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## 2. BACKGROUND

### 2.1 Overview on the current status of fisheries and the marine environment

**Overview:** Sri Lanka's fishery sector accounts for 1.8 percent of GDP (2006), generating US\$45.5m in first sale fish revenues along with a growing export market accounting for US\$14m. Marine and inland fisheries production in 2006 amounted to 215 000 tonnes and 35 300 tonnes respectively. Pre Tsunami, marine production levels had been as high as 264 000 tonnes. The principal marine fisheries are tunas (yellowfin and skipjack), small and medium pelagic fish, coral reef fish and other coastal species such as lobster. The principal aquaculture species are tilapia, carps and tiger shrimp, along with growing sales of ornamental fish.

**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 percent of the country's ocean area. Estimates of Maximum Sustainable Yield of coastal fisheries vary from 162 000<sup>1</sup> to 250 000<sup>2</sup>. Present coastal catches are in the region of 121 000 tonnes, with a transfer of effort to offshore fishing using multi day boats. The offshore fisheries target mainly skipjack and yellow fin tuna. These fall under management ambit of the IOTC. IOTC perceives that coastal fisheries, which includes the Sri Lankan Multi day Boat fleet, along with other groups (purse seine fishing with FADs) is putting increased pressure on the stocks. However, current exploitation rates for yellow fin are judged to be close to or slightly above MSY<sup>3</sup>. In this context, it is noted that that long line fishing is not cited as a problem fishery.

Sri Lanka also has extensive freshwater and brackish water resources to sustain viable fishing activities. These comprise around 260 000 ha of large irrigation reservoirs (70 850 ha), medium irrigation reservoirs (17 000 ha), minor irrigation reservoirs (39 300 ha), seasonal village tanks (100 000 ha) flood lakes (41 000 ha), upland reservoirs/estate tanks (8 100 ha) and Mahaweli river basins (22 700 ha). 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; and
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 12 000 ha.

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<sup>1</sup> Wijyaratne, B (2001)

<sup>2</sup> The last comprehensive survey of the coastal waters done in 1979-80 (by RV Dr Fridtjof Nansen) indicated a possible annual harvestable yield of 250,000 tonnes. Dayaratne (1996) estimated that capture levels had reached Optimal sustainable yield

<sup>3</sup> IOTC, Report of the ninth session of the Scientific Committee, November 2006

**Coastal habitats:** 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 percent of the land area of the country, 25 percent of the population, 70 percent of the hotels and 70 percent 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.

Coral reefs in Sri Lanka are mostly fringing in type and account for two to three percent of the shoreline, with high concentrations off the South-west corner of the island (including Hikkaduwa sanctuary) and the Eastern coast. Surveys have recorded 171 species, with staghorn coral (*Acropora spp.*) the dominant genera.

The coastal zone management plan identified 74 major basin estuaries or lagoons in Sri Lanka. Due to their high nutrient loading and water circulation patterns, estuaries support many commercially important organisms, often in the critical early stages in their lifecycle.

Mangroves occur in low energy inter-tidal zones and, in Sri Lanka, often occur in lagoons and estuaries but, due to the low tidal amplitude, the area covered is only 12 600 ha. They provide a range of important environmental services, including flood protection and nursery areas for a number of species of commercial importance, particularly shrimp. They are also the source of building poles, firewood and twigs and branches for brush parks, as well as a diverse range of other products (Amarasinghe, 1996; Wijeyaratne, 1991).

Sea grasses are rooted, seed-bearing marine plants that occur in near-shore low-energy coastal waters. In Sri Lanka they are most extensive along the North-western and North Eastern coasts. They serve to stabilise sediment and provide a nursery/feeding area for a number of juvenile fish and shrimp. Threats are physical alterations (i.e. through use of push nets and drag nets by fishers in Negombo), excessive sedimentation or siltation.

There are 15 marine protected areas spanning 1948 km<sup>2</sup> along the Sri Lankan coast (MPA Global, 2006).

**Distribution of fishing activity:** fish landings are spread throughout the country, but present concentrations are in the west, south and south east. The principal ports comprise Matara, Kalutara and Negombo. Pre conflict landings in the northern ports of Jaffna and Mannar were also highly significant.

The three main sub-sectors within the fisheries sector are coastal fisheries; offshore/ high sea fisheries, inland fisheries and aquaculture.

- **Coastal fisheries:** Those fisheries taking place within the continental shelf and undertaken by fishing craft in single day operations. This fishery continues to be the dominant sub-sector in terms of its contribution to production and employment. In 2006, this sub-sector accounted for 48 percent of the total production with 32 956 fishing craft representing 93 percent of the country's entire fishing fleet were deployed in this sub-sector.
- **Offshore/high seas fisheries:** Those fisheries which take place outside the continental shelf and beyond, extending up to the edge of the Exclusive Economic Zone and in the high seas by multi-day boats. This fishery has been the fastest growing sub-sector. In 2006, this sub-sector contributed 37 percent to the country's total production. The rapid expansion of the multi-day fleet from 1 581 in 2004 to 2 613 in 2006 has been primarily

responsible for the growth of the marine fishery sector.

- **Freshwater capture fishing:** Those fisheries taking place in irrigation tanks and reservoirs. This fishery is an expanding economic activity which provides a source of cheap protein, as well as 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 was 15 percent in 2006. Given the extensive distribution of reservoirs and tanks, this sector has potential for a fairly large increase in production.

**Number of fishers:** Prior to the Tsunami there were 90 000 marine fishers. This has increased to 143 000 in 2006, with a fishing household population dependency of 630 000 individuals. There are a further 50 000 inland fish culture and capture fishers. Almost all active fishers are male. Females are responsible for collecting fish, money and some times fish mongering. However, there has been a decline in women's activities as some fishers transfer from coastal activities to multi day crewing (National Fisheries Solidarity, 2004).

**Fishing methods:** The coastal and offshore fisheries are open access common property, with the exception of beach seine and stake-net fisheries, which operate under locally sanctioned systems of limited entry based on the customary rights and socio-cultural barriers. The coastal fisheries are also multi species and multi gears, but bottom set and pelagic gill netting is the predominant method used. Purse seining with light lures is prohibited and daytime purse seining is restricted to areas beyond 7 miles from shore. Trawls are banned in some areas bottom-set gillnets and trammel nets are prohibited in coral reef areas. Offshore multi day vessels use gill nets and non mechanised long lines. These vessels operate inside and outside the Sri Lankan EEZ.

**Fishing Ports and anchorages:** There are 12 fishing harbours 37 anchorages and around 550 landing sites. Harbours form the bases for the multi day fleet and other smaller craft. Facilities include fish markets, ice plants, cold storage and fuel depots. The anchorages usually comprise a protected area with basic facilities for smaller craft. These usually support local fishermen's groups, and comprise fairly limited infrastructure.

**Fish trade and processing:** Fish consumption is 16 kg / capita, with tunas and small pelagic fish being the main species consumed. Fresh water species (carps and tilapia) are consumed in inland locations. The Sri Lankan fish distribution system is reasonably strong with marine fish sold in inland markets. Sri Lanka has 27 fish processing plants, of which 22 are EU accredited including 3 shrimp processing factories. These factories focus almost entirely on exports.

**Fisheries credit:** Fisher access to finance is provided through three systems:

- The formal system of Bank lending to individuals or informal groups. This takes the form of conventional loans supplied by Development Banks (Bank of Ceylon, NDB and Peoples' Bank) with required guarantees for loans greater than Rs 200 000, or micro credit schemes supplied to individuals or informal groups. An example of the latter is the Bank of Ceylon's *Dheewera Sakthi* ('strength to fishers'), a micro credit scheme provided for small scale investments (such as alternative livelihoods) of less than Rs 100 000. These schemes are refinanced by the Central Bank of Sri Lanka (to the development banks), and may include donor funding (ADB/JBIC). Interest rates for such schemes are presently 8 percent with the 9 percent provided by Central Government.

- Funding through banks, a primary service provided by Fisheries Cooperative Societies, where bank funds have been provided partly through micro credit schemes, supported by MFAR, donors through NGOs<sup>4</sup>, and village savings. The interest rates charged are in the region of 14-16 percent including a component used to fund the Bank's organisational activities (4 percent).
- Informal credit supplied by intermediaries. This involves middlemen lending money for the purchase of fishing equipment, and deducting from the fish sales (at between 5-10 percent per transaction). The banks were used to counter this dependency. In some areas, particularly the North and Eastern provinces, as supply flows have declined, fisher dependency on middlemen has increased.

Pre Tsunami, default rates through the Bank schemes have been between 10 to 30 percent (Gant, 2002). However, the Central Bank of Sri Lanka and Bank of Ceylon<sup>5</sup> commented that the situation with the multi day fleet had progressively worsened and the industry as a whole was poorly disciplined as compared with examples in the agriculture sector.

Good experiences have usually only been confined to micro credit schemes<sup>6</sup>. Experiences with the Banks identify lower levels of default, around 5-10 percent. However, this situation is considerably worse in conflict zones where the ability to repay loans is affected by military operational restrictions<sup>7</sup>.

**Principal legislation:** The principal national legislation comprises:

***The Fisheries and Aquatic Resources Act no 2 1996 and Amendment No. 4 of 2004*** defining the role of a Fisheries and Aquatic Resources Advisory Council, prescribing management areas and implementation of limited input controls through Fisheries Committees, establishing a system of registration and licensing, and provision for open seasons.

***Coast Conservation Act No.57, 1981 and Amendment No.64 of 1988*** defining control measures in the coastal zone up to 2 km seaward, and 300 m inland, using a permit system.

***The Fish Products (Export) Regulations, 1998***, detailing the implementation of HACCP standards for processing establishments for export of fish to the EU.

***Inland Fisheries Management Regulations 1996*** details fishing limitations for fishing gear for inland waters containing a provision for limited entry fishing if deemed appropriate.

***Aquaculture Management Regulations 1996*** dealing with the licensing of aquaculture premises.

***Landing of Fish Regulations 1997***, making provision for foreign vessels to land into Sri Lanka.

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<sup>4</sup> CIDA has been a significant contributor to Idiwara Bank fisher loan schemes, facilitated through the NGOs, CARE, OXFAM and World Vision (Gant 2002)

<sup>5</sup> Karunaratne and Wimalaratne, pers com, May, 2007

<sup>6</sup> Despite high returns on capital in the Multi day boat sector, The Government's scheme promoting finance for Multi day boat construction resulted in almost total non payment of loans. Loans were perceived as part of the subsidy, and fishermen were perceived to have limited discipline. This has marked a reluctance by the Development Banks to provide support financing without appropriate guarantees (Wimalaratne)

<sup>7</sup> In Trincomalee, the repayment rate was 42 percent largely as a result of fishers decline in income caused by fishing restrictions.

***The Registration of Fishing Boat Regulations 1980 and Amendment 1996***, requires that all vessels are inspected (by DFAR Marine Engineers), correctly marked and registered. The vessels seaworthiness is checked annually by DFAR fishery inspectors.

***The Fishing Operations Regulations 1996 and Amendment of 2005*** licence vessels to fish using pre stated methods (around 17 are defined including long lines, gill nets, trawl, seine netting). The licence prohibits fishing for marine mammals and turtles, and details prohibited fishing operations (dynamite, push nets and gill net or trammel net fishing on coral reefs).

Both the Fisheries and Aquatic Resources Act and the Coast Conservation Act are in the process of being upgraded.

**Ongoing donor support programs:** Donors provided Rs 4 874 m ((US\$43 m) in 2007 for special projects. These are in the form of special projects for Coastal Zone Development (CRMP), the Aquaculture Development Program (ARDQIP), the International Fund for Agricultural Development (IFAD) (Appendix C), and Special Research Programs operated through NARA.

## **2.2 Issues constraining the development of the Fisheries Sector**

The MFAR Ten Year Development Policy Framework<sup>8</sup> identifies the principal weaknesses in the following areas:

- damage caused by the Tsunami;
- the conflict in the North East;
- non availability of reliable resource data;
- weak fisheries management;
- illegal, unregistered and unreported fishing;
- post harvest value losses and poor marketing and transport;
- non exploitation of high seas resources;
- inadequate application of fishing technologies;
- slow pace of inland fisheries and aquaculture;
- poorly managed & maintained fisheries infrastructure;
- inadequate investments in the sector;
- degradation of coastal and aquatic environment; and
- lack of coordination between research, development, education and extension support.

### **2.2.1 The Tsunami: Immediate impact, recovery and rehabilitation**

The tsunami struck Sri Lanka on the morning of 26th December, 2004 causing widespread destruction and killing over 31 000 people, 4 870 fishers people, destroying over 16 434 fisher homes, and damaging natural ecosystems, and coastal infrastructure in the East, South and South Western coasts. The percentage of the coastal population affected ranged from an estimated 20 per cent in Galle, Matara, and Hambantota to 80 percent in Mullaitivu and Ampara coastal districts.

Immediately after the tsunami there was an urgent need to restore coastal livelihoods as well as the food production. As a result, the most immediate assistance focused on rebuilding and re-engining the fishing fleet (19 777 vessels replaced), replacing lost gear and rebuilding fishery

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<sup>8</sup> MFAR (2007)

harbours, anchorages and support infrastructure (ice plants, cold stores, fuel depots and fishermen's stores and buildings, the marketing infrastructure and distribution network).

The principal donor's, international organisations, inter-governmental organizations responding to support activities were: FAO, JICA, USAid, GTZ, EC, UNDP, the governments of Spain, Italy and Norway and Iceland (Appendix C). The Principal NGOs responding to support activities were World Vision, Sewa Lanka Foundation, the Green Movement and FORUT. In addition, there has been severe damage to buildings and assets (including vehicles) that belong to the National Aquatic Research and Development Agency (NARA) headquarters, Coast Conservation Department, National Institute of Fisheries and Nautical Engineering (NIFNE), CeyNor Foundation Ltd and the monitoring, control and surveillance system of the Ministry of Fisheries and Aquatic Resources.

### **2.2.2 The Ethnic conflict**

The ethnic conflict between the Government of Sri Lanka and the LTTE has had a serious impact on the development on the nation's fishery sector. Sector growth in seven Northern and Eastern Districts has been stifled since 1983. These Districts collectively accounted for 56 percent of marine supplies in the mid 1980s. Damaged infrastructure (particularly the availability of ice) fisher migration away from these areas, access restrictions and the resulting shortage in supplies has resulted in much of the fish being dried and sold locally. In some cases, and specifically in Trincomalee and the high security zones off Jafna, the security constraints imposed on fishers (restricted operating times and distances) are severely affecting fisher income prompting migration, or diversification to alternative livelihoods. Fishers in these regions have become increasingly indebted to money lenders.

The conflict has also prevented exploitation of the inland reservoirs. Many of the Government's regional research and development establishments (NARA and NAQDA) are now in a serious state of disrepair and in some cases, requisitioned by the Military.

### **2.2.3 Fisheries management**

The basis for regulating the main fisheries is still weak; fisheries management authorities have yet not introduced and implemented a systematic management system. Part of the problem lies in an inability to conduct appropriately funded stock assessment work. In the absence of standardized data collection and output control reliable data for fish stocks are lacking. The two main fisheries, coastal and offshore, are not presently subject to restricted access or zoning restrictions. The current status of these stocks, largely pelagic, is unknown, but the following features prevail:

- the multi day fleet is rapidly expanding;
- there has been some decline in coastal fishing effort as fishers transfer to the multi day fleet as crew members; and
- the Tsunami and ethnic conflicts have led to a large scale reduction in coastal fishing effort in the short to medium term.

Management systems have existed in Sri Lanka since pre colonial times. This manifested into localised TURFS<sup>9</sup> which still exist today. These fisheries are comparatively well managed with a system of limited entry, which is based on criteria such as area of residence or inheritance. However, traditional management systems are increasingly losing their effectiveness as

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<sup>9</sup>Traditional management systems were built on the foundation of homogenous fishing communities. A homogenous fishing community would be using traditional craft and gear and all members operating at equal low efficiency, resulting in almost equal income for every one.

intensive exploitation with multi-gear and multi-craft combinations increase the pressure on resources and disparity in incomes, causing heterogeneity within fishing communities. In addition to that the catching power of new boats and gear introduced after the tsunami of 2004 is likely to be higher than those they replaced. This in combination with an oversupply for small fishing boats in some areas of the island as part of the assistance after the tsunami has increased the fishing pressure on the fishery resources.

#### 2.2.4 Compliance

The current monitoring, control and surveillance system lacks the resources to implement an effective management system. It seems that very little emphasis is placed on coordinated and targeted activities, recording inspections made, and integrating coastal communities into the co-management process. Inspection activities comprise land based inspectors providing information on regulations and checking gear, and acting on intelligence provided. The number of infringements identified is relatively small in number, indicating either a good degree of compliance amongst coastal fishers at least, or in some cases, inadequate coverage<sup>10</sup>.

Offshore fisheries regulations do not presently apply. The main area of concern is multi day boat activity outside the Sri Lankan EEZ. Assessment of foreign fishing vessel activity inside the EEZ is irregular based on patrols by the Navy. The perception is that foreign vessels rely almost exclusively on fishing activity outside the EEZ<sup>11</sup>.

Nevertheless, a compliance package is needed and should comprise a series of control measures, including the following:

- voluntary activities based on education, awareness and the use of participatory co-management;
- inspecting vessel markings and licences;
- observing and recording fishing practices;
- checking transshipments;
- aerial sightings;
- Navy sightings and vessel boardings;
- designated ports;
- a system of land inspection reports and infringements identified;
- support for case management and retention and recordings on case files;
- information and awareness to fishers; and
- information and education program to magistrates.

#### 2.2.5 Fish quality issues

The quality of fish landings is generally poor and fish spoilage is as high as 40 percent<sup>12</sup> reducing the potential for value added in the sector. The problems are caused by long trips (multi day boats may travel for up to 30 days), inadequate use of on board ice and chilling facilities, and poor handling practices. Only a small portion of the landings meet the international quality standards (around 283 vessels have complied with the HACCP assessment criteria<sup>13</sup>). This has serious implications on the export trade, local supplies of fresh fish and

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<sup>10</sup> Local district inspectors identified that control of coastal fishers was strong where FCS were active. Problem issues would usually be dealt with by the communities. Problems occurred where the FCS were weaker, or where inspector coverage significantly lower (Trincomallee). Dealing with multi day boat fishers was perceived to be significantly more confrontational, in some cases resulting in violence.

<sup>11</sup> Roshan Fernando, pers com, May 2007

<sup>12</sup> Renuka Sabashini, Quality control officer, DFAR (pers com April 2007)

<sup>13</sup> FVO mission to Sri Lanka, , 15 March 2006, DG Sanco / 8095/2006

producer prices but also on the sustainable use of the fishery resources.

However, the enactment of the Fish Product (Export) Regulations 1998 Act, and active partnership between the DFAR and Sri Lankan exporters has been a considerable success. The DFAR HACCP monitoring program has consistently received a favourable report from DG Sanco, and Sri Lanka's exporters comply with additional standards<sup>14</sup>. Additional opportunities may exist for certification of exports through the Marine Stewardship Council (MSC) and certification, organic labelling schemes for farmed fish. However, these opportunities may be constrained by some of the above deficiencies and certification, labelling schemes for farmed fish.

An additional focus area has to be on the inland and coastal municipal markets. The control authorities in this case are the Ministry of Health (inland) and DFAR.

### **2.2.6 Under utilised resources**

Sri Lanka has the potential to develop its capacity in offshore and high seas fishing. Its development opportunities could be constrained by International obligations restricting the exploitation of specific species<sup>15</sup>.

Inadequate management, research, training and extension has resulted in the underutilization of some resources particularly in coastal fisheries and aquaculture where diversification of activities could relieve pressure on other stocks. Offshore surface long lines (tunas and sharks) as well as bottom (snappers, croakers and groupers) long lines have not been accepted as alternative fishing methods in the offshore fishery.

### **2.2.7 Aquaculture and inland fisheries**

Despite the presence of a high number of water bodies in coastal and inland fisheries, aquaculture has been slow to develop. The GoSL had a strong focus on aquaculture development before the 1990s. The aquaculture development program only re-established itself with the formation of the Inland Fisheries Division in 1996 and then NAQDA in 1998. Specific development advances were made in several inland lakes leading to the creation of Management Committees and commitments to restocking and management programs. Shrimp represents the other commercially viable aquaculture sector, with some 1 155 ha under semi intensive production, but as with the shrimp sector world wide, has been hit by successive disease outbreaks, and is vulnerable to downward trends in shrimp export prices. Fish farms and hatcheries are now subject to a rigorous disease control program implemented by NAQDA and NARA. The private sector (hatcheries and feed suppliers) is actively involved in extension support activities within this sector.

A more recent development has been the growth in the aquarium fish trade, including the establishing of small micro project activities. Exploitation of marine aquarium fish is uncontrolled.

In as far other aquaculture systems are concerned, the private sector has been slow to adopt other fish culture systems including sea bass, tilapia and mud crab fattening.

### **2.2.8 Investment environment**

There is a poor investment environment in the marine fisheries sector. The expansion of the

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<sup>14</sup> British Retail Consortium standards

<sup>15</sup> IOTC lists yellow fin tuna as over exploited. The bulk of catches are made by non Indian Ocean participating states such as the EU, Japan, Taiwan and Korea.

multi day boat sector has yet not reached its true potential. Despite apparent high returns on capital<sup>16</sup>, many vessel owners are reluctant to invest in improved quality standards and equipment. The Banking sector regards fisheries as high risk because of the historic non payment of debt. Vessels are also regularly subject to detention, arrest and loss of valuable assets when confiscated for fishing in other country jurisdictions. Investments in the small scale coastal sector have suffered owing to restrictions in access to credit or limited ability to manage cooperative credit schemes. Nevertheless, smaller scale fishers tend to have a better record in debt repayments.

The opportunities for support lie in education programs for increasing awareness of debt management and enforced repayment discipline supported by an appropriate policy framework.

### **2.2.9 Infrastructure support**

Despite the post tsunami rebuilding of harbours, anchorages and ice plants, core infrastructure remains inadequate in a number of areas and where established, could be neglected. The ability of the main corporations to reinvest is stifled by inefficiencies and operational constraints<sup>17</sup>.

Additional required facilities include:

- an improved cold chain in the East and North East;
- deep water access for larger vessels, particularly in the East and south East; and
- higher standards of cleanliness in most fish markets.

However, the internal distribution systems is said to be strong with fish sold to inland markets from the main ports. Many vessel owners use their own refrigerated transport to distribute fish to markets and to exporters. CFC has been the beneficiary of refrigerated trucks and new and upgraded ice plants. However, these are largely under utilised.

### **2.2.10 Inadequate research, development, education and extension support**

A review of the institutional support organisations has identified under funding of research by central government through allocations made via the Consolidation Fund. R&D organisations still rely to a large extent on support funding from donors. For example, NARA and NAQDA obtain 82 percent and 80 percent respectively of their funding from donor projects. NIFNE's activities appear at present to lack focus with a switch in emphasis to high level training (degrees etc as opposed to supporting the development needs for fishers and administrators). As and when such weaknesses occur, specific national Departments seek to increase their research activities to compensate for the perceived inadequacies within NARA/NIFNE, consequently CCD undertakes monitoring exercises, DFAR has in place its own biologist and economist and NAQDA, as opposed to NIFNE, undertakes aquaculture training. Both NARA and NAQDA lack sufficient capacity to evaluate the economic impact of production systems.

### **2.2.11 Fisher organisations**

Many of the fisher's organisations are weak, lacking the capacity to undertake market led or co-

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<sup>16</sup> The Fisheries Management specialist undertook a review of the costs and earnings of selected multi day vessels. Whilst a quick snap shot of the situation, the analysis revealed the ability to repay capital within a period of 5 -6 years. Many multi day boat owners are in the process of adding additional vessels.

<sup>17</sup> The Corporations face a number of organisational constraints. They are not allowed to hire and fire, and have had to take on additional staff as part successive national graduate recruitment programs. Hence all facilities are significantly over staffed. The organisations, and in particular the CFHC, are unable to increase harbour charges and CFC are unable to compete with private sector ice plants. Wages account for the bulk of expenditure and reinvestment is constrained by this lack of funding.

management activities. The problem is exacerbated by changes in national priorities given to facilitating cooperative development, frequent changes in representation influenced by political patronage, and the small economic size of each group. The Fisheries Cooperative Societies (FCS) have thus evolved into small scale credit organisations and are reluctant to move into additional support activities such as marketing and co-management.

The Government has previously advocated a Central Extension Service, under the auspices of the DFAR. In reality of the 924 cooperatives, only 536 are active and a further 115 operating village banks. However, there are few examples of cooperatives beginning to market their own fish, or showing interest in co-management.

The opportunities exist for strengthening these organisations through training of officers in accounting and business management and developing linking to fisheries clusters.

### **2.2.12 Coastal zone management**

Degradation of the coastal and marine environment which includes beach erosion, coastal pollution and the resulting threats to the sustainability of coastal habitats (coral reefs, mangroves and seagrass habitats) is a major problem adversely affecting the fisheries sector and other coastal industries. The extent of damage is greater in the west and south with the combination of urban concentrations, fishing pressures and development activities. Specific milestones leading to the regulation of the coastal zone include the following.

- 1981 Coast Conservation Act No.57, which established the legal basis for coastal area management and defines the remit of the CCD. Focus primarily on erosion control and the protection of coastal habitats/sites of cultural interest.
- 1988 Coast Conservation Act Amendment (No.64) passed: Modifying general implementation procedures and system of penalties; introduces a range of new rules and penalties relating to coral mining.
- 1990 Coastal Zone Management Plan (CZMP) adopted by Cabinet with a mandatory requirement to update the program every three years. Specific plans would cover coastal erosion, habitat degradation and care of architectural and scenic sites in the coastal zone. These plans are now subject to consultation, to identify specific priority areas and revise guidance and standards.
- 1993 Special Area Management Process approved for two sites: Rekawa and Hikkaduwa as Special Management Areas (SAMs).

A SAM is an integrated process used to delegate management responsibility in designated sites to communities and other stakeholders. Twenty seven<sup>18</sup> sites are now designated as SAMs but only 7 sites are fully operational, along with 23 Areas of Particular Concern (APC). Nine of these sites were supported by the CRMP project<sup>19</sup>. Community Consultative Committees (CCCs), including all stakeholders, are established under the auspices of Provisional Government's Divisional Secretary who coordinates committee activities. APCs relate to weak Divisional Secretary coordination (in some areas) and the lack of resources available for

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<sup>18</sup> 74 sites are identified including 53 sites in NEP. NEP is perceived to have considerable potential because of the historically low levels of commercial activity in the coastal zones.

<sup>19</sup> The Coastal Resources Management Project (2000-2006) is an initiative of MFAR with US\$80 from the ADB, the Netherlands government and the GoSL, aimed at coastal stabilisation, fishery resource management and quality improvement, coastal environment resources management and institutional strengthening.

policing coastal zone protection. The CRMP project is seeking to strengthen Local Government's ability to support the CCCs so as to sustain their involvement.

The 1981 Act is due to be amended. Some of the key features of the draft Act are that it:

- refines the definition of SAM sites based on severity of resource management, biodiversity, viability and economic significance;
- establishes conservation areas, beach parks and a coastal access plan;
- strengthens the interaction between national administrations ensuring that coastal zone protection takes precedence over other planning processes;
- requires environmental impact assessments to be prepared pre development;
- increases the enforcement and penalty processes when failing to comply with the regulations;
- improves the process of consultation; and
- confirms the status of administering the sites by local communities.