



**TEN YEAR DEVELOPMENT POLICY  
FRAMEWORK  
OF THE FISHERIES AND AQUATIC RESOURCES  
SECTOR**

**2007 - 2016**

**MINISTRY OF FISHERIES AND AQUATIC RESOURCES**

**MARCH 2007**

# CONTENTS

	Page
1. Introduction	
1.1 Fisheries Sector in the Economy	03
1.2 Fisheries Sub-sectors	04
1.3 The Resource Base	04
2. Sector Vision & Mission	05
3. The Major issues constraining the development of the Fisheries Sector	05
4. Policy Measures	07
5. Baseline Performance Indicators	
5.1 Expected Targets relating to the key measurable indicators	11
5.1.1 Projections of Fish Production (by sub-sectors)	11
5.1.2 Per capita availability of fish and fish products based on local Production	14
5.1.3 Contribution of the fisheries sector to the Gross Domestic Product	14
5.1.4 Fisheries Exports-volumes and foreign exchange earnings	15
5.1.5 Employment generated through in fishing and associated Activities	15
5.1.6 Infrastructure development	16
5.1.7 Social & Community Development	17
5.1.9 Protection of the coastline and the improvement of the coastal Environment	17
5.1.8 Projections of the key measurable Indicators	17
6. Implementation of the Plan	
6.1 Policies and Activities to support sector policies and achieve targets	18
6.2 Fisheries Sector Projects and Programmes 2007-2016	22
Tables: 1 Fish Production 2004 by sub-sectors	11
2 Fleet Composition, projections of marine sub-sector production - 2006-2016 (Quantity – Tons)	12
3 Projected National Fish Production (tons)	13
4 Per Capita Fish Availability	14
5: Employment in the sector	16
6. Summary of Measurable Indicators	17
7. Implementation Plan	23
Matrices: I Problem and Policy Measures	07
II Strategies and Activities	22

# **FISHERIES SECTOR TEN YEAR PLAN 2007-2016**

## **1 Introduction**

### **1.1 Fisheries Sector in the Economy**

The sector contributes around 70% of the animal protein consumed in the country (*Food Balance Sheet: Department of Census and Statistics*). This is largely contributed by the local fishing industry, which in 2004 produced 286,370 tons of fish thus accounting for 84% of the total quantity of fish consumed. The annual per capita availability of fish and fishery products in the recent past has varied between 17.5 kg and 18.5 kg. Fisheries constitute an important livelihood for the people living in the coastal belt, and around the irrigation tanks and reservoirs consumed an important livelihood of the people living around the irrigation tanks and reservoirs in the dry zone. The sector currently provides direct employment to about 650,000 people comprising 150,000 in fishing, 100,000 in associated service activities and 400,000 in fish trade. Thus the sector provides sustenance to at least 2.4 million persons.

In the recent past, the sector has also emerged as a dynamic export oriented sector providing considerable foreign exchange earnings to the country. During 2000-2004 foreign exchange earned through export offish and marine products has varied between a low of US \$ 83 m and a high of US \$ 100.8 million the percentage contribution to total exports of the country varying between 1.56% and 2.47%. The contribution of the fisheries sector to the Gross Domestic Product (GDP) has been rather marginal and has varied between 2.50 % and 1.88 % over the four year period 2001-2004. This declined to 1.03 % in 2005 due to the tsunami effects.

It is noteworthy that Sri Lanka's fishing industry lags far behind Japan and Thailand two of the countries that Sri Lanka seeks to emulate. While Sri Lanka's fish production in 2004 which was 286,370 tons, fish production in Japan and Thailand in the same year was 5,778,061 tons and 4,017,954 tons respectively. On the other hand, the per capita consumption in Japan and Thailand in 2001 was 70.6 kg, and 32.4 kg respectively while Sri Lanka's figure was 17.8 kg. Further noteworthy comparison between Sri Lanka and Thailand are as follows:

	<b>Sri Lanka</b>	<b>Thailand</b>
Total extent of the Continental shelf, Territorial sea and EEZ	538,500 km <sup>2</sup>	437,767 km <sup>2</sup>
Marine fish Production (2003)	254,680 MT	2,620,000 MT
Productivity	472 kg per km <sup>2</sup>	5,600 kg per km <sup>2</sup>
People employed in Fishing	146,877	354,495
Productivity per person	1.73 MT	7.39 MT

### **1.2 Fisheries Sub-Sectors**

There are three main sub-sectors within the fisheries sector viz. *Coastal Fisheries; Offshore/ Deep Sea Fisheries, and Inland Fisheries and Aquaculture.*

**Coastal Fisheries** (those fisheries taking place within the continental shelf and undertaken by the fishing craft in single day operations) continue to be the dominant sub-sector in terms of its contribution to production and employment. In 2004, this sub-sector accounted for 54 % of the total production while 28,545 fishing craft represent 90.3 % of the entire fishing fleet of the country was deployed in this sub-sector. An estimated 80,000 fishers were directly involved in fishing activities in this sub-sector.

**Offshore/High Seas fisheries** (those which take place outside the continental shelf and beyond extending up to the edge of the Exclusive Economic Zone and even in the high seas by multi-day boats) has been the fastest growing sub-sector. In 2004, this sub-sector contributed 34% to the total production of the country. The rapid expansion of the multi-day fleet which stood at 1,581 in 2004 has been primarily responsible for the growth of this sector.

**Freshwater capture fishing** in irrigation tanks and reservoirs is an expanding economic activity which provides cheap protein, incomes and employment for the rural people. Aquaculture is still in its infant stages and is limited to coastal shrimp culture and the production of fish seed for stocking; farming of food fish in seasonal tanks and ornamental fish for export are the other activities. Its current contribution to production is quite modest (12 % in 2004), yet it has potential for a fairly large increase in production.

### **1.3 The Resource Base**

Sri Lanka's fisheries and aquatic resource base includes a territorial sea of 21,500 sq. km. and an Exclusive Economic Zone (EEZ) of 517,000 sq. km. The country has a narrow continental shelf with an average width of 22 km. Its extent is 30,000 sq. km which is 5.8% of the country's ocean area. Though Sri Lankan waters are rich in species diversity the narrowness of the continental shelf, and the non-occurrence of upwellings impose limitations on the fisheries productivity around the island. The last comprehensive survey of the coastal waters done in 1979-80 (by RV Dr Fridtjoff Nansen) indicated a possible annual harvestable yield of 250,000 t. of fish from the coastal inshore area. Estimates of possible annual yield from the rest of the EEZ vary from 90,000 to 150,000 tons.

Sri Lanka has a coastline of around 1,700 km and the coastal zone is of considerable socio-economic importance. The coastal zone contains 25% of the land area of the country, 25% of the population, 70% of the hotels and 70% of the industrial units. More importantly it contains a variety of coastal habitats that include estuaries and lagoons, mangroves, coral reefs and large extents of beaches and dunes that are vital to ecological functioning and maintenance to bio-diversity.

Sri Lanka also has extensive freshwater and brackish water resources to sustain viable fishing activities. According to NAQDA these comprise of around 260,000 ha of large irrigation reservoirs (70,850), Medium irrigation reservoirs (17,004), Minor Irrigation reservoirs (39,271), seasonal village tanks (100,000) Flood lakes (41,049), upland reservoirs/estate tanks (8,097) and Mahaweli river basins (22,670). On the basis of their size and fishery management norms the reservoirs in the country can be grouped under three broad categories:

1. Large (over 800 ha) and medium (200-800 ha) which are used for capture fisheries);
2. Small (1-200 ha) irrigation reservoirs for culture-based fisheries
3. Seasonal tanks which hold water for 6 - 8 months a year for culture fisheries

Opportunities also exist for brackish water aquaculture in a total extent of around 6,000 ha in

Puttalam (1,200 ha), Hambanthota (400 ha), Gale (200 ha), Batticaloa (1,600 ha), Mannar (800 ha), Jaffna ( 400 ha), Trincomalee (600 ha) and Mullaitivu (800 ha). Currently coastal aquaculture is practiced on any noteworthy scale only in the district of Puttalam and a few small scale farms in Batticaloa:

Under the UN Law of the Sea, Sri Lanka is entitled to lodge a claim for an extended area of seabed where the thickness of the sediment layer is over 1 km. Once this claim, which is being submitted, is accepted, Sri Lanka could gain an additional seabed area which would be 23 times the island's land area. In addition to the living resources the exclusive economic zone and the extended area which will come under Sri Lanka's jurisdiction also contain valuable non-living resources such as hydrocarbon resources and a variety of economically important minerals including manganese nodules.

## **2 The sector Vision and Mission**

### **The Vision**

*Sri Lanka to become a leader in the South Asian Region in sustainable utilization of fisheries and aquatic resources*

### **The Mission**

*Directing the utilization of fisheries and aquatic resources for the benefit of the current and future generations*

**Policy Objectives** as articulated by the Ministry are as follows:

- To improve the nutritional status and food security of the people by increasing the national fish production
- To minimize post-harvest losses and improve quality and safety of fish products to acceptable standards
- To increase employment opportunities in fisheries and related industries and improve the socio-economic status the fisher community
- To increase foreign exchange earnings from fish products
- To conserve the coastal and aquatic environment.

## **3 The Major issues constraining the development of the Fisheries Sector**

There are several major issues constraining the development of the sector which needs to be addressed in a long-term development plan such as this; the more important among them are as follows:

1. Non-availability of reliable and up to date marine fish resource data has greatly handicapped the planned development of marine fisheries. The last comprehensive fish resource surveys were carried out over 25 years ago and the resource data needs to be updated through resource surveys and stock assessment.
2. Fisheries management has been weak and despite there being comprehensive fisheries laws (Fisheries & Aquatic Resources Act 1996) and associated regulations management of coastal fisheries is yet weak. Thus there is an urgent need to promote co-management; this is a long process and requires awareness building and community empowerment and strengthening of community based organizations particularly the fisheries co-operative organizations.
3. The quality of fish landings is generally poor and fish spoilage is high particularly in the landings of multi-day boats. This is due to lack of proper fish landing and quality maintenance facilities on board the vessels and the lack of knowledge of fish handling and post harvest practices. Most multi-day

boats still aim at higher volumes and only a small portion of the landings meet the international quality standards. This has serious implications on the export trade, local supplies of fresh fish and producer prices. Post-harvest value losses are estimated to be around 30% and the prevention of these losses is a major problem that needs to be addressed without delay.

4. Despite Sri Lanka's strategic position in the Indian Ocean with the easy access it has got to Tuna resources as well as to the consumer markets in Europe and Japan Sri Lanka has not been able to utilize the resources in the high seas. Particularly in view of the limits to production increases in the coastal fishery it is imperative that Sri Lanka develops her capabilities in high seas fishing.

5. The conflict in the north and the east (which accounts for around 60 % of the total coastline of the island) has had very adverse impacts on the production performance of the sector during the past two decades. The damaged infrastructure and facilities as well as the curtailment of fishing activities arising both from the dislocation of fishermen & the restrictions imposed on fishing on security grounds has resulted in a considerable fall in production. Moreover the numerous field interventions in the recent past did not materialize due to the non-conducive ground situation in the areas concerned.

6. Inadequate application of fishing technologies - particularly in offshore and deep sea tuna fishing and in aquaculture - has prevented the optimum harvesting of these fish resources. Moreover the non-application of post-harvest technologies has constrained the possibilities for fish processing and value addition in order to obtain higher incomes.

7. Despite a conducive natural environment in the form of water bodies and suitable land resources being inland fisheries and aquaculture has been slow in developing largely due to constraints such as the inadequate stocking levels and their low social acceptance. In addition this, the sub-sector has been handicapped by sudden policy changes (e.g. 1990 withdrawal of state patronage) as well as certain religious and cultural prejudices as well environmental concerns.

8. Poor fisheries infrastructure particularly the under-equipped and badly maintained fishery harbours has considerably slowed down the development of offshore and high seas tuna fishing while inadequate ice production and storage and transport facilities have constrained the efforts at value addition, quality improvement and the improved distribution of fish.

9. Difficulty in conducting an effective Monitoring, Surveillance and Control (MCS) programme in the Exclusive Economic Zone due to non-availability of an efficient coast guard service and a vessel monitoring system has affected fisheries management. It can also lead to illicit, unregistered and unreported (IUU) fishing.

10. Inadequate investments in the sector has prevented the introduction of large sized and well equipped boats capable of exploiting the resources in the offshore and high seas. Further as a result of low investment the establishment of much needed infrastructure facilities such as better storage, net and line hauling gear and safety and communication equipment in the existing fleet has not materialized. Investments in the small scale sector too have suffered owing to the lack of development oriented credit schemes and this has led to low incomes and persistence of indebtedness.

11. Inadequate research, training and extension has resulted in the underutilization of resources particularly in coastal fishing where diversification of fishing methods is a dire need to harvest the currently unexploited and underexploited species. In addition it is necessary to utilize the landings in a manner that will prevent post harvest losses. In inland capture fishing and fish farming too extension efforts are yet ineffective particularly in stepping up fish seed production which is a critical factor in

the stocking of water bodies to increase inland water fish production.

12. Degradation of the coastal and marine environment which includes coastal pollution and the threats to the sustainability of coastal habitats has emerged as a major problem adversely affecting the fishing industry. This issue needs to be addressed as a matter of high priority.

13. Tsunami waves which struck the coastline Sri Lanka in 2004 badly devastated the fishing industry reversing much of what was achieved in the fisheries in the past two decades. It destroyed 54% and damaged 23% of the fishing craft with most of the engines and gear. It destroyed 10 of the 12 fishery harbours and damaged most of the infrastructure. It also destroyed 16,500 and damaged 13,500 fishermen's houses. As a result fish production fell by 40% in 2005. While much has been done to rehabilitate the industry further efforts are needed within the Ten Year Plan period.

14. Inadequate infrastructure facilities such as fishery harbours that can accommodate multi-day vessels has limited the development of fisheries in the North and the East.

#### 4. Policy Measures

Policy measures which are required to address the above issues/problem areas are set out in MATRIX 1 below:

##### **Matrix 1 - Problem and Policy Measures**

Issue/Problem	Identified Policy Measures
1. Non-availability of reliable resource data	1.1 Give Priority for surveys on fisheries and aquatic resources, stock assessments and exploratory fishing 1.2 Disseminate findings on resource among the fishing operators and other stakeholders 1.3 Undertake preparation and updating marine charts /maps and educate the fishers on their use 1.4 Intensive monitoring of fish catches
2. Weak Fisheries Management	2.1 Promote the principles of responsible fisheries 2.2 Promote co-management of fisheries through participatory management plans 2.3 Improve the fisheries management framework by amending and updating the fisheries laws and regulations 2.4 Enforce fisheries laws and regulations and prevent the use of undesirable & destructive gears & methods 2.5. Create awareness on the need for, and fisheries management practices 2.6 Reduce fishing pressure on coastal fisheries by diverting excess pressure to under-exploited areas 2.7 Strengthen Community Based Organizations i.e. fisheries co-operative organizations to play an active role in management
3. Considerable post- harvest value losses and	3.1. Improve boat designs in order to incorporate better fish holds and equipment for fish preservation and quality assurance

Harvest value losses and poor marketing & transport	<p>3.2. Introduce and promote better fish handling on board vessels</p> <p>3.3 Establish a cold chain covering fishery harbours/anchorage and fish transport</p> <p>3.4. Promote use of hygienic and stackable boxes for fish storage &amp; transport</p> <p>3.5 Provide improved facilities for sorting / handling /packing offish at landing centers</p> <p>3.6 Ensure and promote the use of quality ice and clean water in fish handling/transport.</p> <p>3.7 Build awareness on good fish handling/post harvest practices through training, demonstrations &amp; incentives</p> <p>3.8 Encourage the use of speedy boats to enable the fish to be landed without delay.</p>
4. Non-exploitation of High seas Resources	<p>4.1 Encourage local multi-day fishing vessels to fish in high seas</p> <p>4.2 Arrange for the harvesting/production/supply of bait for tuna long line fishing</p> <p>4.3 Develop co-operation with regional fisheries management organizations</p> <p>4.4 Introduce better designs of boats equipped for high seas fishing with better storages, safety and communication facilities and specify guidelines for their production</p> <p>4.5 Promote bilateral agreements with neighbouring countries to gain access to high seas</p> <p>4.6 Development of one east coast harbour to attract international fishing vessels</p> <p>4.7 Promotion of joint ventures</p>
5. The conflict in the North and the east	<p>5.1 Give priority to the conflict affected fisheries in the N &amp; the East.</p> <p>5.2 Make arrangements for re-location of the displaced fishers in their own villages</p> <p>5.3 Rehabilitate the damaged infrastructure and facilities for production and Marketing</p>
6. Inadequate application of fishing Technologies	<p>6.1 Promote long-lining for harvesting deep swimming tuna</p> <p>6.2 Introduce new methods and gears to harvest exploitation of unexploited and under-exploited species</p> <p>6.3 Introduce and promote fish seed production technologies among</p> <p>6.3 Introduce and promote fish seed production technologies among Communities</p> <p>6.4 Improve and promote appropriate technology for post harvest processing &amp; value addition</p>
7.Slow pace of inland fisheries and aquaculture	<p>7.1 Protect the rights of inland fishers to fish in irrigation reservoirs</p>



	<p>7.2 Encourage the use of poly filament nets through incentive schemes</p> <p>7.3 Accelerate the process of the formation of Management Committees in Major and Medium scale inland reservoirs</p> <p>7.4 Provide fibre glass boats and fishing gear on concessionary terms in association with Provincial Councils</p> <p>7.5 Identification and provision of potential lands with gravity-fed water to commence commercial freshwater fish aquaculture</p> <p>7.6 Develop aquaculture as an environment friendly, socially acceptable and market driven industry</p> <p>7.7 Encourage investors to commence aquaculture with community participation</p> <p>7.8 Integration of inland fisheries and aquaculture with other line agencies such as Agriculture and Mahaweli Development Ministries, Agrarian Service, Dept: of Irrigation by introducing new legislation</p> <p>7.9 Promote development of shrimp culture in accordance with zonal plans and best management practices in north eastern coastal areas.</p>
8. Inadequate and poorly managed & maintained fisheries infrastructure	<p>8.1 Involve stakeholders in the establishment &amp; operation of infrastructure facilities such as harbours, anchorages, minor fish landing sites, coastal protection structures etc.</p> <p>8.2 Strengthen facilities of the CFHC for proper maintenance of harbours</p> <p>8.3 Develop public-private partnerships to obtain the participation of the private sector for provision of services such as cold storage, ice supply, water supply, slipway facilities etc.</p> <p>8.4 Provide common infrastructure facilities for shrimp farming</p>
9. Illegal, Unregistered and Unreported (IUU) Fishing	<p>9.1 Install a vessel monitoring system to track the movement of vessels within EEZ</p> <p>9.2 Establish an efficient MCS System</p> <p>9.3 Set up an effective Coast Guard Service</p> <p>9.4 Obtain the participation of the fishers for obtaining information and for preventing unauthorized fishing activities</p>
10. Inadequate investments in the sector	<p>10.1 Obtain foreign assistance to build and expand capital intensive infrastructure</p> <p>10.2 Encourage the private sector to undertake infrastructure facilities (fishery harbours) on "build, operate and transfer terms,</p> <p>10.3 Arrange for channelling of development oriented credit facilities through the banking/financial institutions</p> <p>10.4 Provide investment rebates/subsidies on selected activities</p>

	such as high seas/offshore fishing, aquaculture and production of industry inputs (boats, fishing gear, engines, machinery equipment and ice)
11. Inadequate research, development, education and extension support	<p>11.1 Give priority for applied fisheries research</p> <p>11.2. Strengthen the network of extension services in order to disseminate Research findings /information and technology among the fisher community &amp; other stakeholders</p> <p>11.3 Obtain assistance from national &amp; international organizations in manpower development</p> <p>11.4 Strengthen the Information, Education and Communication service</p> <p>11.5 Upgrade the degree awarding wing of the National Institute of Fisheries and Nautical Engineering into the proposed <i>Sagara Vishvavidyalaya</i> (Ocean University).</p>
12. Degradation of coastal and aquatic Environment	<p>12.1 Implement the provisions of the revised Coastal Zone Management Plan.</p> <p>12.2 Rehabilitate the coastal &amp; aquatic environment affected by shrimp farming activities.</p> <p>12.3 Promote the culture of marine and brackish water fish including ornamental fish to reduce pressure on natural stocks</p> <p>12.4 Protect erosion prone coastal stretches through sand nourishment, coast protection structure or vegetation</p> <p>12.5 Implement programmes for conservation and protection of Coastal/marine habitats</p> <p>12.6 Introduce alternative livelihoods to reduce pressure on the coastal environment</p>
13. Damage caused by the Tsunami	<p>13.1. Rehabilitate tsunami -affected fisheries on the "build back better" principle</p> <p>13.2 Complete the replacement and rehabilitation of assets destroyed/damaged by tsunami.</p>

## 5. Baseline performance indicators

Some of the key measurable indicators of progress in the fisheries sector which have been identified in relation to the policy objectives stated above and which need to be achieved during the Ten Year Plan period are the following:

1. Level of Fish Production (by sub-sectors)
2. Per capita availability of fish and fish products based on local production
3. Contribution of the fisheries sector to the Gross Domestic Product
4. Export earnings from the sector and contribution to the national export earnings.
5. Employment generated through fishing and associated activities
6. The composition of the fishing fleet with a productivity improvement orientation.
7. The state of infrastructure development

8. Protection of the coastline and the improvement of the coastal environment

## 5. 1 Expected Targets relating to the key measurable indicators

### 5.1.1 Projections of Fish Production (by sub-sectors)

The magnitude of the national fish production that can be achieved depends on the harvesting levels in the three sub-sectors viz. coastal, offshore/deep sea and inland fisheries and aquaculture. Such levels in turn would depend on the resource availability, the level of effort based on the craft and fishing nets and gear in capture fisheries and fish seed and feed in culture fisheries. In both these major areas of fish production the availability of supporting infrastructure and facilities will be a key determining factor as is also a conflict free atmosphere conducive to the implementation of planned development work.

**The level of fish production in the base year (2004) was as indicated in Table 1. below:**

**Table 1: Fish Production 2004 by sub-sectors**

Sub sector	Production (tons)	% share of production
Coastal	154,470	54%
Offshore & deep sea	98,720	34%
Inland Fisheries & Aquaculture	33,180	12%
TOTAL	286,370	100

#### Coastal fish production

Coastal fisheries sub-sector has always made the largest contribution to national fish production. This will continue to be so in the Plan Period as well. It is expected that the coastal sub-sector's contribution to marine fish production will be around 220,000 t by 2016. According to *Frijofl Nansen* Surveys (1979-80) the total maximum annual sustainable harvestable yield from the coastal area is 250,000 tons comprised of 170,000 t pelagic fish and 80,000 t of demersal fish. The highest production ever achieved in the coastal sub-sector was 184,049 (1983); production in this sub-sector in 2004 was much less i.e. 154,470 t. Thus though there appears to be scope for increasing production in the coastal sub-sector, in view of the uncertain resource picture it is necessary to adopt a "*precautionary approach*" in aiming at production increases. Hence the net addition to the coastal fleet will be kept at the minimum level possible and increases will be discouraged in the case of Non-motorized traditional boats and beach seines. Thus the strategy that will be used to increase coastal fish production would be to (1).promote the harvesting of underexploited and unexploited species by diversifying gears and methods and by (2).improving the productivity of the existing vessels. On this basis, the production in the coastal fisheries sub-sector will increase from approximately from 181,000 to 220,310 over the plan period which is well within the estimated maximum sustainable yield. The variations in the size of the marine fishing fleet over the ten year period 2007-2016 and the projections of production are given in Table 2.

#### Offshore fish production

Multi day fishing: Multi-day fishing has been the fastest growing fishing activity in the marine sector in the recent past. While there were 1,581 multi-day fishing boats in 2004 the latest craft census has indicate the existence of 2,340 operating multi-day boats at the end of 2006. The Multi-Day fleet will

need to be expanded with the introduction of slightly bigger sized boats with better storage facilities, safety/communication equipment and net/line haulers. The projected net increase in the multi-day fleet over the plan period is 735 boats and the landings by expanding the multi-day fleet is expected to increase from 94,620 t in 2004 to 140,000 t i.e. by 49% by the end of the Plan period in 2016.

### Fishing in the High Seas

There is scope for increasing fish production by harnessing resources in the deep sea area as well as in the high seas (beyond the EEZ). Sri Lanka has not been able to make effective use of the high value tuna and other resources in the international waters due to the non-availability of fishing vessels with the requisite capabilities. Hence it is planned to introduce 100 units of a new class of boats of over 24 meter length complete with line haulers, refrigeration equipment/storages, safety/navigation! Communication equipment, accommodation and facilities for crews in line with international regulations. These will be introduced either under public-private partnerships or under private ownership under a phased programme. The first batch of three boats will be made operational during 2008. Each of these vessels are expected to produce 250 tons per year of high value fish mostly tuna. A Fleet Development Plan (FDP) as required by the Indian Ocean Tuna Commission (IOTC) seeking inclusion of these boats in the IOTC's Vessel Registry needs to be submitted to the IOTC without delay lest Sri Lanka gets left behind in the race for tuna quotas.

Summary of Marine Fish Production Projections is given in Table 2 below.

**Table 2: Fleet Composition, projections of marine sub-sector production - 2006-2016 (Quantity – Tons)**

Year	High Seas Boats	Multi day Boats	One Day Boats	Out Board 6-8 m FRP	Motorized Trad: boats	Non-Mot: Traditional Boats	Beach Seine Boats	Total Marine Production
2004 – No of boats	-	1581	1,493	11,559	674	15,260	900	
Catch	--	98,720	29,190	82,070	2,140	24,400	16,668	253,188
2006 – No of boats	11	2,394	907	16,685	1,842	15,714	633	
Catch	1,375	94,620	13,390	65,640	6,860	25,220	10,240	217,349
2007 – No of boats	10	2,454	1,085	15,016	2,188	16,000	990	
Catch	1,250	122,700	19,530	135,144	9,846	40,000	19,800	348,270
2008 – No of boats	13	2,529	1,110	15,016	2,213	16,000	990	
Catch	2,000	126,450	19,980	135,144	9,958	40,000	19,800	353,332
2009 – No of boats	19	2,604	1,135	15,016	2,238	16,000	990	
Catch	3,375	130,200	20,430	135,144	10,071	40,000	19,800	359,020
2010 – No of boats	26	2,679	1,160	15,016	2,263	16,000	990	
Catch	5,125	133,950	20,880	135,144	10,183	40,000	19,800	365,082
2011 – No of boats	42	2,754	1,185	15,016	2,288	16,000	990	
Catch	9,000	137,700	21,330	135,144	10,296	40,000	19,800	373,272
2012 – No of boats	52	2,829	1,210	15,166	2,313	16,000	990	
Catch	11,500	141,450	21,780	136,494	10,408	40,000	19,800	381,482
2013 – No of boats	63	2,904	1,235	15,316	2,338	16,000	990	
Catch	14,125	145,200	22,230	137,844	10,521	40,000	19,800	389,728
2014 – No of boats	83	2,979	1,260	15,466	2,363	16,000	990	
Catch	19,125	148,950	22,680	139,194	10,635	40,000	19,800	400,112
2015 – No of boats	94	3,054	1,285	15,616	2,388	16,000	990	
Catch	21,750	152,700	23,130	140,544	10,746	40,000	19,800	408,670
2016 – No of boats	114	3,129	1,310	15,766	2,413	16,000	990	
Catch	<b>26,750</b>	<b>156,450</b>	<b>23,580</b>	<b>141,894</b>	<b>10,858</b>	40,000	<b>19,800</b>	<b>419,152</b>
Production by sub-sector		<b>183,020</b>			<b>236,132</b>			

As the above table shows, the composition of the marine fleet will undergo a slight variation with the absolute number of offshore/deep sea & high seas vessels increasing by 838 i.e. by 34% over the ten year period while the coastal vessels will increase only by 698 i.e. by less than 2 %.

The contribution of the high seas/offshore sub-sector in terms of volume will increase from 95,995 t to 183,020 t i.e. by 90% over the ten year period while the production in the coastal sector will increase by nearly 114,000 t This apparent high increase is due to the very adverse impact of the tsunami which dragged down coastal fish production to a very low ebb in the two years 2005-2006. This ten year target for coastal fish production is in line with the resource limitations in the coastal sub-sector. The details of the fishing boats under the different categories, the estimated catch rates and the relative contributions from the two marine fisheries viz. coastal and offshore/high seas are shown in Table 2 above.

### **Inland Fisheries and Aquaculture Production**

As shown under resources Sri Lanka possesses suitable and abundant water and land resources for the development of a viable inland fishing and aquaculture industry. After a setback in the early 1990s, this sub-sector has been rejuvenated with the re-establishment of the Inland Fisheries Division (1994) and the setting up of the National Aquaculture Development Authority (1999). The Asian Development Bank funded Aquatic Resources Development and Quality Improvement

Project (ARDQIP) is supporting NAQDA in developing freshwater capture fisheries and aquaculture up to 2009. This Project's main interventions directly impacting on production increases are in culture based fisheries in minor reservoirs and seasonal tanks and fish seed production. Through the implementation of these activities, total carp and tilapia production of all enterprises will increase up to 45,223 t at full development of the ARDQIP by the year 2009. Thereafter, a rather conservative annual growth rate 00 % has been applied up to 2016 to forecast production up to 2016. On this basis, the volume of inland and aquaculture fish production will be more than double over that of the base year (35,200 t in 2006) up to 74,500 t by 2016).

Total Fish Production 2007-2016: Projected fish production from all three sub-sectors over the ten year period 2007-2016 computed on the basis of the assumptions made above is summarized in table 3 below:

**Table 3: Projected National Fish Production (tons)**

<b>Year</b>	<b>Coastal</b>	<b>Offshore/High Seas</b>	<b>Inland Fish: &amp; aquaculture</b>	<b>Total Fish Production</b>
2004	154,470	98,720	33,180	286,370
2006	121,350	95,999	36,530	253,879
2007	224,320	123,950	40,900	389,170
2012	228,482	153,000	55,700	437,182
2016	236,132	183,020	74,450	493,602

Fish production trends over the plan period will thus be as follows:

- Coastal – 121,350 t. to 236,120. - 94 % increase
- Offshore/High seas – 95,999 t. to 183,020 t.- 90% increase

- Inland & aquaculture -36,530 t. to 74,450 t. - 104% increase
- Total production – 253,879 t. in 2006 to 493,602 t. - 94% increase overall

Fish production given above is the most critical indicator since all other indicators such as the per capita availability, contribution to GDP, export value and contribution to national export value are all dependent on the performance in fish production

### 5.1.2 Per capita availability of fish and fish products based on local production

The Annual per capita supply of fish and fishery products in the recent past inclusive of imported dried fish and canned fish has varied between 17.5 kg and 18.5 kg. However in measuring the performance of the fisheries sector the more useful index is the supply of fish from local production. In 2004 this was 14.31 kg and an improvement of this index is aimed to be achieved during the plan period.

Table 4 below shows that if the expected fish production targets are met and the export targets do not exceed, the per capita availability of fish from local production will go up by 50% from 14 kg to 22 kg. (i.e. by 22% over the average before the Tsunami).

**Table 4: Per Capita Fish Supplies based on local production (check)**

Year	Local fish Production (tons)	Export exports (tons)	Local Production less exports (tons)	Population	Per capita supply Availability (kgs)
2004	286,370	13,680	272,690	19,050,331	14
2007	389,170	21,300	367,870	19,356,739	19
2012	437,182	29,788	407,394	19,746,982	21
2016	493,602	45,432	448,170	19,985,012	22

This would mean that considerable volumes of imported fish products (canned fish and dry/cured fish) could be reduced thereby saving valuable foreign exchange. At the same time it would enable export volumes of fish to be increased without much adverse impacts on the local supplies and local fish prices. The combination of these two would result in a trade balance in fish and fish products which will be favourable to Sri Lanka.

### 5.1.3 Contribution of the fisheries sector to the Gross Domestic Product

The sector's contribution to GDP has varied between 1.9 - 2.5 per cent during the past four years; the value of fish production in 2004 was Rs. 33,812 million which was 1.90 % of the GDP. It is necessary that this contribution be raised to a minimum of 4% over the ten year plan period and thus contribute towards the achievement of the country's overall economic growth targets for the same period.

The value of fish production as computed by the Central Bank for the last 4 years has been based on an average price of Rs. 175 per kg. Though this may be realistic at present, the average unit price of fish is expected to increase sharply on account of the change in the product-mix between the low and high valued fish. This is due to (I).increased landings of high value fish from the offshore/high seas resulting in a relatively higher percentage of high value fish (skipjack, yellow fin and big eye tunas and billfishes; (2). expected overall improvement in the quality of landings of marine fish; &, (3).

aquaculture development that will result in more high value items such as shrimp, red tilapia, crab etc. Thus regardless of any inflationary impacts a more realistic average unit price would be Rs. 300 per kg. Based on this the value of the total projected production of 493,602 t will be around Rs.138,587 million. Based on the available GDP projections the fisheries sector's contribution to GDP will be close to 4% of the GDP by 2016 (projected GDP in 2016 being Rs.3,600,746 m).

#### **5.1.4 Fisheries Exports-volumes and foreign exchange earnings**

Fisheries sector has emerged as an important source of foreign exchange through the export of several items of high value fish and fishery products such as chilled and frozen tuna, and products such as shrimp, lobsters, shark fins and sea cucumber. The total value of fishery-based exports has consistently been rising and there are bright prospects for increasing the volumes as well as the values over the ten year period. The projected increases are as follows:

- Export volume will more than treble from a base level 13,639 t in (2001-4) to around 45,432 t in 2016;
- Projected export value in 2016 will be more than fourfold over the 2004 level of Rs.9,176 million.

The assumptions used in projecting exports volumes were:

- Frozen & Chilled fin fish – it is assumed that the quantity of fish exports will 12% of the catches from the offshore and high seas in the first three years (i.e. 2007-2009); this will increase to 15% in the three years (2010-2012) and 20% in the last four years (2013-2016). These increases will materialize through quality improvements resulting from the numerous measures proposed to be implemented during the plan period. This is a conservative estimate since there will be progressively increasing exports from the coastal landings.
- Shrimp - a modest rate of increase of only 3 % per annum in view of diseases (prawn farming), limited scope for increasing captured shrimp volumes;
- Increase of 1 0% per annum in the case of crab (with fattening getting more popular), shark fins; (a by-product of the expanding offshore/high seas fishery), cuttlefish and squid (which are planned to be specifically targeted);
- No increase expected in the case of beche-de-mer, lobsters and chank (now under management or under consideration for management); and
- Ornamental fish a minimum of 10% increase per annum

In order to attain these export targets more attention has to be paid to improvement of fish handling on board, on shore and in marketing. These include the use of devices such as Refrigerated Sea Water systems, better use of quality ice in preservation and transport, use of clean water in cleaning of fish, improved boat designs to ensure better storage facilities, provision of toilets in boats, use of better fish handling practices. A cold chain consisting of ice plants and cold rooms has to be established in harbours and anchorages while the use of hygienic fish boxes and refrigerated /insulated trucks needs to be promoted in fish transport while the industry and the fishing operators have to be made aware of better fish handling practices through educational/training programmes & demonstrations.

#### **5.1.5 Employment generated through in fishing and associated activities**

Fishing has been the most important economic activity in the coastal areas of the country, while in the hinterland large numbers have engaged in capture fishing in the reservoirs in the dry zone and in prawn farming (in coast areas) and other forms of aquaculture for producing ornamental fish and food

fish. According to NARA in addition to 150,000 engaged directly in fishing activities a further 500,000 persons were reported to be employed in fish trade and other fishery related economic activities. The employment scenario over the next decade is expected to be as follows:

**Table 5: Employment in the sector**

Category	Base year (2004)	2016
Direct Livelihoods	150,000	165,000
Indirect (Fishery related activities)	100,000	125,000
State services	5,000	5,500
Self-employment (fish trade, services, etc)	400,000	500,000
<b>Total</b>	<b>655,000</b>	<b>795,000</b>

Thus the expected increase in employment is 140,000 which is 21 % over the base year.

The direct employee category is expected to expand by a minimum of 10% as a result of the additional large vessels (for high seas/offshore fishing) and inboard motorized day boats and due to new inland and aquaculture activities including fish seed production.

In the indirect category which includes fisheries associated activities (such as boat building, fish net manufacture, ice production, fish processing/curing, and in providing other services required by the industry such as transport, supply/distribution of engines hulls etc) a 25% expansion is projected. It is in the self-employment category that the highest increase is envisioned. This category relates to the services by the informal sector and includes activities such as fish trade & marketing, icing, packing and transport and whole gamut of other services.

### **5.1.6 Infrastructure development**

There are 12 fishery operational harbours i.e. in Mutwal, Panadura, Beruwala, Hikkaduwa, Galle, Mirissa, Puranawella, Kudawella, Tangalle, Kirinda, Trincomalee (Cod-bay) and Kalpitiya while three more viz. Hambantota, Ambalangoda and Chilaw are under construction. In addition there are 35 anchorages and about 600 minor fishing centers in Sri Lanka. The harbours which got badly damaged by the tsunami are now being re-built and will be completed towards the end of 2007-2008. Since most of the harbours are designed to service small vessels some of them will be re-developed to cater to the requirements of the planned high seas vessels. Further a new harbour to support a high seas fleet is to be built at Dickowita. Among the other infrastructure facilities planned are expansion production and the cold storage capacities to meet the island's requirements and provide a "cold chain" in support of the industry. The introduction of a micro-chip traceability system will also be used to track the movements within the transport chain while the areas in the harbours areas will be zoned for different activities and ensure the maintenance of fish quality which leaves the harbours. In marketing, the key investment in the first two years of the plan period will be the construction of a modern fish market complex at Peliyagoda.

To take care of the needs of the smaller fishing boats/operators initially around 150-200 fish landing centers will be rehabilitated/developed. These will contain facilities for secure storage of engines and gear, fish/ice stores, fish handling areas and auctioning facilities, rest rooms & net mending areas, clean water, electricity, sewage facilities and access roads leading to the sites. The supply of fishing inputs will be increased by expanding the fish net production capacities, improving boat building capacities and assembly/manufacture of marine engines.



### 5.1.7 Social and Community Development

Under this Plan very high priority will be accorded to the improvement of the social infrastructure available to the fishing families and the coastal inhabitants. This would include assisting fishing families to own the houses they live in, enhancing the education and health facilities available to them, strengthening their organizations such as the co-operative societies to provide the members with requisite services in relation to credit, fishing inputs, marketing etc. The provision of basic amenities such as water, electricity, access roads will also be ensures wherever possible in conjunction with the development of village level landing sites and anchorages. The Ministry will take the initiative in introducing schemes to bring fishing families under more effective social security and insurance against natural calamities and setting up a Disaster Fund.

### 5.1.8 Protection of the coastline and the improvement of the coastal environment

Sri Lanka has a coastline of around 1600 km and there are several coastal environmental issues impacting on fisheries. Coastal erosion is the most critical among these since it adversely affects the beaches on which most of the fishing related activities of the small scale sector are based; thus erosion imposes negative impacts on fish production and on fishermen's living conditions. Beaches are essential for landing of fish and parking of traditional craft and small outboard motorized boats, beach seine fishing, rigging/repairing/drying/cleaning and storage of nets and the construction of basic facilities required for cleaning/sorting/auctioning of fish. In addition, the coastal habitats such as mangroves, sea grass beds, coral reefs and estuaries are among the most productive eco-systems and play a major role in supporting fisheries and these need to be conserved and protected. Further the dynamics of fishery resources in the near shore marine waters and coastal water bodies such as lagoons and estuaries are closely interlinked with the dynamics of the rest of the Coastal Zone, its resources and resource use. The multiplicity of uses of the Coastal Zone often leads to conflicts among resource users causing social tension.

In this context a multi-sectoral approach best achieved through Integrated Coastal Zone Management is required. The Coast Conservation Department (CCD) attempts to achieve this through the policies and action programmes envisaged under the Coastal Zone Management Plan (CZMP). The major programmes in support of a better Coastal Environment are the protection/stabilization of erosion prone beaches, establishment of beach parks, prevention/minimization of coastal pollution (including water pollution), preparation of shoreline development plans, implementation of Special Areas Management Plans in ecologically sensitive coastal sites and the conservation of coastal habitats. These will form an integral component of the Fisheries Sector Plan.

### 5.1.9 Projections of the key measurable Indicators

A summary showing the baseline status as well as the targets related to the identified key indicators of performance in the sector is given in Table 6 below:

**Table 6 Summary of Measurable Indicator Targets 2007-2016 (check)**

Year	Fish Production (Details in Table 8)	Per capita availability of fish & fish products based on local production kg	Export Earnings Rs. Mn	Export Volume Mt	Contribution to GDP Rs Mn	Employment No: of persons	Expansion of the HS/Offshore fleet – Boats
2004	286,370	14	9,176	13,680	33,812	655,000	1,581
2007	335,466	19	19,321	21,300	67,540	685,500	2,464
2012	450,782	21	27,011	29,788	106,821	692,512	2,881
2016	461,959	22	41,147	45,432	138,587	795,000	3,243

## 6. Implementation of the Plan

Matrix 2 given below indicates the main targets relating to the sector policy objectives as well as the strategies and actions needed to achieve targets and thereby the policy objectives:

### 6.1 Strategies and Activities needed in support of the sector policies in order to achieve targets

**MATRIX 2**

Policy Objectives	Targets	Strategies/Actions
I. To improve the nutritional status and food security of the people by increasing the national fish production	1.1 Coastal fish production increased to 236,132 tons	1.1.1 Conduct of a comprehensive marine fish resource survey on selected fisheries 1.1.2 Replace One Day (inboard engine powered) boats affected by the tsunami on an urgent basis. 1.1.3 Ensure speedy and quality production of vessels and the availability of engines (for 1.1.2 above) 1.1.4 Ensure availability of nets/lines 1.1.5 Promote harvesting of demersal finfish 1.1.6 Introduce methods and provide facilities to harvest currently underutilized/untargeted species. 1.1.7 Introduce credit schemes to enable introduction of new One Day boats and for replacement of other boats and to provide working capital 1.1.8 Implement a co-management programme under the principles of "responsible fishing" 1.1.9 Development of anchorages and minor landing sites 1.1.10 Management of fish landing centres preferably by fisheries co-ops/CBOs to provide the requisite services
	1.2 Offshore fish production increased to 156,450 tons	1.2.1 Replace balance multi-day boats destroyed by tsunami on urgent basis 1.2.2 Introduce 750 additional multi-day boats 1.2.3 Introduce credit schemes to enable additions and replacements of multi-day boats. 1.2.4 Increase capacity of and quality of local boatyards 1.2.5 Ensure availability of nets/lines 1.2.6 Promote the use of net & line haulers 1.2.7 Promote expansion technology 1.2.8 Set up a Coast Guard Unit as an operational unit under the Navy. 1.2.9 Introduce and operate collector vessels in combination with long line fishing. 1.2.10 Set up a cold chain to cover the preservation and marketing of fish to enable reduction of post harvest losses

	<p>1.3 High seas production increased to 26,750 tons.</p>	<p>1.3.1 Formulate Fleet Development Plan for high seas fishing</p> <p>1.3.2 Facilitate obtaining IOTC tuna quotas where need arises</p> <p>1.3.3 Introduce 100 large boats above 24 meters</p> <p>1.3.4 Conclude umbrella agreements for fishing in outside waters</p> <p>1.3.5 Promote Public-Private partnerships/ private investment to introduce new High seas boats</p> <p>1.3.6 Train crews capable of operating the HS vessels and enable acquisition of certificates</p> <p>1.3.7 Support high seas fishing through the provision of infrastructure.</p>
	<p>1.4 Inland Fisheries and Aquaculture production increased to 74,450 tons.</p>	<p>1.4.1 Increase fish production in minor perennial reservoirs and seasonal tanks through culture based fisheries.</p> <p>1.4.2 Increase Indian Carp production through stock enhancement programmes in major and medium perennial reservoirs.</p> <p>1.4.3 Increase supply of fish seed for stock enhancement by rehabilitating Government Centers and construction of mini nurseries to be operated by Community based Organizations (CBOs).</p> <p>1.4.4 Strictly implement community based fisheries management in perennial reservoirs</p> <p>1.4.5 Promote the efficient collection of catch statistics from perennial reservoirs</p> <p>1.4.6 Promote commercial aquaculture through public/private sector participatory demonstration projects in collaboration with SME banks.</p> <p>1.4.7 Promote carp culture in estate tanks.</p> <p>1.4.8 Rehabilitate the prawn farming industry in the north western province by continuation of dredging of the “Dutch Canal” and the imposition of Best Management Practices.</p> <p>1.4.9 Promote establishment of shrimp farming activities in the North Eastern coastal belt.</p> <p>1.4.10 Increase culture diversity in coastal aquaculture</p> <p>1.4.11 Undertake aquaculture research &amp; development in collaboration with research agencies</p>
<p>2.To minimize post -harvest losses and improve quality and safety of fish products to acceptable standards</p>	<p>2.1 Eliminate post-harvest value losses in offshore fishing, inland fishing &amp; aquaculture</p>	<p>2.1.1 Introduce refrigeration/fish holds on coastal inboard engines and multi-day vessels</p> <p>2.1.2 Encourage 6-8 m FRP boats to carry ice and insulated boxes on fishing trips</p> <p>2.1.3 Improve practices of onboard fish handling</p> <p>2.1.4 Disseminate better fish handling/stacking techniques</p>

		<p>2.1.5 Encourage the use of value-adding post harvest technology</p> <p>2.1.6 Promote cold storage facilities in major inland fish landing sites</p> <p>2.1.7 Set up a cold chain to cover the preservation and transport of fish.</p>
	2.2 All fish landing points provided with basic facilities	<p>2.2.1 Provide clean water at landing centers</p> <p>2.2.2 Provide paved areas for sorting/washing of fish and facilities for effluent disposal</p> <p>2.2.3 Provide ice and fish storage facilities and landing centers.</p>
	2.3 Fish marketing and distribution systems modernized	<p>2.3.1. Establish a state-of-the art central fish market</p> <p>2.3.2 Expand the net work modern/hygienic fish retail outlets</p> <p>2.3.3 Promote the use of stackable and washable fish boxes in fish transport</p> <p>2.3.3 Introduce Micro-chip traceability system to track quality of fish transported</p>
3. To increase employment opportunities in fisheries and related industries and improve the socio-economic status of the fisher community.	3.1 Promote fisheries based economic activities	<p>3.1.1 Set up three fish canneries</p> <p>3.1.2 Introduce improved techniques for /curing/during of fish</p> <p>3.1.3 Promote economic uses offish waste</p> <p>3.1.4 Resurrect traditional Fish/curing &amp; preservation primarily for <i>elite</i> urban markets</p> <p>3.1.5 Promote recreational fishing collaboration with the tourism sector</p> <p>3.1.6 Promote commercial aquaculture ventures in collaboration with SME banks</p>
	3.2 Promote fishery related activities such as the production of fishery inputs	<p>3.2.1 Set up new fish net making plants or/and expand existing ones</p> <p>3.2.2 Set up new ice plants and cold rooms</p> <p>3.2.3 Encourage manufacture/assembly of marine engines</p> <p>3.2.4 Expand boat production capacities</p>
	3.3. Establish income generating activities among coastal fishing communities .	<p>3.3.1 Strengthen CBOs to organize and support Income generating activities.</p> <p>3.3.2 Strengthen women groups in fishing communities and encourage them to promote savings</p>
	3.4 Improve the living conditions and quality of life of fishing families	<p>3.4.1 Provide requisite amenities and facilities conducive to livelihood development and better quality of life of the fishers</p> <p>3.4.2 Set up 10 model fishing villages replete with amenities and facilities</p>
4. To increase foreign exchange earnings from fish products	4.1 Fish exports increased to 28,000 Mt. by volume and Rs. 18,000 million by value	<p>4.1.1 Promote practices and techniques of fish quality maintenance onboard fishing vessels</p> <p>4.1.2 Establish quality infrastructure facilities at fishery harbours</p> <p>4.1.3 Provide incentives to exporters tied to performance</p> <p>4.1.4 Promote culture of marine ornamental fish</p>

		4.1.5 Promote culture, harvesting, collection and value addition of new varieties of fish crustaceans and molluscs and aquatic plants for exports
5. To conserve the coastal and aquatic environment.	5.1 Develop & Stabilize coastal stretches.	5.1.1 Implement artificial beach nourishment measures 5.1.2 Construct coastal protection structures 5.1.3 Expand the green belt on the coastline with the participation of communities/coastal inhabitants 5.1.4 Formulate and implement shoreline management plans 5.1.5 Prevent sand and coral mining/damaging reefs 5.1.6 Establish and maintain coastal information system
	5.2 Improve the quality of coastal environment and lagoons	5.2.1 Enhance the recreational & aesthetic value of coastal areas 5.2.2 Strengthen the enforcement procedure 5.2.3 Promote & implement appropriate sewerage and waste management system in the underserved coastal areas 5.2.4 Formulate and implement coastal inlet management programme 5.2.5 Improve the lagoon environments for economic benefits
	5.3 Conserve critical coastal habitats	5.3.1 Implement “Special Area Management Plans“ at high priority sites identified in the 2004 CZMP 5.3.2 Survey and demarcate lagoon and estuary boundaries and establish reservations 5.3.3 Control spreading of invasive plants in high priority land & aquatic areas 5.3.4 Enhance productivity of lagoon and estuaries by research and re-stocking programmes 5.3.5 Conduct research for assessment of the habitats for restoration 5.3.6 Conduct outreach programmes to enhance public awareness and education on coastal habitats.
	5.4 Minimize risk & vulnerability due to coastal hazards	5.4.1 Conduct vulnerability and risk assessment in the coastal areas & introduce development criteria 5.4.2 Establish coastal hazard early warning systems & formulate response strategy 5.4.3 Develop bio-shield in vulnerable areas 5.4.4 Intro coastal insurance policy 5.4.5 Implement coastal access programme
	5.5 Introduce alternative livelihoods	5.5.1 Facilitate eco-tourism programmes 5.5.2 Implement culture of marine and brackish water fish including ornamental fish based 5.5.3 Establish institutional mechanism to implement alternative livelihood programme

	5.6 Rehabilitate the abandoned shrimp farms and peripheral areas of existing farms to gain economic & environmental benefits	5.6.1 Convert abandoned shrimp farms in the NW and eastern province for economical benefits and environmentally sustainable uses. 5.6.2 Enhance the environment of the peripheral areas of the existing shrimp farms 5.6.3 Introduce community re-forestation programme
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## 6.2 Fisheries Sector Projects and Programmes 2007-2016

The Fisheries Sector investment programme has been spread over three distinct phases viz. Short term over three years (2007-2009), Medium Ten over four years (2010-13), and Long-Term over three years (2014-16). Of particular relevance to the future development of the Fisheries sector is the strategy on *Partnership in Development* articulated by the "Mahinda Chintana" which envisages "private and public participation in economic and social development within a market friendly, export oriented and competitive economic policy framework to complement each other's contribution, maximize value addition, employment creation and environmental protection". In the first year of the short-term investment programme of the sector a total expenditure plan of Rs.5,343 million spread over 13 projects is envisaged.

In the case of most of the projects proposed for commencement beyond 2007 the source of funding is yet not certain though in the case of several of these there is some inkling of the possibilities since the line Ministry or the agency concerned appear to have already had some consultations (mostly informal) with some of the prospective donor agencies.

**Table 6 - Implementation Plan – 2007-2016 (Rs. Million)**

Strategy	Project	TC Rs.M	F Mode	1 2007	2 2008	3 2009	4 2010	5 2011	6 2012	7 2013	8 2014	9 2015	10 2016
				<b>0 – 3 yrs</b>			<b>4 – 7 years</b>				<b>8 – 10 years</b>		
1. Offshore & deep sea fishery develop:	Marine offshore & deep sea Fishery assistance project		CF	50	75	100	100						
2. Dev: of fishing Communities	Project for strengthening of fishing communities			100	200	250	250						
3. Fish marketing dev:	Greater Colombo Fisk Market	1,000	CF/ADB	300	300	400							
4. Aquaculture product Export promotion	Ornamental fish exchange		CF	50	40	35	25						
5. Shrimp culture Dev:	Promotion of shrimp farming in Puttalam and Batticaloa			50	25	25	10						
6. Fisheries Promotion	Fisheries Promotion Fund		CF	300									
7. Coastal Resources Management:	CRMP		ADB Neth	1098									
8. Aquaculture Dev:	Aquaculture Dev: & Quality Improvement Project		ADB	476	430	400							
9. Sea Bed Delimit:	DECOM Project		Nor	14									
10. Fishery Harbour Development:	Construction of Dikkowita Harbour	5,300	Neth	1300	2,000	2000							
11. Post-Ts Rehab	Project for P-Tsunami fisheries Rehab:		IFARD	691	612	653	767						
12 Tsunami Rehab:	Tsunami affected area Rehabilitation project			800									
13. Tsunami Rehab:	Rehab: of boats affected by Tsunami		CF	75									
14. Resource base enhancement.	Delimitation of the Continental Margin. Project	550	NOR	?	?								
<b>Total under MTP</b>				5345	2562	3742	1152						
15. Assess the nature & Extent of marine resources	Conduct a comprehensive resource survey of selected resources within EEZ	2000	FA TBI	-	750	750	500						
16. Improve fisheries Date Base System	Carry out continuous stock Assessment and GIS	150	CF	-	50	50	50						

	surveys/fishery charts												
17. Harvesting of unexploited /under exploited species	Project to introduce new methods/gears in the coastal Fishery	100	FA TBI	-	-	30	30	40					
18. Fisheries Management	Project to promote co-management of fisheries	25	FAO	-	-	15	10						
19. Promote Tuna Long Lining	Equipping 100 multi-day boats with line/haulers	100	KOIKA	-	50	50							
20. Improvement of boat safety	Equipping 200 multi-day boats With SSB radios & Satellite navigators	80	KOIKA	-	40	40							
21. Fishing net production	Establish new net fishing factory	172	NOR	-	72	100							
22 High Seas Boat production	Construction of boatyard at Beruwala	85	BL	-	25	10	20						
23. Development of small scale infrastructure	Improvement of 150 anchorages & landing sites	750	FAO ICEDA	-	150	200	200	200					
24. Strengthening of Harbour maintenance/mgt	Supply of equipment to the CFHC	2010	Hungary	-	1010	1000							
25. Fish Quality improvement	Pilot Project to introduce RSW/ Refrigeration systems & fish Storages on large vessels	250	TBI	-	-	50	50	50	50	50			
26. Marketing Infrastructure Development	Construction/commissioning of Cold Rooms. Ice Plants & fish Processing Plant in Galle	300	JICA	?									
27. Fish Canning factory	Construction of a fish canning factory at Mutwal	837	Russian JVenture										
28. Fish Marketing	Expansion of model fish retail Outlets	250	CF	-	-	-	50	50	50	25	25	25	25
29. Fishers' amenities & living conditions	Project to establish 10 model villages.	1250	FAO	-	250	250	250	250	250				
30. Fish Quality/marketing	Establishment of a cold chain covering harbours/ fish transport												
31. Harbour Development	Poduwakattu Fishery Harbour	1000	CF/ADB ?	100	500	400							