

## Sindh Fisheries and Aquaculture Strategy 2010 – 2013



August 2009

## Abbreviations

ADB	Asian Development Bank
BOIS	Bank of Investment Sindh
CDA	Coastal Development Authority
CSF	Competitiveness Support Fund
EEZ	Exclusive Economic Zone
FAO	Food and Agricultural Organisation
FCS	Fisheries Cooperative Society
FDB	Fisheries Development Board
KFH	Karachi Fish Harbour
KFHA	Karachi fish Harbour Authority
L & DD	Livestock and Dairy Development
M/O	Ministry of ....
MFD	Marine Fisheries Department
NFP	National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan
PKR	Pakistan Rupee
PSDP	Public Sector Development Plan
SDF	Sindh Development Fund

## Currency

On 9<sup>th</sup> August 2009 1 US\$ was worth 82.36 Pakistani Rupees

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CSF is an independent body established in 2006 to reposition the Pakistan economy on a more competitive global footing. It is a joint initiative of the Government of Pakistan, Ministry of Finance and the United States Agency for International Development (USAID).

## Contents

<b>SUMMARY TABLE</b>	<b>i - v</b>
<b>1. INTRODUCTION</b>	<b>- 1 -</b>
<b>2. PAKISTAN NATIONAL POLICY AND STRATEGY FOR FISHERIES AND AQUACULTURE DEVELOPMENT IN PAKISTAN</b>	<b>- 1 -</b>
<b>3. STRATEGY FOR SINDH</b>	<b>- 3 -</b>
<b>4. ADDRESSING THE PRIORITY COMMON ELEMENTS OF THE NFP</b>	<b>- 4 -</b>
4.1 Create separate positions of Secretary and DG for Fisheries and Aquaculture at provincial levels.	- 4 -
4.2 Carry out a full institutional assessment of government staffing levels and skills.	- 5 -
4.3 Develop training facilities and appropriate programmes for HRD	- 5 -
4.3.1 The Training Centre at Karachi Fish Harbour	- 6 -
4.3.2 The Aquaculture Training Centre at Chilya in Thatta, and other centres.	- 6 -
4.4 Improve communication and co-operation among all stakeholders and promote the formation of producer organisations	- 7 -
4.5 Implement fisheries related activities and infrastructures for poor communities	- 8 -
4.6 Develop applied research programmes	- 9 -
4.7 Address fisheries and aquaculture legislation shortcomings.	- 9 -
<b>5. ADDRESSING THE PRIORITY KEY ACTIONS FOR THE STRATEGY AXES OF THE NFP</b>	<b>- 10 -</b>
5.1 Aquaculture	- 11 -
5.1.1 Land for Aquaculture	- 11 -
5.1.2 Water Quality	- 12 -
5.1.3 Research into aquaculture (Fresh water and brackish)	- 12 -
5.2 Implement measures to control over-exploitation	- 13 -
5.2.1 Enforce existing rules and regulations.	- 13 -
5.2.2 The contract system & inland waters	- 14 -
5.3 Improve Quality Control	- 14 -
5.3.1 Karachi Fish Harbour management	- 14 -
5.3.2 Karachi Fish Harbour infrastructure	- 15 -
5.3.3 Keti Bandar Harbour	- 15 -
5.3.4 Vessel improvement	- 15 -

5.3.5 Fish Quality Control Laboratories - 15 -

**5.4 Sustainably harvest untapped resources eg: tuna - 15 -**

5.4.1 Tuna Industry - 16 -

5.4.2 Attract private sector investment in processing facilities - 17 -

**6. INTERVENTIONS UNDER NPF STRATEGY AXES TO BE ENCOURAGED BUT NOT DIRECTLY IMPLEMENTED BY SINDH FISHERIES DEPARTMENT. - 17 -**

6.1.1 Rehabilitate polluted habitats - 17 -

6.1.2 Provide financial incentives for aquaculture - 17 -

6.1.3 Development of warning and rescue centers in coastal areas to protect lives and assets of fishermen. - 18 -

6.1.4 Establishment of fish/shrimp feed mills to boost fish production on culture side. - 18 -

6.1.5 Establishment of shrimp/fish seed production units. - 18 -

6.1.6 Establishment of model fishermen villages to upgrade their living standard. - 19 -

6.1.7 Provision of soft loan to the fishermen/farming community. - 19 -

## Summary Table

**Not being addressed by Sindh Fisheries Dept in August 2009**

NFP or Sindh Plans	Element	Actions Required	Status/observations
<b>Priority Common Elements of the NFP</b>	1. Create separate positions of Secretary and DG for Fisheries and Aquaculture at provincial levels.	A separate DG for Fisheries post has been created.	Partially complete. A full Secretary for Fisheries is required.
		The Secretary remains responsible for Livestock and Fisheries.	The importance of fisheries must be been recognised
	2. Carry out a full institutional assessment of government staffing levels and skills.	1. Sindh Fisheries Department will undertake a compete staffing review	It may be possible to undertake this internally, if not then funds will have to be sought.
		2. Sindh Fisheries Department will seek funds and implement the recommendations of the Comprehensive Staff Review	Implementation of the findings of the staffing review. A PC – 1 for capacity building (Pkr39 million) is currently being implemented. This has been used to fund training opportunities for Fisheries Department staff.
		3. Sindh Fisheries Department will prepare a 5 Year Development Plan	Will guide long term planning. <b>THIS IS A PRIORITY FOR A FUTURE ACTIVITY.</b>
	3. Develop training facilities and appropriate programmes for HRD	1. Federal Government will rehabilitate the Fisheries Training Centre at Karachi Fish Harbour 2. Sindh will rehabilitate the Aquaculture Training Centre at Chilya in Thatta and other brackish and freshwater centres in Sindh	Sindh Fisheries Department will support the efforts of the Federal Government in renovating the Federal Fisheries Training centre at the KFH. PC – 1 in 2009/10 and making it functional.  Sindh will concentrate on the Inland and Brackish water centres which will be used for training purposes. FDB also has funds for brackish water institutional development; and there may be opportunities for collaboration with bilateral agencies.
		3. Seek funds for and implement a “Train the Trainers” programme to provide suitable staff for the FTC and ATC through Federal	Sindh has a variety of programmes to develop brackish water fish in the 2009/10 ADP. Training will be included in each of these programmes.

		Government project.	
		4. Federal Government & Sindh to develop appropriate training programmes for the fishing & aquaculture industries	
	4. Improve communication and co-operation among all stakeholders and promote the formation of producer organisations	1. Sindh Fisheries Department will establish a post as Co-ordinator Stakeholder Associations. 2. The job description of the Co-ordinator, Stakeholder Associations will include the formation of producer organisations.	An existing staff member can undertake this role  At the Karachi Fish Harbour the Fisheries Cooperative Society will, under the Roadmap for KFH prepared by the CSF, be encouraged to become more of a social organisation working for the benefit of its members, rather than a commercial organisation involved in fish marketing and managing auctions & markets.
	5. Implement fisheries related activities and infrastructures for poor communities	Sindh Fisheries Department is already implementing activities and installing infrastructures for poor communities.  The Federal Government Min of L & DD in PSDP 2009/10 has a programme for assisting fishermen (countrywide)	1. The Provision of Landing platform, chilling storage & Processing Facilities at Zero Point, Badin, Keenjhar Lake, Thatta, Manchar Lake Dadu and Jetty at Karachi Fish Harbour. (334 million PkR), ongoing and nearly complete. 2. Provision of Fishing Gears, Modification of Boats Provision of Ice Boxes and plastic Crates to Fishermen in Sindh (352 million PkR) ongoing. 3. Masterplan project to improve the facilities at Karachi Fish Harbour (KFH) following a Roadmap produced by the CSF. In preparation (509 million PkR) 4. Feasibility of the development of a harbour at Keti Bandar in Thatta District in Sindh being pursued with assistance from the CSF 5. Federal Min of L & DD in PSDP 2009/10 has a project for strengthening of fishermen through provision of equipments and also a programme for strengthening fisheries infrastructure along the Sindh and Balochistan Coast. 1. PC-1 for PkR 481 million Model Village for fishermen at Dabla para, Zero Point Badin, Manchar Lake and Keenjhar Lake ongoing
	6. Develop applied research programmes	Existing PC-1s will address many of the research shortcomings of the Department and provide scientific advice.  There is urgent need for more priority	(A 287 million rupee Provincial PC – 1 for a research facility, with two outliers in the interior of the province, and details of research work to be carried out is planned but has not been presented nor approved). 2. PC-1s aimed at introduction of new aquaculture organisms (brackish water and freshwater fish, oysters and mussels, mud crabs etc), are being presented also in 2009.

		in this element of the NPF. Not enough research is being done, particularly in the marine sector.	<p>3. Federal Government also has programmes for brackish water culture research &amp; development, as part of the Aquaculture and Shrimp farming project</p> <p>4. Federal Governments' existing (&amp; approved) PC-1 for the stock assessment survey in the EEZ of Pakistan will assist Sindh in managing its marine stocks in the future.</p> <p>5. Some research work is being done in universities but little of it is "applied research".</p>
	7. Address fisheries and aquaculture legislation shortcomings.	<p>The Fisheries Department will seek a root and branch review of the legislation to produce new laws covering Fisheries and Aquaculture.</p> <p>In the short term the Government of Sindh will address priority issues through issuing rules and regulations under the existing legislation.</p>	<p>Will have to be consistent with Federal Laws and also with the laws of other provinces</p> <p>The contract system of allocating fishing rights in inland waters will have to be modified</p>
Priority Key Actions for the Strategy Axes of the NPF	8. Aquaculture	<p>The Fisheries Department will sort out the problems of acquisition of land for shrimp aquaculture (with the Revenue Department and other interested departments and institutions</p>	<p>Land still remains the main obstacle to the development of large scale commercial coastal aquaculture in Sindh. Areas suitable to be released under the land lease policy will be identified by the FDB with help from SDF, based on areas already identified by the Sindh Fisheries Department</p>
		<p>Undertake a water quality survey in existing areas of aquaculture and new areas expected to be used for aquaculture to assess suitability for aquaculture.</p>	<p>There is a suspicion that the water quality in many areas renders them unsuitable for aquaculture. FDB and SDF will assist. The Sindh Coastal Development Authority is undertaking some water quality work in the areas that it is operating in the Indus Delta region.</p>
		<p>Fisheries will undertake research at its inland hatcheries and other facilities to try to encourage the improvement of production from existing inland fish ponds, and the use of waterlogged or salt intruded land for aquaculture. Federal Government projects in the same field will be encouraged.</p>	<p>1. PC-1s have been prepared to cover this sort of work, with consultant advice for new species or techniques</p> <p>2. PC-1 for Fish and Shrimp Hatchery strengthening (Pkr 784 million is being implemented to improve hatcheries, at Hawks Bay and inland).</p> <p>3. Federal Government is also preparing programmes in the same field, particularly the Pkr 2 billion Aquaculture and Shrimp farming project managed by the fisheries Development Board and the PSDP 2009/10 project, Sustainable development of salt Brackish water aquaculture in Pakistan.</p>

	<p>9. Implement measures to control over-exploitation</p>	<p>The Government of Sindh will enforce vigorously existing rules and regulations in fisheries.</p> <p>Federal Government is undertaking a Stock Assessment Survey of the EEZ of Pakistan (2009/10)</p>	<ol style="list-style-type: none"> <li>1. In the longer term the Government of Sindh will have to address the paucity of data that is available to it for managing the resources. The Federally funded survey of the EEZ of Pakistan will provide valuable data.</li> <li>2. The Government of Sindh will also have to update the legislation covering fisheries</li> <li>3. Modification of the contract system by Sindh Government to provide equitable access to fishermen to inland resources.</li> <li>4. Improvement of inland fisheries by strengthening stock enhancement.</li> </ol>
	<p>10. Improve Quality Control</p>	<p>Sindh will change the management regime in the Karachi Fish Harbour in West Karachi so as to improve efficiency and increase provincial revenues.</p> <p>Sindh will upgrade facilities at the Karachi Fish Harbour</p> <p>Sindh is supporting efforts to improve boats</p>	<p>Improving quality control in the Karachi Fish Harbour is the pivotal activity for Sindh. A Roadmap for KFH has been prepared by the CSF (2008) The Federal Government has implemented a PC-1 for the accreditation of the quality control laboratory of the MFD in Karachi</p> <ol style="list-style-type: none"> <li>1. Sindh is implementing a PC-1 PkR 290 million for Rehabilitation and Renovation of Karachi Fish Harbour. This has provided many inputs to the harbour and its surroundings and has resulted in great improvements at the harbour in handling and quality control. This includes modification of boats, physical rehabilitation of Auction Halls, prawn peeling sheds, equipment and security improvement. Further improvement is envisaged in line with the Roadmap for KFH produced by CSF in 2008.</li> <li>2. A Masterplan (a plan for the inputs has been prepared &amp; tenders will be placed as soon as administrative matters are sorted out). Further inputs are planned once the current round of activities are complete.</li> <li>3. There is already a programme of boat improvement for larger boats which is being extended to small "day boats", those that bring in the freshest fish and prawns.</li> </ol>
	<p>11. Sustainably harvest untapped resources eg: tuna</p>	<p>The Government of Sindh will support the private sector in its efforts to enter the Tuna Long Line industry but the Sindh Government will not become involved in any direct investment itself.</p> <p>Similarly other resources, such as</p>	<p>The M/O L&amp;DD will be expected to strengthen its connections with the Indian Ocean Tuna Commission</p> <p>The private sector has plenty of money to invest if the economic and social conditions are right. SDF and BOIS, and commercial banks will provide finance and investment advice.</p>



		squid and cuttlefish will be treated in the same way.	
	12. Attract private sector investment in processing facilities	The Sindh fisheries Department will concentrate on developing the right conditions for investment.	
Interventions under NPF strategy axes to be encouraged but not directly implemented by Sindh Fisheries Department	13. Provide financial incentives for private sector investment in aquaculture	<p>There is plenty of private sector money available. The primary constraints to development of aquaculture in Sindh are land availability and water quality issues and the Sindh Fisheries Department will concentrate on these concerns. The Federal Government FDB will provide some incentives in aquaculture SDF and BOIS, and commercial banks will provide finance and investment advice. Sindh is considering a PC – 1s for encouraging Shrimp and Finfish aquaculture on a Public Private Partnership and also two PC – 1s for 2009/10 to assist civil society and RSPs in shrimp farming activities. These are intended to be both social activities and to kick start shrimp farming.</p>	
	14. Rehabilitate polluted habitats	<p>This is most desirable, but too extensive and too expensive a programme to implement for Sindh Fisheries Department. As yet the polluted habitats, particularly those in the Indus Delta Region are not identified though this is being addressed by the FDB with the assistance of the SDF. Combined action by a variety of bodies is required and Sindh Fisheries Department cannot deal with the problem alone.</p>	
	15. Establish fish/shrimp feed mills to boost fish production on culture side.	It is not the business of Fisheries Department to establish feed mills for fish and shrimp feed, or to invest directly in them. Fisheries Department will encourage private sector investment in the industry, though creating an enabling environment, and amending the legislation. BOIS and SDF may assist as necessary in connecting demand with supply. Currently there is no pressing need for a dedicated feedmill for aquaculture in Sindh, but the demand for aquaculture feeds will rise as aquaculture becomes more intensive and shrimp farming takes off.	
	16. Development of warning and rescue centers in coastal areas to protect lives and assets of fishermen.	Although this has, socially and politically, great merit in parts of the Inland Sea area of Badin & Thatta, it is not the responsibility of the Fisheries Department to do this. Fisheries Department will support the activity but will not implement any programmes directly. The CDA is implementing a social development project in the Badin & Thatta areas and this includes many activities for fishermen.	
	17. Establishment of shrimp/fish seed production units	<ol style="list-style-type: none"> <li>1. The Hawks Bay model hatchery is already functioning and producing shrimp seed. A PC-1 has been prepared to provide funding for upgrading the inland hatcheries, especially those at Chilya and Badin for freshwater and brackish water aquaculture.</li> <li>2. The Federal Aquaculture Megaproject through the FDB is also providing inputs to the sector.</li> <li>3. The Fisheries Development Board is contemplating setting up model shrimp farms; the advisability of which should be re-assessed.</li> </ol>	



	18. Establishment of model fishermen villages to upgrade their living standard.	Although this has merit it is not the job of the Fisheries Department to undertake this sort of development. The current project funded by a PC-1 will be completed and then not renewed. The Department will however support efforts by other agencies to implement such a programme.
	19. Provision of soft loan to the fishermen/farming community.	The Department will support soft loan and micro-credit schemes instigated by other agencies, such as through the already approved.PC – 1 Establishment of shrimp and finfish and tuna farming with Public Private Partnership in Sindh.

## 1. Introduction

1. This draft strategy is the first stage in developing a comprehensive output orientated development plan for the Fisheries Department of Sindh. It brings together the National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan (NPF), produced by the Federal Government, and merges them with the various strategic goals identified by, and the activities being undertaken by the Sindh Government through the Fisheries Department and other bodies in Sindh. It is and will remain a consultative document.
2. The NFP was produced with extensive consultation with stakeholders and the Provincial Governments. Sindh Fisheries Departments activities are generally responses to needs identified through consultative activities in the fishing communities and amongst commercial fishermen.
3. The next stage of the process is the preparation of a 5 year plan. Further stakeholder consultations will be made in preparing the 5 year plan.
4. Ultimately, to achieve stated policy goals the Fisheries Department is going to have to become far more output orientated, both in its structure and planning, and through constant monitoring and evaluation of activities.

## 2. Pakistan National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan

5. The Federal Government, M/O L&DD, has produced (2006) a "National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan" (the NFP). This is a result of considerable effort by the M/O L&DD and assistance from FAO, Stream<sup>1</sup> and consultants.
6. The document was produced as part of an extensive consultative process with stakeholders and has been endorsed by all the provinces at high level meetings. It is now the overarching guiding document for strategy and policy for fisheries in Pakistan.
7. By accepting the NFP the Government of Sindh has committed itself to respecting the principles of:-
  - i. Good governance, transparency in decision making and finance management
  - ii. Fairness and equity
  - iii. Respect of international treaties, laws and commitments
  - iv. Participation of all groups and stakeholders, including women, in the decision making process
  - v. Sustainable environmental resource use, management and protection.
8. The original TORs for the NFP project give the Project goal as:-

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<sup>1</sup> Support to Regional Aquatic Resources Management, an initiative of the Network of Aquaculture Centres in Asia and the Pacific (NACA)

*“To create an enabling environment conducive to the sustainable development and management of a growing fisheries and aquaculture sector, with emphasis on its contribution to economic growth, poverty alleviation, food security and environmental conservation”.*

9. The plan itself is all encompassing and gives the underlying government strategy as

*“to increase national fish supply based on sustainable production and improved marketing of aquatic products so as to achieve the three policy goals for the Government of Pakistan”.*

10. The three **goals** are given as:-

- i. Increase the contribution of the fisheries and aquaculture sectors to national economic growth
- ii. Increase the contribution of the fisheries and aquaculture sectors to poverty alleviation
- iii. Increase the contribution of the fisheries and aquaculture sectors to food security

11. The policy document goes on to identify **four fundamental elements** or cross cutting pillars supporting the overall development of both fisheries and aquaculture. These are:-

- i. Strengthening of cross-sectoral collaborations.
- ii. Institutional improvements and developments.
- iii. Enhancement of research and development applied to fisheries and aquaculture
- iv. Development of human resources and skills

12. It further goes on to identify **three technical strategy axes**, which are:-

- i. Sustainable development of inland and coastal aquaculture production
- ii. Sustainable increase in inland and marine capture fisheries production
- iii. Resolving post-harvest issues

13. The next 80 pages of the NFP document detail the implementation plan. It contains 94 activities that are considered cross sectoral, 33 related to Aquaculture, 56 for capture fisheries (inland and coastal) and 37 on post harvest improvement – 220 interventions in all, some very onerous.

14. It is difficult to fault the logic of the NFP, though it does rather optimistically assume that there is scope of increasing catches in the marine capture sector. The plan is however somewhat deficient in explaining exactly how to implement its components, nor does it attempt to provide detailed advice on the sequence in which they should be implemented.

15. Since the plan was designed more emphasis has been placed, worldwide, by fisheries departments and managers on the Ecosystem Approach to Fisheries Management as an essential tool for the management of fisheries, particularly

in coastal areas where the influences of population pressure and other uses of the marine environment impact on fisheries. The EAFM receives little emphasis in the NPF.

16. In short the NPF is more than adequate as a base for the Sindh Strategy, but is too all encompassing for Sindh's requirements (it was never intended to be for Sindh alone, it is a national policy, though Sindh's needs are contained in it, though not identified specifically as such).
17. The NPF indicates that implementation of the policy will be through a High Level Steering Committee is to be established and a permanent policy implementation secretariat. Provincial/Area Policy Implementation committees are also to be established. Institutional arrangements for policy overseeing and implementation include District Fisheries and Aquaculture Development Committees containing among others representatives of allied sectors.
18. In the absence of guidance from the High Level Steering Committee, Sindh Fisheries Department proposes the strategy below so as to guide the planning of its own activities for the next 5 years.

### 3. Strategy for Sindh

19. The national strategy given in the NPF accepts that the **four common elements** given above are all **fundamental** to provide a conducive environment for development to take place, and most of all that the **four common elements underlie and are pre-requisites for the technical strategy axes**.
20. Unfortunately in Sindh there has been in recent years, and continues to be to this day, more emphasis on the 3 technical strategy axes than on the common elements; ignoring the fact that the common elements underpin the technical strategy axes.
21. In 2002/3 the Sindh Provincial Government produced a "Draft Provincial Fisheries Policy for Marine, Inland, Fisheries and Aquaculture" but this was not formally accepted and has not resulted in any great leaps forwards; planning has remained haphazard. The outline contents of this Draft Provincial Fisheries Policy were, however, incorporated into the NPF following its consultative sessions in 2005 & 2006.
22. Sindh Fisheries has (2009) highlighted in a letter to the Planning and Development Department the following areas as priority actions for the Fisheries Department: (cross-references refer to where the topic is covered in this text).
  - i. Promotion of Mariculture/Aquaculture. (see Section 5.1)
  - ii. Development of Fisheries Research Centers along with allied facilities (see Section 4.6). H
  - iii. Training and skill development of staff and fishermen (see Section 4.3)
  - iv. Development of warning and rescue centers in coastal areas to protect lives and assets of fishermen (see section 6.1.3).

- v. Development of post harvest facilities such as jetties, processing plants and cold storages etc (see Section 4.5) .
- vi. Improvements at Fish Harbours (see Section 5.3.2).
- vii. Introduction of latest fishing technology and vessels for efficient and targeted fishing. (See sections 5.3.4 and 5.4)
- viii. Establishment of fish/shrimp feed mills to boost fish production on culture side (see Section 6.1.4).
- ix. Establishment of shrimp/fish seed production units (see Section 5.1).
- x. Establishment of model fishermen villages to upgrade their living standard (see Section 6.1.6)
- xi. Provision of soft loan to the fishermen/farming community (see Section 6.1.7).

To this list could also be added (as was stressed in the 2002/3 Draft Provincial Policy)

- xii. the development of Pakistan based fishing activities between 35 and 200 miles in the EEZ (Section 5.4.1)
- xiii. modification of the contract system to instigate a fairer system for fishermen engaged in the inland fishery on large publicly owned water bodies (Section 5.2.2).
- xiv. Development of a fishing port at Keti Bandar (Section 4.5)

#### 4. **Addressing the Priority Common Elements of the NFP**

23. Fortunately the NFP in Pakistan has prioritised the 94 Actions recommended in the four common elements and identified 8 key actions for immediate implementation, which are looked at below.
24. The first priority of the Sindh Fisheries Department is to address the Priority Common Elements (as given in the NFP) as soon possible. Development activities in the Strategy Axes will not be successful if the common elements are not addressed.
25. Sindh Fisheries will address these 8 key actions for immediate action. They are eminently sensible. Where the Federal Government is addressing them support will be given. They do have to be refined further, given the need to allocate scarce financial resources, but the principles are correct and Sindh will therefore attempt to allocate financial and human resources in these areas as a priority.

##### 4.1 **Create separate positions of Secretary and DG for Fisheries and Aquaculture at provincial levels.**

26. A separate DG for Fisheries post has been created. The Secretary remains responsible for Livestock and Fisheries. The post of Secretary for Fisheries remains to be created. Although the increased emphasis on fisheries has thus been acknowledged by the Sindh Government, it is important that the Secretary post is established.

#### 4.2 Carry out a full institutional assessment of government staffing levels and skills.

27. Sindh Government has a staff list that gives the numbers of staff employed by the Fisheries Department. This has to be updated annually for the annual budget so is up to date. The actual total for employment in Fisheries related activities by Sindh Government is very high, partly because of Government policies, and there are also staff employed by the Districts which are generally underutilized due to insufficient funds for recurrent costs.
28. Whilst there is a staff list this does not, in reality, relate the existing staff and their skills or the requirements of what work has to be carried out. This activity remains to be completed, partly because there is no clear strategy defining what has to be done. Even a casual perusal can see that many "staff" do not contribute significantly to departmental aims and objectives..
29. A PC – 1 for capacity building is currently being implemented (2007-10, 40m PKR). This is being used to fund training opportunities for Fisheries Department staff; mostly overseas.
30. It is therefore a priority that Sindh Fisheries Department will plan and then undertake a Comprehensive Staff Review.
31. Subsequently, Sindh Fisheries Department will then seek funds to implement the recommendations of the Comprehensive Staff Review. It is pointless undertaking the Comprehensive Staff Review if its results are not implemented. Funds may have to be sought to implement the review findings and recommendations, otherwise the report will just gather dust on a shelf, like so many others.
32. One of the major problems is that the Department still does not know exactly what it should be doing, as it has no firm strategy, nor a 5 year development plan for fisheries in Sindh. This Strategy Document is a first step to defining what needs to be done.
33. Sindh Fisheries Department will therefore also prepare 5 Year Development Plan. The 5 year plan will show where Sindh Fisheries Department should be in 5 years and thus indicate where staff and development resources will need to be allocated to achieve this. It will also indicate areas for action outside the current strategy that have to be incorporated for the future. Additionally the 5 year plan will indicate means of monitoring and evaluation for the Fisheries Department so as to ensure best practice in delivering its objectives in both this strategy and in the 5 year plan. This 5 year plan would ideally to be produced concurrently with the staff review.
34. These activities are not being addressed at the moment.

#### 4.3 Develop training facilities and appropriate programmes for HRD

35. The only training scheme is that for capacity building for officers through training, a scheme funded by a PC -1 (for 40m PKR, 2007 – 10). About 45% of the funds remain unspent (2009). The training provided has mostly been for senior staff.

36. (A proposed PC-1 for Awareness / Training and Capacity Building of Marine and Inland in Sindh (100m PkR) has not been approved and in any case is inadequate for the needs of the province).

#### **4.3.1 The Training Centre at Karachi Fish Harbour**

37. The Federal Fisheries Department has a Training Centre situated at the Karachi Fish Harbour in Karachi. It is currently unused and presents a sorry state. The structure appears to remain sound but the facilities are run down. Basic equipment for training needs to be installed and some specialist paraphernalia obtained. There are no trainers available in the Federal Ministry to staff the Fisheries Training centre.
38. The M/O L&DD Reactivation of MFD Fisheries Training Centre at Karachi project is part of the 2009/10 PSDP.
39. Sindh Fisheries Department will support the Federal Fisheries in its efforts to re-habilitate the Fisheries Training Centre.
40. Sindh Fisheries department will support the M/O L&DD in seeking funding and then implementing a "Train the Trainers" programme to provide suitable staff for the Fisheries Training Centre.
41. Sindh Fisheries Department will assist the M/O L&DD project to develop appropriate programmes for the fishing industry. These will have to be developed, many in the vernacular (most fishing boat skippers and crew, and most processing workers do not speak English, nor do most labour on fish farms), as well as in English (for higher level staff in the KFHA, Fish Processors, ocean going skippers and technicians for fish farms). Many of the routine courses will be Competency based for fishing crews and processing staff, so as to acknowledge the existing skills and knowledge, and so as to enable and empower even those who have only a basic grasp of numeracy and literacy. This will lift the technical capabilities of the whole industry. In time the basic qualifications will become compulsory for everyone working in the fishing industry, catching, marketing or processing. The adoption of the principle that the user pays will be necessary to ensure long term sustainability of the programmes.

#### **4.3.2 The Aquaculture Training Centre at Chilya in Thatta, and other centres.**

42. Exactly the same will be done for Aquaculture Training Centre at Chilya in Thatta as will be done for the Fisheries Training Centre in Karachi, at the harbor, the difference being that the Sindh Government is responsible for the Chilya complex and other locations inland where training in freshwater and brackish water fish culture is undertaken. A variety of PC-1s prepared by the Sindh Provincial Government are addressing aquaculture, aquaculture training and the rehabilitation of fish hatcheries in the province.
43. Development of these Sindh based aquaculture training institutions will be complimentary to the Federally funded efforts at the Fisheries Training Centre.
44. Developing training facilities, training the staff to staff the facilities and developing training programmes and courses is a complex and expensive activity. The PC-1s prepared by the Sindh Government include allowance for



the hiring of external assistance to carry out the brackish water and fresh water aquaculture training programmes.

45. The FDB, managing the Federal Shrimp and Aquaculture Project have plans to develop shrimp and fish hatcheries and model farms throughout the country (including Sindh) and the Fisheries department will co-operate with these efforts wherever possible. The Federal fisheries Department also has a programme in the 2009/10 PSDP for Sustainable Development of Salt Brackish water aquaculture in Pakistan, which will also have a training component and be partly implemented in Sindh.

#### 4.4 **Improve communication and co-operation among all stakeholders and promote the formation of producer organisations**

46. The need for stakeholder consultation in all decision making is recognised as paramount. In Sindh stakeholders also tend to be quite voluble if not consulted on major issues that affect them. There are pressure groups among the stakeholders, including the Pakistan Fisherfolk Forum and various fishermen's organisations (eg: the Bonafide Fishermen and Owners Association, based in Bhit Island, Karachi). The largest organisation is the Fishermens Cooperative Society, established by law, which is supposed to be a benevolent organisation dedicated to the interests of its members and is based in the Karachi Fish Harbour. It is reported to have more than 12,000 members. The processing industry is represented by the Pakistan Seafood Industry Association, the ice dealers by the Ice Dealers Association for Fisheries, and so on.
47. Stakeholders are being consulted at all times by the Fisheries department, particularly about large decisions such as on the management of the Karachi Fish Harbour. Despite these best efforts "little men" are often ignored and the interests of the larger stakeholder organisations, feudals, moles, zamindars and influentials are prioritised. A formal process and procedure is required and all stakeholders must have a voice.
48. Sindh Fisheries Department will, after the comprehensive staff review mentioned above, establish a post as Co-ordinator Stakeholder Associations. The staff review will include this post. The co-ordinator will formalize the relationship between the Department and the stakeholders, and help to provide support services to the stakeholder organisations. This support may take many guises, including providing access to training for association members, organizing study tours, providing advice or finance for administrative matters in setting up stakeholder bodies, and providing access to decision makers. A good start would be to find out how many producer organizations there are in Sindh, their membership numbers, their aims & constitutions, their office bearers and their HQ locations.
49. The job description of the Co-ordinator, Stakeholder Associations will include the formation of producer organisations. Producer organisations are the voice of the fisher folk of Sindh and their formation into formal stakeholder groups is a priority of the Fisheries Department. They often require assistance in formation and maintenance, because if there is no "key" individual, the prime

mover of the group or association, they tend to flounder and become dysfunctional.

50. Part of the work of the Sindh Fisheries Department will be to encourage the better management of the KFH, the auction of which is controlled by the FCS. Ideally, following a Roadmap for KFH produced by the CSF in 2008, the auction would be privatized and the FCS can return to its primary function of providing social services to the fishermen members of the society.
51. Producer and stakeholder organisations offer the only currently available method of external auditing of the activities of the Sindh Fisheries Department, in that they ensure, through their activities and protests, that the Sindh Fisheries Department delivers on its obligations. Internal monitoring of the Department will have to be addressed in the 5 year plan.

#### 4.5 Implement fisheries related activities and infrastructures for poor communities

52. Sindh Fisheries Department is already implementing activities and installing infrastructures for poor communities. The Department has implemented a development project designed to improve fish landing areas throughout the Indus Delta region and at Karachi Fish Harbour, called "The Provision of Landing platform, chilling storage & Processing Facilities at Zero Point, Badin, Keenjhar Lake, Thatta, Manchar Lake Dadu and Jetty at Karachi Fish Harbour" (334 million PkR). Additionally the poor communities, particularly those fishing to Karachi Fish Harbour, will benefit from another development project currently being implemented, the "Provision of Fishing Gears, Modification of Boats Provision of Ice Boxes and plastic Crates to Fishermen in Sindh" (352 million PkR).
53. Inland the fishing communities are benefiting from several Fisheries Department projects, most of which are still being implemented. A PC-1 to introduce Modern Technology for the welfare of the Fishermen Community of Keenjhar lake is 100% spent (2009). Similarly model villages have been constructed by an on going programme funded by a PC -1 which remains mostly unspent (2009). (See section 6.1.6).
54. Current developments at the KFH under an existing PC-1 (295 million PkR) are already providing much needed equipment (trolleys, baskets, weigh scales etc) which are improving the quality and hence value of the catch, and also reducing fraud. Modification of boats undertaken under this PC-1 is reducing wastage of the catch and improving incomes. These existing initiatives are contributing to the improvement of the condition of fishermen.
55. The Karachi Fisheries Harbour Authority is also on the verge of implementing a Masterplan project to improve the facilities at KFH (509 million PkR). Apart from improving conditions, leading to better prices for fish, the project will also upgrade many small day boats. Included in the Masterplan are, inter alia, a new auction hall, two new jetties, a sewage treatment plant, upgrading of roads and prawn peeling sheds.
56. The benefits to the poor communities, particularly those in West Karachi who land fish and work at the KFH will be enormous as it will result in higher prices and thus a reduction of poverty.

57. There has been much interest in the development of Keti Bandar as a mini-port so as to support fisheries, and the fishermen, in the Indus Delta region of Thatta and Badin. Currently the Fisheries Department has a PC – II outstanding for further feasibility of the harbour development. With the help of the SDF and CSF this feasibility will be refined (2009) and assessments on the economic and physical parameters of the proposal can be made which will lead to an informed decision on whether to go ahead.
58. Federal Min of L & DD in PSDP 2009/10 has a project for strengthening of fishermen through provision of equipments and also a programme for strengthening fisheries infrastructure along the Sindh and Balochistan Coast. Exactly what is in this programme is unclear.

#### 4.6 Develop applied research programmes

59. Research is not a strong point of the Sindh Fisheries Department and more needs to be done, particularly in the marine sector. Overfishing of the stocks is happening and there is no monitoring of the catch nor the biological parameters of the fish stocks. More needs to be done. Sindh will prioritise this, despite the fact that little emphasis has been placed on research for the last 20 years or so.
60. In the short term two PC-1s will address some of the research shortcomings of the Department and provide scientific advice. Naturally their activities will require annual review so as to ensure that the programmes remain relevant to the needs of the Province. Whether the funding is adequate will remain to be seen.
61. A 287 million rupee PC – 1 for a research facility, with two outposts in the interior, and details of research work to be carried out, is planned but has not yet been presented nor approved. This includes collection of basic statistics so as to provide data on which to manage the fisheries of Sindh.
62. Several PC-1s aimed at research into new aquaculture organisms (brackish water and freshwater fish, oysters and mussels, mucrabs etc), are being presented in 2009
63. The M/O L&DD is also to implement (starting 2009/10) a project, Sustainable Development of Salt Brackish water aquaculture in Pakistan. Sindh will support the activities of this project, which are complimentary to its own.
64. The Federal Government has also implemented a Stock Assessment Survey of the EEZ of Pakistan which will look at the marine stocks. The last survey was carried out more than 30 years ago. There will probably be no results from this survey for at least 2 more years.
65. It is essential that Sindh undertakes more applied research so as to provide information for the better management of the fish stocks and inland resources. This is and must remain a priority for the Fisheries Department.

#### 4.7 Address fisheries and aquaculture legislation shortcomings.

66. A study was carried out as part of the NPF (part 3) has identified that fisheries legislation in Pakistan is a mess. This was known before. It still is a mess 2 years later because nobody has actually implemented any projects to remedy the problem. The problem is well acknowledged by the Fisheries Department.

67. Currently in Sindh efforts are being made to address animal & aquaculture feedstuffs legislation, but the major pieces of legislation affecting fisheries are not being reviewed.
68. All the Fisheries Legislation in Sindh needs to be updated & modernised to allow for the rapidly changing environment in fisheries. The Ecosystem Approach to Fisheries Management and the Precautionary Approach to Fisheries Management should be key guiding principles to the management of fisheries and aquaculture and this is not reflected in the legislation nor in the rules and regulations. Similarly rules controlling the Karachi Fish Harbour and the maintenance of fish quality at all points in the cool chain, from capture to consumer, are not adequate to give a strong basis for enforcement.
69. Strong legislation is required in the aquaculture sector so that potential investors, to be attracted to the claimed great potential of the Indus Delta for prawn farming, will be assured that their investments are safe, from physical and biological threats and land disputes.
70. The contract system, a system where the rights to fish a particular inland water body was auctioned off to a single individual is seen by many as unfair to fishermen and a violation of basic rights. The Sindh Fisheries department is in the process of amending this system and giving fishermen the rights to the waters they fish. Other controls on the activities of fishermen on these bodies of water will have to be instigated since an uncontrolled increase in effort in these closed systems will lead to disaster.
71. The Fisheries Department will seek a root and branch review of the legislation to produce new laws covering Fisheries and Aquaculture. A committee will have to be formed initially, headed by the Director General, to map out the way forward and assign responsibilities.
72. Unfortunately the revision of the legislation is not only the responsibility of the Provincial Government and the Department of Fisheries. Whatever the Fisheries Department comes up with will have to be consistent with Federal Laws and also consistent with the laws of other provinces, particularly neighbouring Balochistan (capture fisheries and coastal aquaculture) and Punjab (inland aquaculture). Ideally the Federal Government should strive to assist the Provinces to review and revise their legislation, through a thorough federal and province wide exercise.
73. The existing laws in Sindh do allow the Minister to issue rules and regulations on various matters and notifications can be made which alter them.
74. In the short term, until there is unanimity among the provinces and with the Federal M/O L&DD, the Government of Sindh will have to address priority issues through issuing rules and regulations under the existing legislation, deficient as it is.

## 5. Addressing the Priority Key Actions for the Strategy Axes of the NFP

75. The Key Actions for the Strategy Axes have been prioritised down from more than 120 to only 4 by the NFP.
76. These are:-

- i. Provide financial incentives and land for private sector investment in aquaculture (for shrimp and freshwater aquaculture)
  - ii. Attract private sector investment in processing facilities
  - iii. Implement measures to control over-exploitation and rehabilitate polluted habitats
  - iv. Sustainably harvest untapped resources (eg:tuna)
77. Here the Key Actions do require considerable modification from that laid down in the National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan. Scarce financial resources should not be provided to the private sector where the private sector has the financial resources to invest and develop. The goal is to create an enabling environment, not for the Government to invest directly in enterprises<sup>2</sup>. Naturally Government is expected to assist and encourage wherever possible.
78. Some interventions currently proposed in Sindh are unacceptable under the Sustainable Approach to Fisheries Management which the Government is committed to. Neither are they allowed under the Doha round of the WTO. Under the WTO Agreement on Subsidies and Countervailing Measures any subsidy to improve catching efficiency by the existing fleet is not permitted unless complimentary measures are taken to reduce the numbers of vessels and thus the effort in the fleet. Subsidies covered by this agreement would include the provision of enhanced gear and equipment by the government to vessels to enhance catching capacity; or the government directly entering the fishing industry through direct investment in vessels.
79. Additionally there are some development activities that Sindh cannot carry out fully for various reasons; or should not because they are counterproductive or unwise. (see Section 6.6). Similarly there are one or two actions, which the Government of Sindh can carry out, that have not been prioritised by the National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan
80. So the Government of Sindh, with the lead agency being the Fisheries Department, will therefore as a priority:-

## 5.1 Aquaculture

81. Research in aquaculture is covered in the section on applied research above (section 4.6).

### 5.1.1 Land for Aquaculture

82. Sort out the problems of acquisition of land for shrimp aquaculture (with the Revenue Department and other interested departments and institutions). Nothing proposed in the business of aquaculture will succeed on a large scale until the land issues are resolved. Essentially Sindh is trying to encourage shrimp aquaculture but no land has been made available in suitable areas.

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<sup>2</sup> Note that the majority of the "Private Public Partnerships suggested so far by the Fisheries Department (tuna, shrimp, finfish capture & value adding) have consisted of thinly veiled public subsidy of private enterprises, and so both violate the WHO guidelines on government support to fisheries (they include no measures for reduction of effort) and are not "partnerships", they are merely subsidies. Sindh cannot afford to use scarce funds in this manner.

83. Land issues have been the topic of discussion and some frenzied paperwork for several years. The problem was first identified nearly 30 years ago; but land still remains an obstacle to the development of large scale commercial coastal aquaculture in Sindh. Aquaculture needs suitable water and suitable land. There are areas in Sindh where these two coincide. Several studies have identified suitable land and the CSF under the Sindh Development Fund will assist the Federally Funded Fisheries Development Board to identify them more closely under a separate arrangement (2009).

84. There needs to be

- i. a resurvey , accurate overview of areas already identified (to be carried out by FDB after design work organised by CSF).
- ii. agreement between the parties involved (revenue etc) that these areas are available and can be leased for aquaculture purposes. The land/lease policy is yet to be finalised.
- iii. detailed plans drawn up so that the exact areas under consideration are known
- iv. the mechanisms/responsibilities of various bodies for lease drawn up
- v. a notification published detailing these areas to be leased (in detail)
- vi. lease of the lands (without overly heavy handed government interference or oversight as to what happens, yet but with a clause that it must be developed within 3 years or revert: to stop land speculation).

### **5.1.2 Water Quality**

85. The FDB will undertake a water quality survey in existing areas of aquaculture and new areas expected to be used for aquaculture. There is a suspicion that the fresh water supply to much of the existing and potential land available for aquaculture may be polluted by heavy metals (arsenic & lead are particularly noted, but mercury and other pollutants such as nitrates and pesticides from agricultural runoff may well also be a problem).

86. Similarly parameters such as salinity and temperature on lands selected for aquaculture will be assessed. Before large scale investment in aquaculture is encouraged it would be best to ensure that the water is suitable.

87. The Sindh Coastal Development Authority, as a part of one of its development projects in the Indus Delta, is carrying out a limited scale study in the Talukars of Thatta and Badin and this information will be complimentary to any studies undertaken by the NFB.

### **5.1.3 Research into aquaculture (Fresh water and brackish)**

88. Research generally is covered above (Section 4.6)

89. Undertake research at its hatcheries and other facilities to try to encourage the improvement of production from existing inland fish ponds, and the use of waterlogged or salt intruded land for aquaculture. PC-1s have been prepared to cover this sort of work, with consultant advice for new species or

techniques, (see section 4.6). The Fisheries department has many hatcheries, the one in Thatta being particularly well furnished with buildings, but needing equipment and some funding. This will lead to increased production.

90. The Government of Sindh has also reactivated its Hawks Bay hatchery and is producing post larval *P indicus* & *P merguensis*. Whilst this has proved, yet again, that *P indicus* and *P merguensis* post larvae (PL) can be produced in Sindh, and the exercise has trained some staff, the value of doing this when there is no commercial prawn aquaculture extant in the province is still not proved. Commercial aquaculture is most unlikely to want to rely completely on government owned hatcheries for their PL; they will require certified specific disease free broodstock producing PL from their own or private hatcheries.
91. Other projects being pursued by the Fisheries Department are the establishment of a Carp hatchery at Sanghar, (37m PkR, PC-1) which is unfortunately only 32% spent (2009), the establishment of a Prawn Hatchery Disease Diagnostic Centre and Research unit, which is part of the Hawks Bay complex and still almost half unspent (2009) and another aimed at the Hawks Bay and other Hatcheries, a PC-1 funded (784m PkR) called Strengthening and Improvement of Fish and Shrimp Hatcheries in Sindh (2006-11) which was only 25% spent (in 2009).
92. These activities, together with the inputs from the Federal Government and FDB, will suffice in the short term in the field of aquaculture. With the trained and skilled staff available it is about all that can be managed. Major investment is expected to be from the private sector, though the Sindh Government will support this through the activities of the BOIS, the SDF and other vehicles.
93. The Prawn Farm at Gharo in Thatta District has been in a poor condition for some years. Under several of the various aquaculture programmes, particularly the activities of the FDB and the Aquaculture Megaproject, parts, if not all of this farm are to be rehabilitated so as to demonstrate the feasibility of prawn farming in Sindh & Pakistan. Some state actors consider that until one full cycle of shrimp production is completed in a commercial manner then investment in shrimp farming may not be implemented by the private sector, due to lack of confidence.
94. A PC – 1 (100m PkR) for establishing backyard hatcheries, inland, has been prepared but is not progressing.
95. In aquaculture, just as in other development areas, the Government of Sindh's Fisheries Department overarching aim is to “to create an enabling environment ...”, not to actually do the development themselves.

## 5.2 Implement measures to control over-exploitation

### 5.2.1 Enforce existing rules and regulations.

96. The Government of Sindh will enforce existing rules and regulations in fisheries. The government has rules and regulations for controlling over-exploitation, particularly relating to illegal gears, and closed seasons. In the short term these will be enforced. It is simple and do-able.

97. In the longer term the Government of Sindh will have to address the paucity of data that is available to it for managing the resources to ensure that correct remedial measures can be taken to protect the stocks of fish. Again this is not a difficult problem to correct and only requires some funding and application. A good start would be the collection of data from the Karachi Fish Harbour through which at least 40% of the countries' catch passes. This will be addressed when and if the planned Fisheries Research Programme is implemented.
98. The Government of Sindh will also have to update the legislation covering fisheries so as to control over-exploitation, but this requires good science, from the research programme, to back up the controls on exploitation to be made and enforced.

### **5.2.2 The contract system & inland waters**

99. The contract system is not a priority intervention in the NPF, but is politically and socially a very important. For Sindh amending the contract system is a priority.
100. Under the contract system the rights to fish inland waters have been sold to individuals, on a fixed term contract. This arrangement has been seen to be very unfair for fishermen who have traditionally fished these waters.
101. The Sindh Government has committed itself to making an assessment of the options available to replace the Contract System, but has not done so (2009).
102. Releasing the inland waters from the contract system will allow unfettered access to the resources in the closed bodies of the inland waters to fishermen. This is a recipe for disaster and mitigating legislation or regulations must be introduced to reduce overexploitation. Alternatives, such as cage culture in inland waters are being pursued by the FDP in Keenjar and Manchar Lake and will be encouraged by Sindh Fisheries Department.
103. The Fisheries Department has emphasized restocking of inland waters with fry of commercial species and this activity will continue.

### **5.3 Improve Quality Control**

104. Improved quality control is listed in the National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan a being a result of attracting private sector investment in processing facilities. For Sindh investment is only part of, and probably not the most important part of, the solution. There is plenty of money available for private sector investment in processing, mostly from the Gulf.
105. The greatest challenge is the Karachi Fish Harbour. Pakistan is currently not exporting to the EU because all the exporting companies that used to have been delisted by the EU following an inspection in 2008. An indicator of success is recommencement of exports to the EU.

#### **5.3.1 Karachi Fish Harbour management**

106. Sindh will change the management regime in the Karachi Fish Harbour in West Karachi. Improving quality control in the Karachi Fish Harbour is the pivotal activity for Sindh in this regard. This requires management change in



the harbour, particularly regarding the auction, and until this is effected other attempts or initiatives aimed at improving quality control will be ineffective in the long term. The FCS, who currently control the auction will either surrender the management of the auctions or reorganize themselves so as to provide an efficient service; audited and transparent. Sindh Government is prepared to take this step (2009).

107. The Sindh Government will therefore strive to improve the management of the Karachi Fish Harbour as a first step towards improving quality control and improving the value of the catch. In all probability this will involve some form of private involvement in the management of the auction and harbor activities, as has been recommended in a roadmap prepared for the Government of Sindh by the Competitiveness Support Fund (2008).

### **5.3.2 Karachi Fish Harbour infrastructure**

108. Sindh will upgrade facilities at the Karachi Fish Harbour. Currently a PC-1 for 290m PkR is being executed and this is providing much needed items including boxes and upgrades of auction facilities, and also modification of fishing boats to EU standards. Plans are also well advanced for upgrading the infrastructure at the KFH. A PC-1 has been approved. A Masterplan, a plan for the infrastructure inputs has been prepared & tenders (509 million PkR) will be placed as soon as administrative matters are sorted out. It should be noted that a change in the management of the auction process should be a pre-requisite to this activity. Further inputs are planned once the current round is complete.

### **5.3.3 Keti Bandar Harbour**

109. Feasibilities studies on Keti Bandar mini-port will continue. Establishment of facilities at Keti Bandar and elsewhere in the Indus Delta region will improve quality of fish produced in the Thatta and Badin Districts of Sindh.

### **5.3.4 Vessel improvement**

110. Sindh is supporting efforts to improve boats. There is already a programme of boat improvement for larger boats which is being extended (under the PC-1 for upgrading infrastructure) to small "day boats", those that bring in the freshest fish and prawns. This will ensure better quality fish is landed to the auction and processors.

### **5.3.5 Fish Quality Control Laboratories**

111. The Federal Government Quality Control Laboratories at the KFH are to be accredited. They are well staffed and equipped and provide necessary services to the fishing industry and processors.

## **5.4 Sustainably harvest untapped resources eg: tuna**

112. Tuna is the one proven resource that is considered proven and "untapped". It is not "untapped" because there is
- i. a large industry gillnetting offshore in Sindhi, Balochistan and international waters (and probably the waters of Yemen, Somalia, India, Sri Lanka, Oman, and Iran). More than 250 boats operate out of Sindh and about the same number out of Balochistan. Much of this fishing activity is probably unregulated, unrecorded and probably

illegal. Pakistan is a member of the Indian Ocean Tuna Commission but its activities are far from the minds of the fishermen engaged in gill net tuna fishing. The main target is Skipjack tuna (*Katsuwonus pelamis*) for canning (market Iran) and salting (market Sri Lanka). Other significant catches are small yellowfin and longtail tunas. Some is sold locally. 20% of the catch is by-catch, mostly sharks.

- ii. foreign boats are locally registered and landing to Korangi Harbour in Karachi. The fish is frozen on board (and currently containerised for shipment to Thailand) for canning. Again this fishing activity is probably inadequately regulated.
113. There is no reason for Pakistan not to enter the oceanic tuna industry. It should be a privately led exercise and government has no business investing public funds in tuna fishing. The recent catastrophic collapse of the small scale tuna long line business in other parts of the world provides ample evidence that this is an activity not completely risk free.
114. Some speculation exists on the possibilities of squid and cuttlefish fishing using techniques other than trawling. As with other types of fishing the private sector should lead these initiatives, and the Government will create the enabling environment.

#### 5.4.1 Tuna Industry

115. The Government of Sindh will support the private sector in its efforts to enter the Tuna Long Line industry but the Sindh Government will not become involved in any direct investment itself. (The PC – I, Establishment / Promotion of Shrimp, Finfish and Tuna farming with public private partnership in Sindh, does not address the issue of Tuna fishing to any great extent).
116. The government has a policy on deep –sea fishing (Deep Sea Fishing Policy of 1995 as amended in 2001), which is designed to encourage fishing in the 12 – 200 mile waters of the EEZ. Whilst this is optimistic in that it assumes that this zone is underfished and that there is plenty of potential for expanding catches (which may be true in some manner in the 35 – 200 mile zone, but is clearly not applicable in the 12-35 mile zone of Sindh)
117. Support will be related to technical matters only, the use of consultants and experts to advise the private sector on their investment opportunities. The BOIS and SDF could make available funds as and when required for this sort of study and advice.
118. Training for tuna industry employees will be addressed under the cross cutting activities in training (see Section 4.3.1 above)
119. The M/O L&DD will be expected to strengthen its connections with the Indian Ocean Tuna Commission and other international bodies so that the activities of the new tuna fleet are consistent with international norms. Sindh Government can do little except bring pressure on M/O L&DD to do so, since this is an international organisation and not appropriate for Sindh to deal with directly. Any vessels based in Sindh will have to conform with IOTC norms for reporting, observers and by-catch reduction.
120. Sindh therefore will merely encourage the private sector and create an enabling environment for tuna fishing.

121. There has been much speculation (2007/8/9) that existing boats can be easily converted to Tuna long line fishing, and similarly that tuna long line fishing is highly profitable, the latter based mainly on isolated press reports on high prices fetched for occasional blue fin tuna in Japanese markets. Worldwide experience shows that the vessels needed are more specialised and the prices are more fickle than is generally accepted in Pakistan. Sindh will not provide funds or subsidies for such conversions, though once again will provide the enabling environment.

#### **5.4.2 Attract private sector investment in processing facilities**

122. The private sector has plenty of money to invest if the economic and social conditions are right. It is developing the right conditions for investment that the Sindh Fisheries Department must concentrate on, creating the enabling environment. BOIS and SDF can and will assist.

## **6. Interventions under NPF strategy axes to be encouraged but not directly implemented by Sindh Fisheries Department.**

123. Other activities under interventions prioritised under the strategy axes in the National Policy and Strategy for Fisheries and Aquaculture Development in Pakistan (NPF) will be encouraged, but for a variety of reason, will not be directly implemented by the Sindh Government. These are:-

#### **6.1.1 Rehabilitate polluted habitats**

124. This is most desirable, but too extensive and too expensive a programme to implement.
125. Several bodies are replanting mangroves and a current ADB funded project being implemented by CDA will replant mangroves and improve some habitat in the delta region.
126. The larger issues of pollution are really so massive that they cannot be tackled piecemeal by Sindh Fisheries Department. These include the liquid and solid waste pollution from Karachi (a town of 20 million), irrigation, river and groundwater pollution by heavy industry (mostly from the Punjab) which impacts downstream in the Indus Delta, sewage and industrial waste from Hyderabad in Sindh into the Indus and agricultural wastewater runoff containing pesticides and loaded with nitrates.
127. The impacts of these for aquaculture and coastal fisheries are enormous (though unquantified). Combined action by a variety of bodies is required and Sindh Fisheries Department cannot deal with the problem alone. Sindh Fisheries will however support the FDB assisted by the SDF in its efforts to quantify water quality problems in the areas earmarked for shrimp farming in the Indus Delta region.

#### **6.1.2 Provide financial incentives for aquaculture**

128. This is definitely not needed, if aquaculture is viable there is plenty of private sector money available. All investors hope for cheap finance from somewhere, and lobby for it, but it is not necessary in this case. Sindh will

naturally encourage investment where possible, though the BOIS and SDF, but not provide funds directly for commercial purposes (for social purposes is a different matter, see below). The FDB has plans for some interventions in this sector which will be supported by the Fisheries Department where deemed appropriate.

129. The primary constraints to development of aquaculture in Sindh are suitable land availability and water quality and the Sindh Fisheries Department will concentrate on these concerns.

**6.1.3 Development of warning and rescue centers in coastal areas to protect lives and assets of fishermen.**

130. Although this has great merit in parts of the Inland Sea area of Badin & Thatta, it is not the responsibility of the Fisheries Department to do this. Fisheries Department will support the activity but will not implement any programmes directly.

131. The need for this sort of programme was brought to attention particularly during the cyclone of 1999, when they would have been useful. 10 years later nothing has been done to create raised mounds as rescue centres in the Indus Delta. In that time much of the population has moved away, migrated to the city or shifted inland, due to the ongoing encroachment of the area by salt water from the sea. Many of the once vibrant villages are now ghost towns. Only a few, such as Keti Bandar and Shah Bandar now remain but are not as busy as previously.

**6.1.4 Establishment of fish/shrimp feed mills to boost fish production on culture side.**

132. It is not the business of Fisheries Department to establish feed mills for fish and shrimp feed, or to invest directly in them. Fisheries Department will encourage private sector investment in the industry, though creating an enabling environment (by revising the feed regulations for instance (see Section 4.7).

133. A draft PC-1 has been prepared for a pilot scale feedmill in Jamshoro, but it has not progressed.

134. There are a large number of feed mills in the country and when a large enough opportunity appears they will move into the aquaculture sector in haste. Some already produce carp feeds. BOIS and SDF have already been active in this area with the FDB.

**6.1.5 Establishment of shrimp/fish seed production units.**

135. For Shrimp the Hawks Bay model hatchery is already functioning and producing shrimp seed. Various PC-1s have been prepared to provide funding for upgrading the inland hatcheries, especially those at Chilya and Badin, and also others. The Federal Aquaculture Megaproject will also provide inputs to the sector, including the renovation of the Federal shrimp hatchery at Hawks Bay. There is no need to do more in the short term.

136. For inland aquaculture the existing hatcheries will be upgraded under the guise of research into new and exotic aquaculture organisms and training. Again seed production should be a private sector activity and this is the long term aim.

137. In line with general strategy the Sindh Fisheries Department will aim to enable the private sector in this activity.

**6.1.6 Establishment of model fishermen villages to upgrade their living standard.**

138. Although this has merit it is not the job of the Fisheries Department to do this sort of development. Fisheries has however undertaken a project for model villages in Dabla, Zero Point, Badin, Manchar Lake and Keenjhar lake. This was a 481m PkR programme funded by a PC – 1 (80) running from July 06 to June 2011. It remains more than 55% unspent (2009). The reasoning for its implementation was more political than fisheries related.

139. In the future the Department will only support efforts by other agencies to implement such a programme.

**6.1.7 Provision of soft loan to the fishermen/farming community.**

140. The effectiveness of rural credit in the fishing communities is not proven. Prior to any action on soft loans or micro-credit, an in-depth study would need to be undertaken on rural credit in fisheries, including the relationships between the moneylenders, moles and fishermen.

141. The Fisheries Department has no business entering the soft loan business. This is an activity that should be left to the experts in provision of finance. The Department will support soft loan and micro-credit schemes instigated by other agencies, and where appropriate the BOIS and SDF can intervene.