-economic development needs. Also, fisheries form an important part of food security, particularly for coastal populations, and fishery trade is particularly important as a source of foreign currency. Besides, fisheries and associated industries (e.g. aquaculture) feed into diverse and spatially extensive networks of supply and trade to connect production with consumers, adding significant value and generating important levels of employment. In addition, Fisheries policymaking and management is a dynamic interdisciplinary process that needs to take into account fisheries trends and status, including socio-economic aspects. Knowledge of these is a key to sound policy-making and is necessary at the national level for the maintenance of food security and for describing social and economic benefits from fisheries.

Therefore, the development of the sector in a sustainable manner is crucial from the perspective of the integration of Yemen in the multilateral trading system. In order to increase the benefits from fisheries sector to meet the sustainable development goals, there is an urgent need for an integrated fisheries resources management. In this regard, the sector needs to be supported with appropriate policy frameworks and programmes that can integrate socio-economic-technological empowerment of the fishers (men and women) communities and private sector, effective environmental conservation and efficient resource utilization. Additionally, limits on the exploitation of the environment and the fish stock depletion are sensible issues to be developed in order to raise awareness among stakeholders and local communities to spur resource and environmental consciousness.

Therefore, to ensure the fisheries sector sustainability, in view of its significant role in national economy besides the corresponding benefits (e.g. food security, employment



generation, poverty reduction etc.) and also to meet with sustainable development goals, fisheries managers will have to move beyond static understandings of managed stocks or populations to implement adaptive holistic, integrated and participatory approaches to fisheries management that have the potential to increase ecosystem and community resilience. Well-defined criteria also need to be set out for sectoral performance to bring climate change threats, risks and potential adaptations within normal management practice. It is also important to understand patterns of vulnerability to specify and prioritize adaptation interventions and communities' capacity to adapt to and benefit from these, thereby supporting opportunities for more vulnerable groups to engage in economic opportunity.

Furthermore, the unpredictability of both the short- and medium-term effects on the ecosystem and the reactions of the communities impacted by these changes is a major constraint to response and adaptation by the fisheries sector. Besides resource sustainability, while addressing the Climate Change adaptive interventions in the fishery sector, the primary mitigation route lies in its energy consumption, through fuel, raw material use and production, distribution, packaging and other supply chain components all linked with Co₂ emissions.

In addition, fish product utilization encompasses all food safety and quality aspects of nutrition; its sub-dimensions are therefore related to health, including the sanitary conditions across the entire food chain. Also, the fish/fishery product form will also have an important effect, including embodied energy in packaging, and can influence options for maintaining quality and value with respect to transport method. The response of markets to these changes and the implications for prices, economic returns, and sector investment will have major impacts on sectoral performance, employment, food security and longer-term development impact. Information on these drivers, particularly in highly competitive and internationalized context, and the product criteria (e.g. production and quality standards, certification) needs to be addressed.

In this regard, there are important and serious implications for fish trade upon which the nation depends for valuable export earnings. Therefore, the sector will need to engage with such increasing awareness and promote methods and products that meet strategic environmental objectives as well as support social equity and basic access to food. Public and private sector linkages and partnerships shall need to be strengthened to develop efficient and effective responses. Moreover, there is an important need to trace Co₂ emissions¹² throughout the supply chain to understand sectoral carbon footprint to integrate it into fisheries management plans. Also, current biological and system technologies need to be improved so as to adapt to the new efficient technologies in support of small-scales fishers and communities.

Policies to support these critical concerns need to be developed, addressing resource access and use, production options and market related measure such as certification, encouraging transparent measures of mitigation standards, comparisons with other food producing nations, and where appropriate, suitable social inclusion and protection. Measures to increase local availability of fish/fishery products together with improved infrastructures and market communication mechanisms need to be explored to reduce overall transport energy requirements to help optimize supply to consumption linkages. As this is very important for livelihoods and food security, it needs to be balanced against negative impacts on trade and economic opportunities for poorer groups, and therefore the careful tradeoff assessment for future development is required. Location and material flows also need to be identified, as well as a shift or diversification to other species and/or other less energy consuming technologies. Linking national and regional market and trade mechanisms is also more important to buffer and maintain supply variability and maintain sectoral value investment. Most importantly, the monetary and nonmonetary resources at the disposal of the communities, the crucial issue of

¹² Co₂ emissions ratio has been estimated at around three teragrams of Co₂ per million tonnes of fuel used. Fuel efficiency is defined primarily by motor, propulsion and gear characteristics, but is substantially affected by fisheries management and practice". . The Co₂ emissions from the fisheries sector activities could be limited by eliminating inefficient fleet structures (e.g. excessive capacity, overfishing), improving fisheries management and reducing post harvest losses/increasing waste recycling.



food security within the sector, needs to be evaluated, together with national self-sufficiency needs.

In view of the above, an approach that (1) focuses on sustainable exploitation of resources while safeguarding the ecosystem's structure, function and productivity; (2) addresses inclusive and pro-poor economic growth and promotes socio-economic development in line with national development priorities; and (3) enhances the national self-sufficiency needs and sectoral sustainability together with achievable objectives/targets in line with the national strategic goals needs to be implemented. These objectives or targets need to be written clearly detailing the role, rights and obligations of the Ministry, and also those of the private sector and other stakeholders involved in fisheries.

Besides, the full economic potential of the fisheries sector will only be realized through implementation of a coherent strategic framework. Such a framework should cover a long-term vision and goal, strategic programmes and objectives (short, medium and long term) and a related operational plan to achieve those objectives. Other elements of the NFS are identification of priorities, the sequencing of actions, sources of finance and the role of various stakeholders. To maximize potential and consensus about required activities, the strategy should be derived by a working partnership between the public and private sectors, including full participation of stakeholders.

1.4. NFS Guiding Principles and Cross-cutting Issues

Over the recent years, the fisheries and aquaculture sectors have been gaining an increasing importance in the development policies of the country. However, currently, the fisheries sector is in transition. Fisheries laws are being improved to facilitate the above processes, and MFW is in the process of restructuring with the Fisheries Authorities (FA) and Research Authority still in the formative stages.

The management and development of the sector needs to recognize the rights and needs of both present and future generations. Conservation of resource wealth should be the priority using the precautionary management approaches – wherein the scientific information on the abundance, distribution, and productivity of the target species as well as species-ecosystems interactions together with the ecological, ethical and socio-economic dimensions is the paramount for informed-policy development as well as the guided-decision-making. The fisher's communities need to share the responsibility of resource management and sustainability, in compliance with the conservation standards and guidelines.

Against this background, the strategy is needed to:

- Provide a coherent and participatory road map to the sector objectives, which can be seen and understood by all stakeholders from all sectors;
- Provide a sound basis for integration into sector wide planning;
- Facilitate the capture of funds to address the priority policy areas;
- Facilitate monitoring of progress towards the sector purpose and Goal.

Besides the above, the core focus of the NFS is also to support Country's Poverty Reduction Strategy of achieving economic growth (including sustainable management of natural resources); Human resource development; Improving infrastructure; and Ensuring social protection. These are considered as a prerequisite for sustainable development and poverty reduction and just as much, the focus of NFS.

In line with the above, the pillars and focal areas together with its guiding principles and crosscutting issues (that govern the entirety of NFS) are defined, through inputs from Phase-1 to 5 of NFS formulation processes, and are outlined below:

1.4.1. NFS Guiding Principles

The following, which provides the situation, condition and behavior that need to be changed in order to achieve sectoral development objectives, and thus needs to be considered as a prerequisite:



- Sound institutional framework with appropriate fishery legislation to introduce reforms enabling the development and management of modern fishery and aquaculture;
- Ensuring the protection and responsible management of fishery resources; and the implementation and development of stock management programme;
- Developing diversified and multipurpose fisheries and aquaculture enterprises supporting vulnerable communities; and
- Improving the market supply chain, and ensuring the safety, quality and processing of fish/fishery products.

Within the framework, as mentioned above, the National Fisheries Strategy is based in the following guiding principles:

- Fisheries and aquaculture are important for economic, social, development and public resource purposes. Collaboration among all stakeholders including governments, public institutions, fisher's communities and existing private sector (aquaculture and fishing) industries is important to achieve environmental sustainability, economic viability and growth.
- The fisheries and aquaculture development and management should be founded on the results of fishery and aquaculture research, scientific advice and expertise. They should also be fostered in partnership (between private entrepreneurs, government agencies, research and education, and other involved in the supply chain), guaranteeing stakeholder participation in planning, implementation and monitoring of this national Strategy, as well as in the development and improvement of best practices and standards.
- The Fisheries and Aquaculture Policy Framework of Yemen and related programmes and procedures will adhere to international and regional standards and be harmonized on as wide a basis as possible.
- The MFW encourages the fisheries and aquaculture sector to apply sustainable production measures. Such measures include but are not limited to the use of Best Management Practices (BMP), strengthening of cooperatives, establishment of Community Based Management schemes, strengthening product health certification mechanisms etc. In particular, the aquaculture sector should work in harmony with nature and follow the precautionary approach to minimize possible negative environmental impacts and avoid irreversible changes to ecological systems.
- Fisheries and aquaculture management will be based on the principles set out in the FAO Code of Conduct for Responsible Fisheries. The management measures will be effective, practical, cost-effective and utilize readily available resources. These resources will allow the development of appropriate national and regional policies and regulatory frameworks as required increasing investments and reducing the risks incorporated in the fishing, culture, reproduction and movement of aquatic animals.
- Access to relevant national fisheries capacity (infrastructure and specialized expertise as available and active in the sector) is crucial for development and management of the sector. Collaboration with international organizations and foreign countries will be sought wherever possible to further increase Yemen's capacity to develop its fisheries and aquaculture in a sustainable manner.

1.4.2. NFS Crosscutting Issues

NFS will give special attention to five ***crosscutting issues*** in the sector, whose primary focus will be an important factor in achieving coherence and unity in the pursuance of the NFS overall goal. These are described below:

1. Gender



Gender issues in fisheries can be seen from two complementary perspectives; one is an instrumental perspective while the other is an empowerment perspective. Instrumental perspective sees women as a vital with a change in gender power relations in the household and in the society. The goal of the empowerment perspective is to challenge the existing gender relations. Further, Gender and Development (GAD) studies refer to the simultaneous achievement of the two goals:

- The efficiency goal: women's basic protection and welfare (education, shelter, food security), also called women's practical gender needs.
- The empowerment goal: abolition of women's subordination to men, also called women's strategic gender needs.

Meeting practical and strategic gender needs, i.e. achieving the two gender goals in fisheries development, leads to the empowerment of women through improved access to, and control over, income accruing from fishing, but also crucially over the decisions on how to dispose of this income, which is highly relevant to substantial poverty reduction. Decision-making and empowerment should be gradually extended from the household to the wider community.

In line with these, gender equality, efficiency and empowerment will serve as a crosscutting theme, both at the policy and community level, governing the entirety of the NFS. Within this framework, mainstreaming of women's concerns into the national policy making and planning for socio-economic development will be the core focus.

Also, by linking two important fields of small-scale fisheries and gender studies, the NFS will focus on gender issues in fisheries and aims to improve gender and livelihood goals through appropriate interventions at the activity level (e.g. pre & post-harvest operations, fish product diversification, SME's promotion etc.).

2. Climate Change

Based on the climate change studies' findings Yemen has been identified as one of the countries with climate change impact. Models predict that decreasing primary production in the seas and oceans due to **Climate Change** are likely to lead to changes in physiology of fish in short-term (i.e. within few years), and the recruitment success, changes in species composition, abundance and fish population distributions in the medium-term (i.e. a few years to a decade), and in long-term (i.e. multi-decadal) changes in net primary production of the oceans and its transfer to higher trophic levels. All these impacts would be felt, in fisheries sector, through changes in capture, production and marketing costs, changes in sales prices and possible increases in risks of damage or loss of infrastructure, fishing tools and housing, and less stable fishers' livelihoods.

In these lines, NFS will focus on building the resilience of the communities and sectoral adaptation interventions towards the compounding effects of CC through community and institutional (MFW) capacity strengthening initiatives, promotion of energy-efficient technological interventions and pilot adaptation programmes. The recommendations of NAPA into fisheries sector development will be one of the focal areas for adaptation intervention. In this connection, by promoting efficient partnerships with other institutions (e.g national authorities and international organizations) NFS will facilitate the effective means for collectively addressing these issues. Further, research scientific studies (through MSBRA) on the effects of CC will guide the informed policy decision-making.

Among the least developed countries globally, Yemen has been selected along with other eight highly vulnerable countries to climate change impacts in order to benefit from the recently established Pilot Programme for Climate Resilience (PPCR). Subject to funds availability from this programme or other related sources, NFS will be expanded to include pilot climate change adaptation interventions in fisheries sector.

3. Food Security



As mentioned earlier, the recent statistics indicate that 32% of the county's population are food insecure, with majority emanating from the coastal population. By reinforcing the quality-standard domestic market supply chain systems together with the diversification of fish/fishery products and consumer-community awareness on fish as diet, NFS will contribute in strengthening the national food security systems. Market-driven-diversified-product approaches with consumer awareness will be the focus.

At the community level, the diversification of fisheries through CBM-based SME initiatives and promotion of alternative livelihood approaches will lead to the income generating opportunities thus improving their livelihoods. In tandem, with this would be the substantial raise in incomes translating to greater purchasing power for fishing communities due to their involvement in value addition, and other subsequent stages of the fish supply/value chain.

NFS in overall, by securing the resource base through sustainable resource (stock) management, improving domestic marketing and trade systems, and by promoting the alternative livelihood approaches in the sector, will in wider context contribute to the national food security needs.

4. Partnerships and Private Sector Development

Partnerships (inter- and intra-sectoral) are crucial for achieving the sectoral sustainable development goals. Therefore, NFS adopts an active approach to promoting partnerships in the implementation of the strategy as it is clear that the success of NFS that addresses multiple challenges is contingent on maximizing synergies amongst the various concerned entities. In these lines, NFS will promote and strengthen MFW's partnerships with different agencies that play indirect role in sectoral development (e.g. marine, transport, industry, trade, environment, tourism sectors). The partnerships among different Donor's organizations (UNDP, IFAD, FAO, EU, WB, JICA, EIF, ITC, IFC, ILO, GEF, UNIDO, UNIFEM, USAID etc.) will be harmonized, through MFW, for the optimal resource utilization.

International collaboration with research organizations and governing bodies is essential in voicing the concerns of the sector as well as to respect international laws and regulations. Regional partnership with border countries is essential for shared resource management through research and scientific programmes. Accordingly, NFS will advocate and build these partnerships for sustainable sectoral development and management.

Also, the synchronization of different departments in MFW together with technical capacity building skills will enact the organization as ONE and this will be the core focus of NFS to achieve its goal.

Private sector led growth is considered to be the crucial driver in addressing and achieving the national economic growth. Through contributions in form of employment generation and market diversification will further help in realizing the national development priorities. Development of private sector and encouraging the investment in a business friendly environment is the prime focus of NFS. An expected benefit of strong collaboration between the two sectors is greater business confidence in a long-term sector policy that supports and protects private investment in the context of sustainable use of national resources.

Also, NFS will operationalize plans/programmes to facilitate a business enabling friendly environment advocating for the investment with identified business opportunities for diversification.

The Yemeni civil society including private sector organizations and cooperatives would be involved in the policy development work of the programme as major stakeholders as well as recipients and providers of technical assistance services.

NFS will pursue and promote the South-South cooperation (SSC), both regional and inter-regional, for the sector's sustainable development in technical, technological and applied aspects of fisheries as well as for the credit/microfinance facilities at the community level.

Yemen can draw lessons from other LDCs, especially in Asia, in facing the challenges of taking advantage of market access opportunities created by policy reforms and other measures the country has taken to integrate into the global economy. From the perspective



of its areas of concern, the NFS will support sectoral efforts to utilize South-South cooperation possibilities arising from opportunities keeping in mind the desirability of SSC not only at the public sector level, but also in terms of the involvement of the private sector and CBOs.

5. Capacity Building

NFS, in carrying out every single activity will stress capacity development as part of the processes. At the inception of the NFS, rigorous capacity audit and assessments of all implementing partners and the stakeholders will be carried out so as to identify critical capacity gaps at the individual and institutional levels and develop a work plan to address them.

Further, the capacity building and strengthening of all the sectoral stakeholders (viz. MFW and its institutions, private sector, cooperatives, and communities) to increase the sectoral performance is the prime focal area that NFS will operate for. During this process, on the job and on field trainings singled out into each activity is the modus operand.



CHAPTER-3: NATIONAL FISHERIES STRATEGY (NFS)

1.1. NFS Vision

In line with the government's (MFW's) aim "to manage fish and other marine resources in a way that is biologically, environmentally and economically sustainable", and other national development priorities, and as well as keeping in view the vulnerability of the resource base, the fragility of the environment, and the needs of the people (communities), the strategic vision for the Fisheries sector is defined as:

"To develop a diverse, competitive, economically viable and environmentally sustainable fisheries sector, which will deliver high quality, healthy food to consumers at home and abroad, and social and economic benefits to communities (particularly alternative employment opportunities in rural and remote areas with focus on youth and women), and which will use wherever possible scientific evidence to operate responsibly, working within the carrying capacity of the environment, both locally and nationally, and which uses a supply chain approach".

1.2. NFS GOAL

The overall **"GOAL"** of the NFS is **"to enhance the fisheries sector contribution to the national economic growth whilst ensuring the environmental and resource sustainability, improving community livelihoods, strengthening the food security needs, and job-creating economic empowerment opportunities with a focus on youth and women"**.

The overall goal is what NFS aims to achieve in the long-term. In the short-term (2012-2015), in line with the GoY's Transitional Plan for Stabilization and Development (TPSD 2012-2014), the core focus will be on securing and improving the fishers' (men and women) community livelihoods, efficient institutional structures together with effective legal frameworks and enhanced partnerships. In the short- to mid-term (2016-2020) enhanced sectoral capacities and private-sector led community-based equitable inclusive economic growth through SME's and Aquaculture development, domestic and export market development, together with gradual improvement of operational and functional infrastructural systems will form the focal areas. In the long-term (2021-2025), the major interventions will be sustainable stock management systems together with regional and international fisheries management initiatives.

In line with this, the fisheries sector development and management will also focus on the:

- Efficient use of marine/aquatic resources to contribute to the national economy, poverty alleviation and food security;
- Augment the contribution of fisheries and aquaculture in generating socioeconomic benefits and improving the wellbeing of the rural population;
- Improve the economic viability of the sector through diversification of production in accordance with market demand; and
- Increase the availability of high quality fishery products for the domestic market, including increased production of low price fish for popular consumption.

In agreeing to the *goals and the implementation of the strategy, and as mentioned above, the Government of Yemen (MFW) has to commit itself to respect the principles of: Good governance, transparency in decision-making and financial management processes; Fostering fairness and equity among all the stakeholders, especially women and youth; Respect of international treaties, conventions, laws and commitments; Participatory decision making process, involving all stakeholders; and sustainable environmental resource use, management and protection.*

To achieve this, MFW needs to work in collaboration with other ministries to address broader concerns than those pertaining only the fisheries and aquaculture sectors and as well as



ensure that Fisheries Policy is consistent with key national policy goals/objectives and the constitution of the Republic of Yemen.

1.3. NFS Programmes

In line with the above, it was concluded that significant progress will be required over the next 5-15 years if the sector is to achieve its potential in terms of poverty reduction, employment creation for the youth and women, and increased contribution to national economic growth. In line with these, NFS builds a road map towards via a series of carefully selected prioritized 'programmes' that provide framework for 'Objectives and Actions' over short (2012-'15), medium (2016-'20) and long-term (2020-'25). 'Actions' should be seen as the coherent approach and concrete steps to follow to implement the strategy.

Details regarding each "ACTION/ACTIVITY", i.e. identification of partnerships to form, timeframes for completion, funding, are detailed in the NFS Action Plan Matrix. The "matrices" form the core of the implementation plan and should be used as guidelines and, as well as a monitoring tool to ensure that progress is made towards the achievement of the plan objectives, and ultimately the outcomes to the goal.

It is highlighted in this regard that whilst the costs in years 1-5 are considered realistic on the basis of current knowledge, the extrapolation to years 6-14 are inevitably based on best estimates, and will undoubtedly change over time.

Also, it should be noted that the proposed programme and objective components rely heavily on public sector – private sector partnership and a shared vision for the future of the sector. Whilst government must invest in establishment and operation of regulatory quality assurance and monitoring systems, the industry must in turn respond by investing in improved efficiency, compliance and expansion of activities where this is indicated.

Following is the list of programmes and each their brief summaries. The objectives of each along with the inputs, short-term implementation (2012-2015) together with the budgetary requirement is presented in the Table-1. This is done to facilitate and fit into the contexts of the Country's Transition Plan Stabilization and Development (TPSD). The detailed implementation matrix from 2012 to 2025 is presented in Annexure-V.

1.3.1. Programme-1

Effective Institutional Structures with efficient legal frameworks and Fisheries Information Systems:

At the outset, NFS notes that *institutional development* and improvement are paramount to ensure the effective and efficient implementation of the sectoral development priorities, and as well the success of NFS in delivering its stated goal will depend to a large extent on these processes. Within this context, the prime requirement is to develop efficient MFW institutional structures with macro-meso-micro linkages for sectoral sustainable development. In this regard, the prime focus will be on the implementation of the ongoing MFW restructuring plan. Accordingly, the institutional enhancement programmes ensuring the adequately budget needs will form of the key framework of activities.

These will be further supported by the effective *policy development and planning* aimed at establishing (and review and update in later stages) sectoral performance indicators. This will be informed by the research and assessment studies viz. CC, Environmental challenges, food security, gender, Green economy. Through orientation of MFW and research institutions through technical trainings and capacity building for impact assessment studies, the sectoral policies will be aligned with the national development priorities. The active integration of sector planning into the national wide policy framework will offer an opportunity for sectoral representation in line with economic contribution that fisheries will make to poverty



eradication. It is noted, in this regard, that the high degree of compliance between the NFS priorities and the PRSP-DPPR targets and criteria assure the feasibility of this process.

Also, the role of stakeholder participation will be ensured in the policy development processes through effective participatory and consultative mechanisms. Additionally, MFW's outreach to the public will be strengthened through extension, advocacy and awareness programmes on fisheries, fishery management, fisheries education etc. One of the key activities in this regard will focus on establishing the 'fishery museums' in Sana'a and the Fisheries Authorities (Hodeidah, Aden, Mukalla and Al-Maharah).

Together with these, the update of *fisheries legislations* in line with the sectoral development needs (as identified) will ensure the effective regulatory framework for better fishery and fishery resource management. The institutional framework will be supported through review, revision and update of the existing law in support of MFW and its institutions; fisheries management including MCS, inspection and licensing systems; Aquaculture and SME development; Export, Marketing, Trade and Quality Control; and fishers communities. In these processes, the international frameworks of human rights, worker's under IRO, decentralization etc. will be mainstreamed into the fishery legal frameworks. Further, the law enforcement, compliance and adherence systems will be strengthened through effective enforcement systems, and as well the wide advocacy and awareness among the stakeholders and public.

The development of modern and responsive *fisheries information systems* for gaining optimum benefits from the sub-sector through guided-policy decision making will further support the efforts of better fisheries management. Within this, the existing Fisheries Information System (FIS) will be strengthened through harmonizing and enhancing the data collection, analysis and dissemination mechanisms at the sectoral and national levels. Establishment of comprehensive Fishery Database and utilization of GIS and RS technologies together with the statistical systems will be one of the key activities.

1.3.2. Programme-2

Improved Infrastructural Facilities:

Infrastructure development, both the institutional and services/utilities, is seen as the crucial factor for sector's sustainable development. A step-by-step priority based approach, established through needs priority evaluations with strategic implementation modality, including funding and monitoring frameworks, will ensure the gradual improvement of infrastructural facilities.

The ongoing rehabilitation infrastructural investments in support of MFW and its institutions will be ensured through continuous dialogue with the line ministries and government authorities (e.g MoPIC, ACDB, Public Works etc.). The key activities in support of *Institutional Infrastructure development* include Fisheries Authorities; establishing Fisheries Training Centers; upgrading MSBRA, ARC and QC laboratories; provision of research boat facility for MSBRA; establishing hatchery laboratories for ARC; establishing pilot aquaculture firms for demonstration and research studies in Hodeidah, Aden and Mukalla; and QC labs at the export-outlets for the quick-product analysis. Also, the Public-Private Partnerships will be fostered for continuing development needs, and in particular in the establishment of feed factories.

The *operational and services infrastructure development* will focus on development and rehabilitation of landing centres, cold-store units, ice plants, boat yards, maintenance workshops, and value chain. Comprehensive needs and priority evaluations will inform on the step-by-step approach for development of these facilities, including the new establishments/constructions as identified. Public-Private and Public-Private-Community partnerships will be fostered and strengthened for the integrated landing center management. Further the boat and gear technological improvement (with a focus on environmental friendliness, safety and security measures) will be fostered through regional and international collaborations in the technological transfers. This will be supported by facilitations through continuous dialogues in achieving the less-margin tax systems for the import of input raw material supplies. The value chain systems will be developed through



gradual establishment and improvement of local fish markets including the rural areas, construction of pilot model markets, and establishment of export centres in the coastal outlets. Public-Private and Public-Private-Community partnerships will be fostered in this regard.

1.3.3. Programme-3

Enhanced sectoral capacities and Improved national, regional and international collaborations:

Lack of trained manpower and suitable facilities in fisheries and aquaculture management organizations and research institutions are considered to be one of the most important impediment to the development of both fisheries and aquaculture. Thus, the main focus will be *strengthening the sectoral capacities* of MFW and its institutions and sectoral stakeholders (viz. private sector, fisher's communities etc.) in fishery management and development.

The key activity in this regard includes establishing the Fisheries Training Centres (FTC) at the national (MFW, Sana'a) and local (Fisheries Authorities) levels with appropriate linkages at the national and international level to facilitate the provision of continuous trainings (refresher courses) and capacity building programmes for all sectoral stakeholders. The courses and curricula shall be drawn from the current requirements in the sector that aims at provision of technically competent services. Study tours and exchange visits will be fostered and promoted to capitalize on the regional and international experiences. Competitive scholarship programmes will be made available for the staff skill building and capacity development.

One of the major objectives of this component is to strengthen the *collaboration and coordination mechanisms* in the sector. Through Department of Relations and International cooperation, at the higher level and through its role, NFS will facilitate the effective partnerships and collaborations with institutions (inter- and intra- at the national, regional and global level) and thus will contribute to the coordinated efforts to implement successful measures for improved fisheries management and as well in mainstreaming the cross-cutting issues viz. environmental challenges, food security, private sector development etc. into fisheries management. Equally important is the creation of a favourable investment climate for both local and international investors. In line with the PRSP, it is essential that this investment climate should favour not only large scale entrepreneurs, but should support the increasing involvement of small scale, community based, business or marketing associations. In line with this, NFS will build up the essential co-ordination mechanisms through Department of Investment facilitating a business-friendly environment ensuring the private sector investment. Further, the devolution of responsibilities among communities and government (including all the players) will address the sustainable inland and coastal fisheries resources management and use.

1.3.4. Programme-4

Sustainable Resource Management with effective MCS and VMS systems:

The lack of stock assessment surveys over the last 30 years and the lack of information on the present status of various resources in shallow and offshore waters is the main impediment for the implementation of appropriate management measures. Therefore, the main objective of this component is to assess the available resource levels and establish sustainable harvesting limits to strengthen the *fish stock assessment and management* systems. This will be supported by strengthening the *MCS and VMS systems* in the sector through institutional and capacity building interventions for effective enforcement of regulations as well as controlling IUU fishing. Scientific and technical studies evaluating the Yemeni coastal and offshore waters and to set ecological and environment indices for mitigation and adaptation will be conducted. The DPPR priorities with respect to (i) research and technology development and (vi) sustainable natural resource management are clearly reflected in the objectives and actions of this component. Thus, the PRSP target of aiding the



poor (fisheries communities) to raise out of poverty will be addressed by securing their resource base.

The main focus also will be strengthening the institutional, infrastructural, operational, technical, research and managerial capacities of MSBRA for fishery resource management. Training will be supplemented at the national level by in-country training of academicians and researchers. Training in research and monitoring programmes of fisheries stock management will be provided to MSBRA staff through FTC curriculum. Also, at the national level, information on fishery stocks will be improved. One of the objectives of this component is to enhance support to improved quality research applied to fisheries. In this regard, a strong linkage with national and international institutions will be promoted, which is seen as the utmost priority for fisheries research development. Moreover, technical research programmes will be developed and promoted through collaborative programmes with national and international institutions and organizations.

This component will also focus on fostering the development of localized institutions in fishing technology (e.g. boat building) and applied fisheries (e.g. GIS & RS interventions) through training and technical collaborations at the national and international level. The possible south-south cooperation in development of this will be the prime focus in this area.

Additionally, the focus will be on adapting to the FAO's Code of Conduct for Responsible Fisheries (CCRF) and ecosystem approach to fisheries management, and implementation of Integrated Coastal Zone Management (ICZM) to reduce resource conflicts and environmental degradation. Wherever necessary, research and scientific programmes will be conducted to rehabilitate marine habitats damaged by pollution. Awareness programmes for the fisheries communities on sustainable fisheries practices and management will help ensure resource conservation and exploitation initiatives.

1.3.5. Programme-5

Enhanced Aquaculture and Mariculture Potentialities with effective legal frameworks:

There is an opportunity to increase total fisheries production through aquaculture development. At present there are very few efficient fish farms in Yemen and the few commercial producers are focusing on the production of Shrimp rather than on full-scale varieties of marketable fish. Despite several attempts by private and public sectors, aquaculture in coastal areas of Yemen remains embryonic and generates few export commodities. The contribution which aquaculture could make to the national economy is, as yet, unknown, and rectifying this situation is a first priority for the NFS.

This component focuses largely on aquaculture developers rather than fishers. There is thus substantial cross-over with agricultural and livestock policy and a need for closely integrated planning for joint sector/sub-sector development. It is essential, once technologies are available locally or through Foreign Direct Investment (FDI), to develop an investment strategy which puts money where there are the best chances of success, be it shrimp culture, feeds, culture-based fisheries or stock enhancement. Application of latest technologies in the *aquaculture development and planning* will be promoted, and necessary coordination mechanisms with national institutes viz. GIS and RS will be developed. Further, feasibility studies in mariculture (e.g. crab, fish, mollusc, sea weed) will be conducted identifying the potentialities for development, and will be advocated for fostering promoting Public-Private Partnerships.

As outlined above (in programme-2), the existing Aquaculture Research Centre (ARC) will be equipped with essential institutional, technical and financial capacities through *Public-Private Partnerships* or regional/global collaborative partnerships. The technical capacities will be enhanced through capacity building trainings and effective research and development.

Promotion and enhancement of collaborative partnerships with the national, regional and international institutes/agencies will be fostered for the aquaculture development and planning. By outlining the potential opportunities and through wide advocacy and promotion private sector participation in the sector will be enhanced. Further, by identifying High



Potential Zones (HPZs) will help in spatial planning as well the strengthening the aquaculture initiatives in the sector. Further, effective *Aquaculture laws/regulations framework* together with the regional and international collaborations will help in governing the aquaculture environmental-friendly.

1.3.6. Programme-6

Improved SME structures and Systems:

One of the major objectives of this component is to promote SMEs and facilitate product diversification. A *strategic sectoral SME development* plan together with pilot and demonstration studies focusing on job-creation will inform the guided approach to SME development in the sector.

By promoting the SMEs within the fisheries sector through collaborations with concerned government entities (viz. MoIT, SMEPS) fostering the *private sector investments*, the contributions to national development priorities will be enhanced. By supporting the collaborations with banks and national financial institutions, private sector will be supported for aquaculture, mariculture, SME ventures and possibly value-chain financing. Comprehensive database on feasible sectoral SMEs will be established and promoted for investment opportunities.

Added-value for fish/fishery products through transformation and processing leading to improved commercialization will be facilitated through feasibility studies to increase the utilization and economic returns from the sector, with emphasis on women. Improved practices in fish utilization, promotion and establishment of processing facilities together with technical capacity building and awareness initiatives will increase the private sector contributions for the sectoral development.

Feasibility study on the fish bycatch exploitation, value-added fish production and fisheries by-products will be carried out, and locally feasible procedures will be recommended. A detailed study on 'dry fish operations' and 'smoked fish' will be carried out, with a focus on energy-efficiency technologies, supply chain and market development. A detailed assessment study on alternative livelihoods (fisheries and non-fisheries) will be carried out.

Institutional, organizational and managerial support to communities will be provided through awareness among communities on new business opportunities for SMEs in fisheries sector. *Community based Management interventions* for SME development will be promoted and advocated for with trainings and awareness programmes together with the provision of Credit facilities. Women participation will be promoted through awareness, advocacy and guidance on SME initiatives and alternative livelihood opportunities together with technical, operational and financial support mechanisms.

1.3.7. Programme-7

Strengthened Fish Supply and Value Chain systems:

The contribution of the sector to sustainable national economic growth is heavily dependent on optimum utilization of the commodities produced from Yemen's fisheries resources (DPPR 3). Losses in quantity and quality as a result of poor capture methods, poor on-board and on-shore handling and poor preservation, are directly reflected in loss of market value and loss of nutritional opportunity. Thus, the encouragement of high (ideally international) standards of hygiene and processing practices, and the operation of an objective and credible system of quality control and quality assurance forms the prime focus area of this component.

The DPPR specifically cites the construction of landing sites to facilitate fish handling, quality control and monitoring. In line with these, as outlined in Programme-2, the focus will be to improve infrastructural fishing support facilities for domestic and international marketing systems and to increase handling and preservation of fish/fishery products throughout the supply chain. This will be in support of improving and establishing the pre-processing facilities (such as ice-making, gear handling & repair) as well as cold storage units at the landing centres. Possible Public-Private partnerships and linkages will be identified in this regard and



advocated. Also, use of fish crates and insulated boxes will be promoted throughout the chain to ensure the quality of the products. The technical capacities of the QC institutions (labs) and staff will be enhanced through FTC's curriculum and as well the targeted capacity building interventions. Awareness raising programmes on fish quality, control and hygiene throughout the supply chain together with capacity building trainings for MFW and its institutions on food quality and safety systems will be one of the component's programmes.

One of the objectives of the component is to ensure affordable fish supply at local markets and *improve domestic value chain systems* to promote and increase contribution of fish as diet at the national level. In this connection, improving hygienic conditions at the local retail fish markets, supporting domestic marketing chain systems to the inland areas and promotion through awareness raising among public on fish as diet form the core actions. Regulating the prices at auction halls and local markets through effective monitoring frameworks and improve transporting system facilities will further enhance the sector contribution at the national level.

In addition, harmonizing the export-import laws for *enhanced fish export trade potentialities*; increasing number of export points; facilitating credit facilities and adequate technology transfer (through south-south linkages) for the private sector development; and strengthening capacities for effective food safety and quality regulation systems (e.g. phytosanitary standards, HACCP, ISO, TQMS etc.) will boost the fish exports thereby enhancing its contribution to the national economy. Also, supporting the fish-product value-addition, utilization and diversification will be fostered through pilot and demonstration studies and advocacy programmes. The inputs in this regard will be solicited through Programme-6. Further, study tours and exchange visits will be organized to capitalize on the regional and international experiences.

1.3.8. Programme-8

Improved Fishers Livelihoods and enhanced structures and facilities for community development:

This component aims at attaining social, technological and economic empowerment of the fisher's communities through organizing and capacity building so that they are able to identify their problems and needs, look for opportunities, assess their resources and finally introduce various economic and community welfare activities. Thus, it will adopt an integrated approach of environment, community and poverty. Accordingly, it encompasses community based management initiatives and participatory approaches at the grass root level to ensure effective resource management. Also, this component will scale up *community-based fisheries management initiatives* by restoring habitats and productivity through pilot co-management programs based on stronger resource access rights for communities.

One of the main objectives is to increase the access of communities to basic social, financial and technological services. Possible south-south linkages will be explored to foster the microfinance schemes in the sector. The FCUs will be organized systematically and their *capacities for social development* will be enhanced through technical, administrative and managerial capacity building activities. The progress of FCUs will be monitored on a regular basis through indicator-based performance appraisal. Community-based fisheries management initiatives will be supported especially in managing and utilizing the Fish Aggregating Devices (FADs) and as well the landing centre management.

Further, comprehensive assessment studies and baseline surveys will be carried out (at the selected locations) to establish a "Community Centralized Services and Facilities System" (CCSFS), involving the stakeholders, as a pilot initiative. The CCSFS will facilitate in providing all basic social, organizational and managerial services to the community. Also, the CCSFS will provide assistance in renovation/upgrade/modernizing of the existing (community) common facilities that may trigger vigorous economic and welfare activities ultimately leading to community empowerment such as road, drain, sewerage line, tube well, community sanitation facilities, and in establishing Community resource Training centre. The community resource and vocational training facility will facilities in improving the skill building on identified activities. Environmental friendly products and ornaments using the shells and other



coastal/marine flora and fauna will be encouraged. Based on the end results, this will be extended carefully to the other locations.

The component also supports participatory community based approaches and good governance by fishermen in the implementation of fisheries law. Awareness raising programmes on fisheries management and laws will be carried out through FCUs. A comprehensive database on fishermen will be established to address the socio-economic constraints.

Community-managed financial services for fisheries communities will be facilitated through provision of credit facilities. One of the main objectives is to provide financial resources to the FCUs to enable their members establish or expand business, undertake community welfare activities and improve chances of obtaining higher and sustainable income through better use of their skills. It is recommended that the financial resources may be made available to FCUs through **Department of Cooperatives**, as per approved plans prepared and submitted by the concerned FCUs and **Department of Cooperatives**.

Awareness raising programmes for fishing communities on marine conservation, climate changes effects mitigation & adaptations, protection, disaster preparedness, quality, control, hygiene, alternative livelihoods, GPS operations, fishing technology and practices, microcredit and finance facilities, laws/regulations will be conducted for better fisheries resources management, conservation, and as well to increase their productivity.

Also, by adapting to the code of conduct for behavior at sea (covering safety-at-sea and rescue operations) through provision of capacity building and possible financial mechanisms (for on-board health, safety and insurance) the *safety and security at the sea* will be addressed.

1.3.9. Programme-9

Enhanced women role and participation:

Women in fishing communities play an important role in fish production and their role encompasses social and economic responsibilities, both within and outside the family. However, they have low status and limited social capital, meaning that they have little opportunity to influence Local Government and have no impact on the quality of governance. Additionally Women have limited access to fishing/fishery activities and virtually no control over the proceeds that accrue therein. Subsequently, a primary livelihood need is for the creation of institutions and processes, which will enhance women incomes and give a voice to the women.

Women participation, both at the policy and community levels, is very limited in the sector. In this regard, NFS underpins the adequately budget and capacity support as an essential paramount for the General Department for Coastal Women (GDCW) department, from wherein the guidelines will stimulate the development of women, both at the policy and community level. GDCW will be linked to the national women institutions (WNC, YWU etc.) at the national level and as well its priorities aligned with the wider national development frameworks. Continuous training and capacity building activities for GDCW will promote the support of these policies.

Accordingly, the role of General Department for Coastal Women (GDCW) will be strengthened through capacity (institutional, technical, managerial) building activities in addressing the women issues in the sector and effectively delivering its services to the communities. Also, as mentioned earlier, gender equality, efficiency and empowerment will serve as a crosscutting theme, both at the policy and community level, governing the entirety of the NFS. Within this framework, mainstreaming of fisher women's concerns, through GDCW, into the national policy making and planning for socio-economic development will be the core focus. NFS will facilitate the processes of initiating Fisheries Sector Gender Forums (FSGF) involving private sector, financial and higher education institutions, women cooperative groups, NGOs, CBOs, CSOs and other development partners to promote dialogue on sectoral gender policy issues.

Women and gender programs in fisheries cannot be left to mainstream gender and social welfare agencies as these seldom give priority to fisheries. Fisheries sector must develop its



own gender approaches. In addition, within the sector, family and community-based approaches rather than women's activities are more likely to succeed and last. In this context, sensitization of fisheries sector stakeholders to women empowerment (economic and social) together with the gender training tools will be one of the prime focuses of NFS. At the community level, NFS, by facilitating the formation of the Women Fish Cooperative Unions (WFCU) and promoting the greater involvement and participation of women in sector, will provide a window of opportunity to access the finances necessary for both sector modernization and for diversification of livelihood strategies.

Additionally, NFS will focus on promoting CBM initiatives of fish drying & processing, sea weed processing, fish feed production, smoked fish, skill building activities (e.g. net mending, ornamental products) and other alternative livelihood approaches (as identified from other programmes, in particular 5, 6, and 7) to strengthen the fisher women communities. One of the main objectives is also to provide financial resources (accessible and affordable finance/credit services) to the WFCUs to enable their members establish or expand business, undertake community welfare activities and improve chances of obtaining higher and sustainable income through better use of their skills. Capacity (institutional, managerial and technical) building activities will be linked with skill capacity trainings for marketing of the products at the community level. Also, in this regard, partnership with the donors, private sector, government social development fund, and financial institutions will be promoted at the institutional (MFW) and community (WFCU) level to facilitate women micro-projects and accessibility to micro-credit/finances.

Chapter – 3: NFS Implementation Matrix 2012 – 2015
(Final Draft)



Table 1: NFS Implementation Matrix 2012-2015

Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term	Medium-Term	Long-Term	Total
						(2012-2015)	(2016-2020)	(2021-2025)	
1. Effective Institutional Structures with efficient legal frameworks and Fisheries Information Systems.									
1.1. Effective Institutional Structures					Restructuring costs	3.5	-	-	3.5
<i>Restructuring of MFW</i>	X	X			Priority and needs evaluations	0.9	0.5	0.5	1.9
<i>Institutional Capacity Development</i>					Institutional enhancement programmes	2.5	1.5	-	4.0
<i>Policy development and Planning</i>	X	X	X	X	Consultation, advocacy and awareness Programmes	2.0	1.0	0.5	3.5
<i>Improved MFW Outreach</i>	X	X	X	X	Training Programmes and publications	0.7	0.3	0.2	1.2
					Sub-Total 1.1.	9.6	3.3	1.2	14.1
1.2. Effective legal frameworks for enhanced sectoral capacity									
<i>Institutional Frameworks</i>	X	X			Priority and needs evaluations	0.5	0.5	0.5	1.5
<i>Fisheries Management</i>	X	X			Review, Revision and Update of Law/legislation	0.25	0.25	-	0.5
<i>Export, Marketing, Trade, Quality and Control; Aquaculture & SME Development; Fishermen Communities</i>	X	X			Consultation, advocacy and awreness Programmes	0.5	0.5	0.5	1.5
<i>Law enforcement, compliance and adherence</i>	X	X	X	X	Training Programmes and publications	0.2	0.5	0.3	1.0
					Sub-Total 1.2.	1.5	1.8	1.3	4.5
1.3. Strengthened Fisheries Information Systems									
<i>Updated FIS</i>					Survey studies	0.25	0.25	-	0.5
<i>Establish Comprehensive Database systems</i>	X	X	X	X	Operational and Networking facilities (landing centres and FIS centre)	1.0	1.5	-	2.5
<i>Accurate Data Analysis, Dissemination and Advocacy</i>	X	X	X	X	Database development system	1.0	1.0	-	2.0
					Data analytical soft-wares	0.3	0.5	-	0.8

Chapter – 3: NFS Implementation Matrix 2012 – 2015
(Final Draft)



Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
					Publications	0.25	0.25	0.25	0.75
					Advocacy/Awareness material	0.1	0.25	0.25	0.6
					Sub-Total 1.3.	2.9	3.8	0.5	7.1
					TOTAL Programme-1	13.9	8.8	3.0	25.7
2. Improved Infrastructural Facilities.									
2.1. Institutional Infrastructure									
<i>Rehabilitation and Investments</i>	X	X	X	X	Needs assessment evaluation)	0.25	-	-	0.25
<i>MSBRA facilities development</i>	X	X	X	X	Consultation programmes, workshops and conferences	0.5	-	-	0.5
<i>ARC facilities development</i>	X	X	X	X	Rehabilitation and completion of on-going institutional infrastructure facilities	10.0	-	-	10.0
<i>Fish QC Labs</i>	X	X	X	X	MSBRA Laboratory facilities (upgrade and establishment)	4.0	-	-	4.0
					Research Boat	12.0	-	-	12.0
					ARC Laboratory facilities (upgrade and establishment of hatchery and feed labs)	6.0	-	-	6.0
					Pilot Aquaculture farms in Aden, Hodeiah and Mukalla	3.0	2.75	-	5.75
					Fish Quality Control Laboratories	4.0	2.0	-	6.0
					Fishfeed establishments	1.0	2.0	-	3.0
					Package-packing establishments	0.75	1.25	-	2.0
					Sub-Total 2.1.	41.5	8.0	0.0	49.5
2.2. Services and Utilities Infrastructure									
<i>Landing centre facilities</i>	X	X	X	X	Needs assessment and evaluation	0.5	0.25	-	0.75
<i>Fishing Support Services, Boat and gear</i>	X	X	X	X	Rehabilitation and completion of on-going services-utilities infrastructure facilities	20.0	20.0	-	40.0
<i>Fishing support services, Value chain, marketing and exports</i>	X	X	X	X	Construction of new landing centre facilities	100.0	200.0	-	300.0

Chapter – 3: NFS Implementation Matrix 2012 – 2015
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Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
					Construction of cold-store units at landing centres	3.0	9.0	-	12.0
					Consultation programmes, workshops and conferences	0.5	0.5	-	1.0
					Pilot Landing centre management initiatives and expansion	1.5	3.5	1.0	6.0
					Pilot boat construction facilities	0.5	2.5	-	3.0
					Fishing tool factories	-	2.0	1.0	3.0
					Rehabilitation of local and export markets	1.0	2.0	-	3.0
					Pilot initiatives (model local markets)	0.75	0.75	-	1.5
					Export centre outlets	0.75	1.0	-	1.75
					Fish markets in rural and remote areas	0.75	3.25	-	4.0
					Sub-Total 2.2.	129.3	244.8	2.0	376.0
					TOTAL Programme-2	170.8	252.8	2.0	425.5
3. Enhanced sectoral capacities and Improved collaborations.									
3.1. Strengthened capacities of MFW and its institutions									
<i>Fisheries Training and Capacity Building</i>	X	X	X	X	Needs evaluations	0.25	-	-	0.25
<i>Technical training programmes</i>	X	X	X	X	Establishment of Fisheries Training Centres	0.5	0.5	-	1.0
					Consultation Programmes and workshops	0.8	1.0	-	1.8
					Technical trainings and certificate programmes	1.25	4.75	-	6.0
					Study tours and exchange visits	0.5	1.25	0.25	2.0
					Knowledge management facilities (libraries)	0.25	0.5	-	0.75
					Trainings and Awareness Programmes (fishermen and women)	0.8	2.5	-	3.3

Chapter – 3: NFS Implementation Matrix 2012 – 2015
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Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
					Capacity enhancement programmes for national academia and institutions	0.5	1.5	-	2.0
					Sub-Total 3.1.	4.8	12.0	0.25	17.05
3.2. Enhanced collaboration					Needs evaluation	0.15	0.15	-	0.3
National collaborations	X	X	X	X	Consultation programmes, workshops and conferences	1.25	2.75	0.25	4.25
Regional and International collaborations	X	X	X	X	National and regional collaborative research programmes	0.25	4.75	2.25	7.25
Public-private partnerships	X	X	X	X	Joint fisheries management	0.5	2.5	1.5	4.5
Community Partnerships and management initiatives	X	X	X	X	Coordination Council	0.25	0.5	0.25	1.0
					Pilot initiatives (including CBM programmes)	1.25	2.75	-	4.0
					Sub-Total 3.2.	3.65	13.4	4.25	21.3
					TOTAL Programme-3	8.5	25.4	4.5	38.35
4. Sustainable Resource Management with effective MCS Systems									
4.1. Sustainable Resource Management									
Enhanced Resource Management	X	X	X	X	Baseline and assessment studies	1.5	1.0	0.5	3.0
Joint Public-Private Partnership research initiatives	X	X			Fish resource surveys and stock assessment	2.0	15.0	3.0	20.0
Increased women contribution in research	X	X			Research programmes (coastal/marine)	1.5	12	2.5	16.0
					ICZM Plans	0.5	1.5	-	2.0
					Consultation programme and workshops	0.5	1	0.5	2.0
					Joint initiatives and programmes	0.5	1.25	0.5	2.25
					Targeted Research capacity enhancement programmes	0.5	0.5	-	1.0
					Sub-Total 4.1.	7.0	32.25	7.0	46.25

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Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
4.2. Strengthened MCS and VMS systems									
<i>Enhanced Monitoring and Inspection Systems</i>	X	X	X	X	Needs evaluation	0.15	0.15	-	0.3
<i>Efficient law enforcement</i>	X	X	X	X	Equipment and tools	0.5	2.5	-	3.0
					Targeted capacity building programmes	0.05	0.75	-	0.8
					Facilities and upgrade	-	3.5	1.0	4.5
					Audit and Law offices, including utilities and operational costs	0.5	1.0	-	1.5
					Sub-Total 4.2.	1.2	7.9	1.0	10.1
					TOTAL Programme-4	8.2	40.15	8.0	56.35
5. Enhanced Aquaculture and Mariculture Potentialities with effective legal frameworks.					Needs evaluation and feasibility programmes	0.25	0.2	-	0.45
5.1. Aquaculture Planning, Management and Development					Site-identification surveys	0.25	0.75	-	1.0
<i>Aquaculture Strategic Plan</i>	X	X	X	X	Aquaculture HPZ maps	0.15	0.25	-	0.4
<i>Foster Private Sector Investments</i>	X	X	X	X	Research pilot programmes	0.25	1.75	-	2.0
<i>Aquaculture Law and Governance</i>	X	X	X	X	CBM pilot initiatives	0.75	0.5	-	1.25
					Targeted trainings (on-job and on-field)	0.15	0.25	-	0.4
					Targeted infrastructure development	0.5	0.5	-	1.0
					Consultation meetings, workshops, advocacy and awareness	0.5	1.0	-	1.5
					Study tours and visits	0.15	0.35	-	0.5
					Registration and Licensing System	0.25	0.15	-	0.4
					Draft Aquaculture Law	0.25	0.25	-	0.5
					Monitoring programme	0.25	0.15	-	0.4
					Establish 'Microfinance Revolving Fund'	5.0	15.0	10.0	30
					Establish pilot location firms in Aden, Hodeiah and Mukalla	3.0	2.0	-	5.0

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Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term	Medium-Term	Long-Term	Total
						(2012-2015)	(2016-2020)	(2021-2025)	
TOTAL Programme-5						11.7	23.1	10	44.8
6. Improved SME structures and Systems.									
6.1. SME Planning, Management and Development					Needs priority evaluations	0.25	0.1	-	0.35
Strategic SME development Plan	x	x	x	x	SME policy and legal framework	0.1	0.1	-	0.2
Foster Private Sector Investment	x	x	x	x	Pilot initiatives	1.5	2.5	-	4.0
SME CBM initiatives for enhancing community development	x	x	x	x	Registration system	0.25	0.25	-	0.5
					Consultation meetings, workshops, advocacy and awareness	0.75	0.5	-	1.25
					News letters and publications	0.3	0.25	-	0.55
					Demonstration studies	1.5	0.5	-	2.0
					Establish 'Microfinance Revolving Fund'	5.0	10.0	10.0	25.0
					Targeted technical support and trainings	0.5	0.25	-	0.75
TOTAL Programme-6						10.15	14.45	10	34.6
7. Strengthened Fish Value Chain systems									
7.1. Effective Quality Control and Assurance					Design and Implementation studies	0.1	-	-	0.1
Efficient QC-QA Management	x	x	x	x	Consultations, Advocacy and awareness	0.75	0.75	-	1.5
					Targeted on-shore facilities	0.5	1.5	-	2.0
					Targeted technical trainings	0.75	1.25	-	2.0
Sub-Total 7.1.						2.1	3.5	0	5.6
7.2. Improved Domestic Value Chain									
Market and Supply Chain Systems	x	x	x	x	Needs assessment and evaluation	0.25	0.15	-	0.4
Product Promotion for Domestic Food Security Needs	x	x	x	x	Licensing system	0.5	0.5	-	1.0

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Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
					Targeted facilities development at local markets	0.5	1.5	-	2.0
					Consultation, advocacy and awareness, conference and workshops programmes	0.35	0.25	-	0.6
					Feasibility studies	0.25	0.15	-	0.4
					Targeted technical assistance	0.5	0.75	-	1.25
					Pilot initiatives	1.5	1.25	-	2.75
					Sub-Total 7.2.	3.85	4.55	0	8.4
7.3. Enhanced Export Trade Potentialities									
<i>Fish Export and market Chain (networking systems)</i>	x	x	x	x	Assessment studies	0.5	0.25	-	0.75
<i>Support and Foster Private Sector Involvement</i>	x	x	x	x	Targeted technical assistance	0.75	0.5	-	1.25
<i>Support Fish-product Value-addition, Utilization and Diversification</i>	x	x	x	x	Feasibility studies	0.25	0.25	-	0.5
<i>Facilitate Technological Transfer</i>	x	x	x	x	Networking facilities	0.5	0.25	-	0.75
					Consultation, advocacy and awareness, conference and workshops programmes	0.35	0.25	-	0.6
					Targeted technical assistance	0.75	0.75	-	1.5
					Production units establishment	0.5	1.0	-	1.5
					Establish 'Microfinance Revolving Fund'	5.0	10.0	5.0	20
					International fairs and exhibitions	0.5	0.75	-	1.25
					Study tours and exchange visits	0.5	1.25	-	1.75
					Sub-Total 7.3.	9.6	15.25	5	29.85
					TOTAL Programme-7	15.55	23.3	5	43.85

8. Improved Fisheries Livelihoods and enhanced structures and facilities for community development.

8.1. Improved Socio-economic status and enhanced role of communities in Fisheries Management and Development

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Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
<i>Increased Access to Basic Social Services</i>	X	X	X	X	Needs assessment evaluation	0.15	-	-	0.15
<i>Establish Fishers Socio-economic Database</i>	X	X	X	X	Investment map	0.15	-	-	0.15
<i>Support CBM initiatives</i>	X	X	X	X	Targeted (infrastructural) facilities development	10.0	5.0	-	15.0
<i>Improve access to Credit-microfinance Services</i>	X	X	X	X	Targeted technical trainings	0.5	1	-	1.5
					Database systems	0.5	0.5	-	1.0
					Analytical surveys and reports	0.25	0.2	0.1	0.55
					Publications	0.2	0.15	0.15	0.5
					Feasibility studies	0.15	-	-	0.15
					Pilot studies	1.25	0.75	-	2.0
					CBM pilot initiatives	1.5	1.0	-	2.5
					Establish 'Microfinance Revolving Fund'	10.0	25.0	10.0	45.0
					Consultation meetings, workshops, advocacy and awareness	0.75	0.5	0.5	1.75
					Sub-Total 8.1.	25.4	34.1	10.75	70.25
8.2. Safety and Security Services									
<i>Provide Safety and Security Tools for Fishermen</i>	X	X	X	X	Facilities and equipment	5.0	5.0	-	10.0
					Contact systems	0.25	0.25	-	0.5
					Rehabilitation and establishment of saving fleet	2.0	4.0	-	6.0
					Sub-Total 8.2.	7.25	9.25	0	16.5
8.3. Improved National, Regional and International Collaboration in the field of combating Piracy at the Sea									
	X	X	X	X	Consultation meetings/workshops	0.25	0.25	-	0.5
					Security systems	0.75	1.25	-	2.0
					Sub-Total 8.3.	1.0	1.5	0	2.5
8.4. Strengthened FCU Capacities for supporting Fisheries Services and Delivery to the Communities									

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Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
<i>Develop Performance Indicators for FCUs</i>	X	X	X	X	Assessment, review and evaluation	0.5	0.75	0.75	2.0
<i>Organize FCUs through trainings and Services</i>	X	X	X	X	Publications/reports	0.2	0.2	0.2	0.6
<i>Support the Use of Financial Resources from Cooperative to develop Fishers Communities</i>	X	X	X	X	Targeted technical trainings	1.0	2.0	-	3.0
					Consultation meetings/workshops	0.25	0.35	-	0.6
					CBM (landing centre) initiatives	1.0	2.5	-	3.5
					Sub-Total 8.4.	2.95	5.8	0.95	9.7
					TOTAL Programme-8	36.6	50.65	11.7	98.95
9. Enhanced women role and participation									
9.1. Gender Mainstreaming supported by Policy and Capacity Frameworks									
<i>Gender Capacity Strengthening and Enhancement</i>	X	X	X	X	Assessment evaluation	0.1	-	-	0.1
<i>Promote Gender Mainstreaming, Gender Sensitivity and Gender Capacity Building</i>	X	X	X	X	Facilities for GDCWD	1.0	0.5	-	1.5
<i>Promote Gender-based Dialogue to Improve Women Affirmative Action</i>	X	X	X	X	Targeted technical & capacity building trainings	0.2	-	-	0.2
					Visits/study tours and international conferences	0.5	1.25	-	1.75
					Gender-sensitivity trainings	0.75	0.5	-	1.25
					Gender-sensitivity advocacy and awareness	0.25	0.25	-	0.5
					Consultation meetings, workshops, advocacy and awareness	0.25	0.25	-	0.5
					Publications and materials	0.25	0.25	-	0.5
					Gender forums	0.25	0.25	-	0.5
					Sub-Total 9.1.	3.55	3.25	0	6.8
9.2. Establish and Empower FWCU Capacities									
<i>Organize and Empower FW Communities and Cooperatives through Social Structure Development and Capacity Building</i>	X	X	X	X	Needs and Priority Assessment evaluations	0.35	0.25	-	0.6

Chapter – 3: NFS Implementation Matrix 2012 – 2015
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Programmes, Objectives and Activities	Time Frame				Inputs	Budget (USD million)			
	2012	2013	2014	2015		Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
					Targeted technical trainings	0.75	1.25	-	2
					Promotional programmes/ consultation meetings/workshops	0.5	1.0	-	1.5
					Advocacy and awareness	0.2	0.1	-	0.3
					Targeted technical and capacity trainings	0.75	1.0	-	1.75
					Sub-Total 9.2.	2.55	3.6	0	6.15
9.3. Increase Women participation in Fisheries Sector									
Improve Access to Basic Social and Financial Services	x	x	x	x	Assessment needs evaluations	0.25	-	-	0.25
CBM Initiatives and Improved Access to Microfinance and Credit Services	x	x	x	x	Women community training centres	1.0	1.5	-	2.5
					Special projects and programmes	1.5	1.0	-	2.5
					Targeted technical, vocational and capacity building trainings	0.75	0.75	-	1.5
					Facilities at auction halls	1.0	0.5	-	1.5
					Pilot initiatives	0.75	1.5	-	2.25
					Establish 'Microfinance Revolving Fund'	5.0	10.0	10.0	25.0
					Consultation meetings, workshops, advocacy and awareness	0.25	0.25	-	0.5
					Sub-Total 9.3.	10.5	15.5	10	36
					TOTAL Programme-9	16.6	22.35	10	48.95
GRAND TOTAL, NFS						291.9	460.95	64.2	817.05



CHAPTER-4: NFS, MONITORING AND EVALUATION

The long-term vision for the sector and the guiding principles, together with the overall goal and programmes (as detailed in chapters 3 and 4) should be regarded as the directive guideline for the sustainable fisheries management and development of the Ministry of Fish Wealth.

The strategy for fisheries management and development in Yemen, will be monitored by the Ministry of Fish Wealth (MFW), with the participation and cooperation of other MFW departments and divisions, the relevant local governments, the fishery and aquaculture stakeholders associations, private sector, women organizations, donor organizations and the other agencies and institutions working under the umbrella of different ministries on issues related to coastal and marine environment. These include: Environment Protection Authority (EPA); Tourism Development Authority (TDA), Maritime Affairs Authority (MAA); Maritime Training Centre (MTC); General Corporation for Development and Promotion of Yemeni Islands (GCDPI); High Council for Urban Planning (HCUP); Faculty of Oceanography and Environment, Al-Hodeidah University; Faculty of Environment and Marine Biology, Hadramaut University; Department of Earth and Environmental Sciences, University of Sana'a; and Environmental Research and Studies Division, University of Aden.

Accordingly, a National Fisheries Strategy Steering Committee (NFSC) will be formed with the MFW as its leading agency, with representations from the above (as deemed necessary) and national development authorities and organizations (as identified) to guide the monitoring of the NFS,. Effective partnerships with these authorities, institutions and organizations will be facilitated through the "**Department of Cooperation**".

The National Fisheries Strategy Steering Committee (NFSC) will inform the MFW, through quarterly and annual reports, on the implementation of the Strategy. The NFSC will also be responsible for obtaining essential information on environmental issues from the Agency for Environmental Protection (i.e. EPA) for inclusion in the annual reports. The annual reports will also include the progress made towards achieving the goal and outcomes of the Strategy. Progress measurement will be by use of the defined performance indicators. These performance indicators will be reported and reviewed at annual meetings convened by the National Fisheries Strategy Steering Committee (NFSC) to monitor progress in the implementation of the Strategy. The annual review meetings may also adjust specific objectives for achieving the overall goals in the light of new, revised or additional information that may be collected. These adjustments have to be made through a participatory approach and should be approved by the MFW.

1.1. NFS, Implementation mechanism

The daily implementation of the Strategy will be carried out by the MFW, as the leading implementing agency at national level for fisheries and aquaculture development and management in Yemen. The National Fisheries Strategy Steering Committee (NFSC) will put forward to the MFW all important matters concerning the implementation of the Strategy (e.g. progress achieved and difficulties faced in the modernization of the capture fishery area; rehabilitation of hatcheries; production of restocking material; new established aquaculture farms; fishery resources protection and capacity building in fisheries and aquaculture). The MFW, in turn, will examine these matters and provide guidance to the NFSC and other relevant members involved in executing the strategic activities, on issues that require improvement for the successful implementation of the Strategy. The NFSC will prepare and submit to the MFW quarterly and annual reports, assessing the implementation progress. This progress reports should be reviewed and endorsed by the MFW, indicating the changes and corrective measures that should be taken to ensure the successful implementation of the Strategy. The budget allocations for NFSC will be reviewed against the performance indicators and if needed shall be improved, through endorsement from MFW, in order to enable it to carry out its duties in an efficient and effective manner.



1.2. NSS, Role of Stakeholders

Throughout the implementation of the NFS:

- *Ministry of Fish Wealth* will be responsible for the support and management of the fisheries sector through the establishment, development, monitoring and evaluation of national policies and guidelines. Also, the Ministry will be accountable for Fishery policy and planning, Research planning and co-ordination, Investment promotion, National fisheries information management, Quality Control assurance, oversight of local fisheries offices/authorities, and providing corporate services (viz. Finance and budgeting; HR and training; legal; communications and Ministerial support). Each local Fisheries branches/authorities will provide operational and fisheries management support for the development and strengthening of regional fisheries.
- *The Fisheries Research Authority* will provide research services to support fisheries management, fisheries development, aquaculture development and management of the marine environment in Yemen
- *Private sector*, as a key partner to the Government in the development of the fisheries and aquaculture sectors, the private sector will (1) Shape the future growth of the fisheries, and in particular aquaculture sectors, in terms of output and value, and (2) Be sustainable vectors of economic and social development at community, district and Coastal Governorates and national levels.
- *Producers' and Consumers' organizations*, supporting private sector's interests, will (1) Build the necessary institutions for the representation of fishermen and aquaculture investors at the Coastal Governorates and national levels, (2) Be a force for collective access to knowledge, information and inputs, and (3) Influence the overall development of the fisheries and aquaculture sectors.
- *The Government of Yemen's* in addition to its position of facilitator and regulator, will (1) create a suitable and enabling environment to allow private sector initiatives to thrive while protecting the interests of the most vulnerable groups; (2) Establish the necessary institutions and enhance human capabilities to implement the present policy and support the overall development of the fisheries and aquaculture sectors; and (3) Ensure coherence among measures adopted for the fisheries and aquaculture sectors with those in place in other sectors of the economy, in particular environment and agriculture, among others.

With respect to research, the scientific institutions and research centre on aquaculture and fishery, with the cooperation of the National University of Yemen, will be supplied with a budget allocation sufficient to carry out basic research on fishery resources assessment, aquaculture development and fish processing and marketing techniques. In order to assist the research institutions in its tasks, it is recommended that the following experts shall considered to be appointed or to be identified and designated from the current systems by the MoFW within the existing organizations modalities. These include a Senior Fishery Research Specialist, assisted by at least four scientific researchers: one specialist in fishery resource management; one specialist in aquaculture, one specialist in fish processing and marketing and one socio-economist.

With respect to fisheries statistics, the MFW, with the concurrence of fish catch enterprises, fish processors and fish vendors, the fishery cooperative union and the aquaculture farmers - which are obliged to report on their activities - will gather, process and disseminate statistical data and information on fisheries and aquaculture, according to the performance indicators set forth in the Strategy. In order to carry out these tasks and to strengthen MFW's capacity to collect, process and disseminate fisheries and aquaculture statistical data it is recommended that the following specialists may be considered to be appointed and absorbed or to be identified and designated from the current systems by the MFW within the existing organizations modalities. These include a Senior Statistical Specialist, assisted by a junior statistical specialist and a data analyst.



1.3. NSS Risks and Indicators

Having defined the Goal, Outcomes and Objectives, it is possible to draft an outline Logical Framework format and to consider the risks, assumptions and key indicators, which will apply to the NFS (Table 2). The indicators are generic in nature, and will serve to assess overall progress towards the NFS Purpose. More detailed indicators will be developed for each objective in the due course of NFS implementation.

Risks that threaten the ability of the MFW to deliver on these objectives and results can be divided into those that are internal, to the extent that they may reduce the capacity of programmes to perform (funding, staffing levels, management), and those that are external — those that may prevent the uptake and effective use of programme services and advice in governorates (political will, capacity of national institutions, regional solidarity).

While risks associated with NFS are detailed in Table 2, following is the enlisting of some major risks and the actions to address and/or mitigate them.

- **Inadequate resources:** Inadequate funding to implement work programmes, particularly with donor partners and their currencies affected by the global economic crisis, insecurity and political turmoil.
 - Funding sources need to be identified and proposals developed.
 - More efficient means of service delivery will be explored and developed, particularly to reduce the high costs of basing all staff in Sana'a.
- **Uptake of scientific advice:** A key risk to achieving improved management of fishery resources is that the scientific advice will not be translated into management action.
 - The fact that MFW works at different levels provides multiple options to develop management measures.
 - For coastal fisheries, more attention will be paid to demand and local capacity, as well as working with non-government partners.
 - More effective communication will raise awareness of decision-makers and the public.
- **Acceptance of scientific assessments:** A risk to providing scientific data, modelling, and advice to underpin management decision-making and strategic positioning would come through a loss of credibility of the stock assessments of MFW.
 - Continued research into the biology of tuna species, continuous improvements in data collection, and the development of improved stock assessment models will ensure that the technical quality of the work is recognized as the best available basis for management.
- **Ecosystem approach problems:** Putting into operation the ecosystem approach to resource management has proved difficult in Yemen's coastal and offshore fisheries. The procedures for consultation and risk assessment can be complex and very time consuming.
 - To address this risk, NFS will incorporate ecosystem principles into a simpler process of consultation with stakeholders.
 - MFW provides scientific support for this process through FA and MSBRA, which is expected to adopt a similar approach.
- **Capacity issues:** Lack of capacity in government administrations of coastal governorates to effectively use extension services, implement advice and put training into action in-country;
 - More targeted capacity building and institutional strengthening; working with non-government partners where appropriate.



1.4. NSS Assumptions

The killer assumptions associated with achievement of the NFS Outcomes are related to the increasing human population of Yemen and the likely pressure on Common Property resources. If access to fisheries is not controlled by fish producer groups, local governments and coastal communities (i.e. the resources effectively become the property of Coastal Community Fisheries Management Units and their members) there will be little chance of sustainable exploitation. Open access would inevitably end in the degradation of the resource base, deterioration in livelihood, and decline in contribution of fisheries to national economic growth. It is therefore, vital that a strong and autonomous body retains a central oversight role in support of Local Governments and local producer organizations like cooperatives and coastal community fisher organizations and the communities are empowered to resist political expediency with respect to resource access. It is equally important that fisheries livelihoods are diversified in order that the degree of dependency of successor generations is reduced.



CHAPTER-5: NFS FINANCE AND BUDGETARY REQUIREMENTS

Table 1 outlines a first draft estimate of the total cost of the NFS over its fourteen-year span. Whilst costs in years 1-4 are considered realistic on the basis of current knowledge, the extrapolation to years 5-14 are inevitably based on best estimates, and will undoubtedly change over time. The total estimated cost of the NFS over its 14 years period is USD 817 million (Table 2); and in the short-term, 291; medium-term, 460; and in the long-term USD 64 million. Of this, USD 425 million is the cost for the infrastructure development, 146 million for community livelihoods and women empowerment, 68 million for fisheries value chain systems, 56 million for sustainable resource management, 44 million for aquaculture development, 38 million for sectoral capacity enhancement, 34 million for SMEs, and USD 25 million for institutional development. Table 2 and 3 further elucidates the budgetary requirements of each programme in the short, medium and long-term together with %composition of each programme in the prescribed timeframe.

Table 2: NFS budget outline

Programmes	Budget (USD million)			
	Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
1. Institutional Structures	13.9	8.8	3.0	25.7
2. Infrastructural Facilities.	170.8	252.8	2.0	425.5
3. Sectoral capacity development	8.5	25.4	4.5	38.35
4. Sustainable Resource Management	8.2	40.15	8.0	56.35
5. Aquaculture	11.7	23.1	10	44.8
6. SMEs	10.15	14.45	10	34.6
7. Fishery Value Chain systems	15.55	23.3	5	68.85
8. Community Livelihoods Development	36.6	50.65	11.7	98.95
9. Increased Women participation	16.6	22.35	10	48.95
GRAND TOTAL NFS	291.9	460.95	64.2	817.05

Table 3: % budget composition of each programme in short, medium and long-term and in overall

Programmes	Budget (%)			
	Short-term (2012-2015)	Medium-Term (2016-2020)	Long-Term (2021-2025)	Total
1. Institutional Structures	4.8	1.9	4.7	3.1
2. Infrastructural Facilities.	58.5	54.8	3.1	52.1
3. Sectoral capacity development	2.9	5.5	7.0	4.7
4. Sustainable Resource Management	2.8	8.7	12.5	6.9
5. Aquaculture	4.0	5.0	15.6	5.5
6. SMEs	3.5	3.1	15.6	4.2
7. Fishery Value Chain systems	5.3	5.1	7.8	8.4
8. Community Livelihoods Development	12.5	11.0	18.2	12.1
9. Increased Women participation	5.7	4.8	15.6	6.0
	35.7	56.4	7.9	100



In addition to the funds available from the industry and the service recipients, the sector has already secured or will secure significant donor funds or loans, which will contribute to achievement of NFS objectives. These include the IFAD, EU, UNDP-EDSP, WB, FAO, IsDB among others. It is also apparent that the sector is highly compliant with the national production growth and poverty eradication goals, and should attract basket funding through those channels for community development and sector modernization.

Also, the issue remains of whether the proposed outline budget for NFS will be accommodated by government given the current Mid-Term Expenditure. Therefore, a detailed Resource Mobilization Strategy will supplement the NFS in its inception and inform the NFSC on the budgeting and finance requirements throughout the NFS period along with proposed recommendations.

Given the financial support that should be available it is considered that the supposed scale of the NFS is both realistic and appropriate, and that the chances of reaching the specified goal and outcomes are high. The key risks associated with reaching these are:

- Failure to achieve sustainable management and resultant resource collapse;
- Failure to establish an efficient self-sustaining central institution with a substantial degree of autonomy;
- Failure of decentralized government with consequent lapse of delegated and devolved responsibilities and support to fisheries communities.

NFS NATIONAL COMMITTEE

1. H.E. Eng. Awad Saad Al-Soqotri, Minister of Fish Wealth
2. H. E. Ghazi Al-Ahmer, Chairman
3. H.E. Abbas Al-Zubaidy
4. H.E. Nasser Al-Nessi
5. H.E. Abduraooof Binbrek
6. H.E. Khaled Shamsi
7. Dr. Hana Rahseed
8. Mr. Mustafa Al-Yusuf
9. Dr. Abdul Rasheed Abdul Gafoor
10. Dr. Asmahan Obaidi
11. Mr. Mohammed Awad Saeed, FCU
12. Mr. Ali Saeed Shalma, FCU
13. Mr. Ali AL-Hebshi, YSEA
14. Mr. Nanduri Sateesh, IFAD
15. Mr. Khaled Hizam, UNDP

NFS EXPERT TEAM

1. Mr. Nanduri Sateesh (Fisheries Specialist – Resource Management & Livelihoods, IFAD).
2. Dr. Paul Namisi (Team Leader, UNDP EDSP-Fisheries).
3. Mr. David Currie (Consultant – Aquaculture and SME's, UNDP).
4. Mr. Khaled Hizam (National Fisheries Project Manager, UNDP EDSP-Fisheries).
5. Dr. Mohammed Hafeez (Consultant – Export, Quality Control and Marketing, UNDP).
6. Mrs. Safia Mohammed (Gender Specialist, UNDP EDSP-Fisheries).
7. Dr. Hiba Ahmed (Coordinator, UNDP EDSP).
8. Mr. Fuad Ali (Team Leader, Pro-Poor Economic Growth, UNDP).
9. Ms. Bushra Al-Shirae (Programme Officer, Pro-Poor Economic Growth, UNDP).
10. Mrs. Heyam Fuad (Consultant, UNDP).