Ports

Transport internal to Timor Leste is all by road on the mainland, with the exception of offshore islands and Oecussi enclave which, since 1999, has been supported by a free coastal ferry and a UN-provided air service. Oecussi could be served by land-route through West Timor, given cooperation of the Indonesian Government. The islands of Atauro and Jaco are accessible only by sea, but have no regular commercial transport service. While there are a number of small coastal wharves and landings (Box 2.1), there is no coastal shipping service and limited demand. Road distances and travel times are generally too short for sea to offer a competitive alternative for general goods transport, although the light construction of the road system, and costs of strengthening, may provide a case for moving heavy and bulky loads by sea. Overall, there is relatively little competition between modes of transport. However, some scope exists for coastal shipping and internal air transport to be operated as an extension to international transport services.

Box 2.5: **Ports of Timor Leste**

Dili Port. The wharf face is 300 meters (m) long and 20 m wide and can accommodate three small or two larger vessels at one time, with draft up to 7.2 m, the third berth having been completed under the Emergency Infrastructure Rehabilitation (EIRP). Restoration of the wharf rubber fendering has been carried out under Japan bilateral aid. An inspection of the underside of the wharf has indicated the need for some remedial strengthening works. A barge landing ramp area at the southeast end has been repaired, and a break in the seawall at the western end is used as a beach landing by smaller landing barges. A slipway has also been completed under the EIRP.

Covered storage consists of a trans-shipment shed immediately behind the wharf, 56 m x 21 m, and four warehouses (two at 20 m x 40 m and two at 15.3 m x 37 m), all with concrete floors. The eastern open yard has been extended under the EIRP and the surface leveled and compacted; the surface is to be paved with concrete blocks under a current contract. The required western yard surface leveling and paving is being implemented with funding from the Government of Japan.

Container storage was summarized in the MMP at 15,575 square meters (sq m) made up of 9,000 sq m in the eastern yard (225 m x 40 m), 4,590 sq m in the western yard and hardstand, and with a further 3,000 sq m available through a western extension.

The sea approaches to Dili port involve navigation through one of two narrow passages and the navigation aids have been restored to a high standard under Japanese grant aid.

Hera jetty, 14 kilometers (km) east of Dili on the eastern side of the lagoon, was constructed in 1990 for fishing use, and is 80 m long with a 30 m width L-shaped head, reinforced concrete deck on steel piles. Fendering, bollards and navaids are all deteriorated, as have the sea defense works protecting the boat harbor. The wharf is leased to a private

Box 2.5: **Ports of Timor Leste** *(cont'd.)*

operator (Curtain Bros) until at least mid-2002 who provides support to the Peace Keeping Forces, and as part of the lease agreement has undertaken some repairs to the wharf facilities: water supply, paving, reproofing and refurbishment of buildings, fencing and ice plant. The western side of the lagoon at Hera, where there is deeper water, has been suggested as a possible site for a future relief port to Dili to handle container shipping, should demand outstrip the capacity of Dili wharf.

Tibar wharf, 12 km west of Dili, has a concrete jetty with timber deck, and has also been suggested as a possible future container port site, but the costs and environmental acceptability of clearing a passage through the bay are likely to be too high.

Com is located 70 km east of Baucau. There is an 80 m length T-head jetty linked by an L-shaped causeway to the road. There are no storage or handling facilities. Navaids exist but are not operational. The deepwater approaches would allow relatively large vessels to berth, although there is no obvious anchorage. With no nearby center of population or other export-based development, the immediate uses for Com port are limited. It has been suggested for private leasing as a support to the petroleum industry, but the lack of shore infrastructure and poor road connection to Dili does not make it an attractive prospect for development.

Caravela is a solid concrete pier 100 m x 9 m, located on the north coast midway between Manatuto and Baucau and built as a RoRo terminal to serve the Indonesian transmigration program. The water depth is shallow and the fendering on the two mooring dolphins has deteriorated. An adjustable ramp at the landing point is not operational. Shore facilities are limited to an administration building and roadway. The wharf would only have a future if a coastal landing barge service were to be introduced.

Oecussi is currently served by a 15 m wide concrete landing yard, located close to the town center. An unpaved open storage area of 100 m x 60 m is used for all forms of cargo. There are no passenger facilities for the passenger ferry service when it is reinstated.

The original wharf at Oecussi, not currently in use, is a T-pier 50 m long x 8 m wide, linked to a paved open storage area by a 4.5 m wide concrete roadway. When last inspected, the wharf was reported to be structurally sound with good fendering. There is no shore-based cargo handling equipment. Buildings include a port control room and storage buildings all of which were damaged.

Atauro island is served by an 80 m long concrete jetty near Beloi, suitable only for small boats, and dry at low tide, although there appears to be scope for extending the jetty into deeper water and berthing larger vessels.

There are another 10 or so beach landings around the coastline.

Dili Port

1. Sector Status

The main port at Dili provides the interface between sea and road transport. Being located close to Dili's business and government center and on a confined site creates some conflict between city traffic and the needs for heavy vehicle access and (de)consolidation of cargo. This is a situation that urban planning will need to confront in future. Dili is served by liner services from Australia and Singapore on a weekly and fortnightly rotation carrying container and break-bulk cargo. Direct shipping services operate to Darwin, Malaysia (Kota Kinabalu, Sabah), Singapore, and Indonesia (Surabaya). Small coastal vessels also operate between Indonesian ports and Dili, carrying break-bulk cargo. Trade has been heavily weighted toward imports over the restoration period.

Projections of cargo tonnages and 20-foot equivalent units (TEUs) through the port of Dili in Figures 2.1 and 2.2 were estimated based upon short-term forecasts of the components of import and export trade and, beyond 2004, are based on GDP growth. During the restoration period, trade through the port has been boosted by the presence of international personnel and the materials imported to support the reconstruction efforts. In the short term, there is expected to be a decline in cargo volumes due to the completion of the emergency restoration efforts and withdrawal of the international staff. In the longer term this will be made up by import and export trade growth. However, it is expected to be some years before the port is called on to handle cargo

Figure 2.1. **Cargo Projections, 2000–2030**

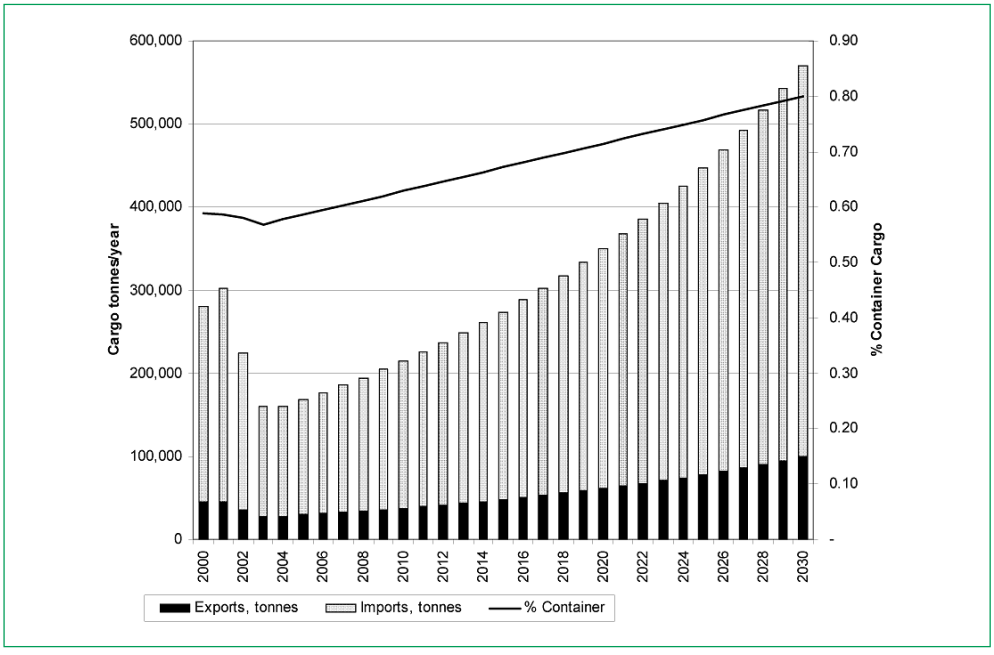
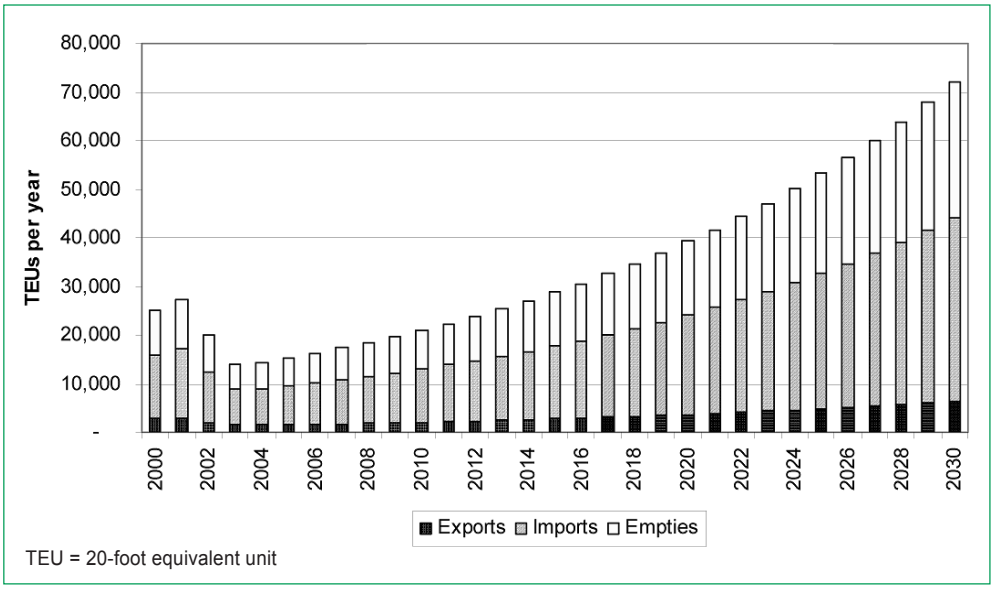


Figure 2.2. **TEU Projections, 2000–2030**



volumes greater than that in 2000-2001. The division between container and break-bulk cargo was estimated to be 60% in 2000 and is assumed to have increased over time. Empty containers are assumed to equal the balance between imports and exports with a 10% reduction factor to allow for losses.

A free ferry service, since 1999, connecting Dili with the Oecussi enclave in West Timor, provides an essential coastal link. The islands of Atauro and Jaco are also accessible by domestic, private, maritime services, though there is no regular commercial service. Cargo port facilities in Timor-Leste are limited to the single container port at Dili, three small wharves, and a number of small jetties and landings.

Dili was formally a coastal port, but is now the main and only international port of entry to East Timor. Built on the foreshore close to the center of town, the port is constrained in depth of port land behind the quayside by the main road. The layout of buildings and cargo sheds is more suited to its previous function of a coastal wharf handling mainly general cargo rather than for international container shipping. Work by the Peace Keeping Force, then under the EIRP and bilateral aid, has been aimed at repairs and adaptation of the port to handling increased volumes of container cargo. There are no shoreside cranes, so all cargo transfer is by load-on-load-off geared vessels with a small proportion of cargo being landed using roll-on-roll-off vessels. All stevedoring is undertaken under private contract between the shipping operator and stevedoring companies.

2. Development Interventions

In addition to the major physical improvements at the Dili port that were undertaken under the TFET-funded EIRP project and the Government of Japan funding,

UNTAET funded small works to restore the essential lighting and communications. The Government of Japan funded work that restored the wharf fenders and navigation aids. A second phase of the Japanese program will seal the western container yard of the port among other civil works for the improvement of cargo handling.

The EIRP originally included provision for cargo-handling equipment at Dili port and minor works at landing sites at Suai, Betano, and Baucau. These were, however, cancelled as redundant as the private sector proved able and willing to provide these. This allowed EIRP to focus on its primary objective of reducing congestion at Dili port, reduce long queueing time for ships and, thus, increase the effectiveness of delivery of aid and goods. The civil works included:

- **Eastern container yard** – installation of a gravel compaction of the soft container yard east of the port. As an emergency measure, the gravel compaction completed in September 2000, allowed more effective storage and handling of containers, thus increasing the capacity of the yard. The yard was further improved with sealed pavement with lighting, security wall, and fire fighting equipment during the first half of 2002. All work was completed by 30 June 2002.
- **Completion of the third berth** – construction of a third berth was suspended in 1997. Decking and strengthening was installed in September 2000 but use of the berth required confirmation of concrete quality, which could not be done in Timor-Leste at that time. The need to use foreign test laboratories and then undertake remedial works resulted in formal completion only in July 2001. In the interim, the berth serve the Japanese port restoration program as a service area.
- **Slipway repair** – a concrete landing ramp at the port was repaired and became operational in September 2000. The slipway serves barges handling goods, particularly humanitarian aid and military cargoes.

At the request of the Transitional Government, a study was undertaken of a tugboat operation at Dili port. This concluded that a commercial operation could be viable provided that the appropriate port regulations were promulgated.

Also at the Government's request a transitional study was also undertaken of domestic shipping services. This resulted in proposals to engage private sector operators for the Dili-Oecussi and Dili-Atauro routes under a minimized subsidy bid. The ADB-funded technical assistance for Transport Sector Restoration Project[1] prepared tender documents for the minimum subsidy franchise. The study also proposed opening of Oecussi as an international entry port. The Government, however, was gifted a vessel and opted to operate the Oecussi route, providing a fully subsidized weekly service.

Finally, the structural condition of the Dili wharf was inspected by the EIRP in association with work on the container yard. Specific areas for remedial action were

[1] TA No. 3401-ETM: Transport Sector Restoration Project, approved for $1.0 million, in February 2000.

identified. These works were proposed for the sector recurrent maintenance budget and did not qualify as emergency repair works.

3. Development Impacts – Current and Prospective

a. Poverty Impact

The port restoration under the EIRP and the bilateral program had an indirect poverty impact as the poor shared the social and economic benefits of the improved security and humanitarian conditions as a result of economic, safe, and timely landing of cargo including food supplies. Improved port capacity helped increase the effectiveness and availability of both humanitarian and military activities during the emergency period, thus helped sustain life. By increasing the efficiency and reducing the unit costs at the port, the project produced economic benefits. Import costs were reduced allowing lower prices and greater availability of imported goods, both for consumption and as inputs to domestic production. Lower port costs, achieved under the restoration projects, should also allow better farm and factory gate prices for goods that are exported and thus encourage exports.

b. Institutional and Capacity Development

The EIRP was primarily concerned with physical restoration of the port operations rather than building institutional capacity. However, it was recognized that the port sector has potential for financial self-sufficiency and could be organized as a statutory authority with independent financial statements and autonomy. To promote cost recovery, ADB engaged consultants services in February 2000 under TA 3401-ETM: Restoration of Transport Sector Project to identify appropriate port dues. These were adopted by UNTAET later in that year.

The same TA assisted with the first port asset inventory. Also, a proposal and documentation was prepared for a comprehensive technical assistance program for the port sector through a competitively selected port management contractor that would have (i) managed the port efficiently; (ii) established the sector under a statutory and self-financing authority; and (iii) trained the East Timorese port managers in all tasks involved. Port management through individual international managers was, however, opted for managing the sector with UN support.

A Transport Sector Improvement technical assistance (TA 3731-ETM) was approved by ADB in October 2001 to establish a statutory port and airport authorities and their regulatory functions and to develop a road administration for implementing road asset management. This TA would have addressed institutional and capacity building in, among others, the port sector providing cargo management instruments and improving efficiency of the port services. In light of other resources made available for capacity building from the UN resources, this TA has not been implemented.

c. Lessons Learned

Implementation of the EIRP involved coordination between donors and operators working on the same site. The laboratory testing of the concrete quality used in the restoration of the third berth demonstrated the benefits of diligent project management. The concrete quality was approved and the berth entered in use in November 2001. In hindsight, the berth provided for physical coordination of the works allowing the Japanese restoration program to be completed in time. Todate, material testing laboratory facilities are provided by the private sector contractors and are being used in the Hera port project.

d. A Way Forward

The National Development Plan (NDP) promotes national and sector vision to 2020, and a program of action for the period 2002–2006. The ADB-funded TA 3401-ETM: Transport Sector Restoration Project prepared a draft National Transport Master Plan in conjunction with the government staff as an input into the NDP. The NDP's vision for the national maritime transport and port system is to create conditions for economic development and sustainability for external commerce. Strategies outlined in the NDP for the sector (Box 2.6) include preparation of key legislation.

Hera Fisheries Port

1. Sector Status

In 1997, under the Indonesian administration, the inshore fisheries included 630 fishing vessels with outboard engines and 1,387 canoes. There were over 9,000 fishers and an annual marine catch of 2,423 tons. Offshore fisheries were closed to East Timorese and those water, which are expected to form part of Timor-Leste's exclusive economic fishing zone, were harvested by Indonesians, primarily from Sulawesi.

After the postreferendum violence a substantial part of the fishing gear and vessels had been lost. Indonesians engaged in fisheries administration also left. The postreferendum catch has been estimated at some 950 tons.

The coastal zone is characterized by a narrow continental shelf, some fringing coral reefs, and a number of fragile ecosystems, such as mangroves and sea grasses. These areas support limited marine resources and increasing demand with economic recovery will put potentially unsustainable pressure on these resources. Moving to the offshore fisheries will allow a higher level of sustainable catches and reduce the pressure on the coastal zone. The offshore resources contain many fast-growing fish species and is judged to be robust.

Estimates suggest that the marine waters of Timor-Leste can provide a sustainable annual catch of about 15,000 tons. Based on FAO recommended per capita

Box 2.6: **Strategies Outlined in the National Development Plan for Maritime Sector**

- Development of the principal maritime legislation including: establishment of the port administration as a semi-autonomous self-financing authority; definition of port limits and regulatory controls therein; a code of maritime law.
- Review and revise the port tariff structure.
- Tender, on a competitive basis, an operational concession for providing, as a public service, a tug for the port of Dili to assist in the maneuvering of ships entering and leaving the port, for fire fighting and marine rescue services.
- Develop, as a first phase, basic port services at the ports of Suai and Oecussi; as a second phase, extend basic port services to the ports of Caravel and Com. The development of regional ports will be linked to the development of the maritime coastal transport between national ports.
- Complete, with current Japanese bilateral and multilateral assistance, the current projects with the aim of complete rehabilitation of the port installations at the port of Dili.
- Training and qualifications for Timorese in specialist maritime studies.
- Sign and ratify on behalf of Timor-Leste the principal international conventions on maritime safety and transport and the Law of the Sea.
- Create a Timorese Register of Shipping.
- Support the creation of public passenger transport service linking Dili and Atauro and Dili and Oecussi.
- Develop a policy of support for national coastal trade, as part of multimodal policy for the movement of passengers and goods.
- Create a national capacity, in basic terms, for condition survey and certification of ships. Prepare an agreement with a recognized classification society.

fish consumption, such a catch can meet Timor-Leste's annual requirement for some 9,400 tons. In addition to meeting food requirements, fisheries development has potential not only for employment generation for fishers, but also in related services such as marketing, processing, and provisioning.

The strategy of the Fisheries and Marine Environment Service is that the private sector should lead in the practical and commercial aspects of fisheries development while the Government focuses on establishing sustainable management, legislation, policies, and enforcement regimes. The Government seeks to provide an enabling business environment and framework within which the private sector can operate.[2]

Hera port was developed under a previous ADB project[3] and completed in 1993. During that time effective supervision of projects in the area was not possible and construction standards used were inadequate, resulting in rapid deterioration of

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2 This strategy is consistent with ADB's fisheries strategy given in "The Bank's Policy in Fisheries." Manila, 1997.

3 Loan No. 693-INO: Fisheries Infrastructure Sector Project for $50 million approved in September 1984.

facilities. The port provides an essential support to offshore fisheries as the larger boats, typically 11m long and with gross capacity of 5 tons, require harbor facilities and cannot be safely beached as the smaller boats can. Rehabilitation of the port is, thus, a necessary requirement for restoration and development of the offshore fisheries.

2. Development Interventions

Several donors have supported restoration of fisheries capacity:

- **the Government of Australia**
  - has a small boat building project and training program for engine maintenance, both based at Hera port;
  - is helping deploy fish-aggregating devices in the vicinity of Hera port;
  - has pledged support for initial stock assessment of the inshore waters; and
  - has expressed interest in supporting necessary legislation for a new fisheries act;
- **the Government of Iceland** is supporting a canoe building training project;
- **the Government of the People's Republic of China** has supplied fishing gear, iceboxes, and outboard motors, for which ADB provided a consulting input to support distribution of the equipment;
- **the World Bank** is supporting inland aquaculture through its agriculture rehabilitation program; and
- **ADB** has provided technical assistance support for the fisheries sector for collection of baseline data to support negotiation of an exclusive economic zone.[4]

The TFET-funded and ADB-administered Hera Port Fisheries Facilities Rehabilitation Project is part of the World Bank's Second Agricultural Rehabilitation Program (ARP II) administered by ADB at the request of the International Development Association due to its infrastructure nature.

The overall objective is to contribute to sustained food security of marine protein for the people of Timor-Leste. Responsible fisheries management will be promoted through development of offshore pelagic fisheries to reduce pressure on inshore fisheries.

Civil works will be undertaken in a single contract which will rehabilitate or strengthen

- three breakwaters totaling some 140 meters (m) in length which were poorly constructed and have subsequently been damaged so that they are now submerged at high tide and provide little protection for the harbor;
- rehabilitation of some 400 m of wharf faces and of the working apron alongside the wharves to create a secure mooring site for easy on- and offloading of vessels.

[4] TA 3654-ETM: Exclusive Economic Zone Demarcation, approved 17 May 2001.

The port also includes an ice factory; a training facility; a repair and maintenance facility for marine engines and other fishing equipment; and boat building and repair facilities. After rehabilitation of the harbor, expected to be completed by the end of March 2003, Hera Port will be a dedicated fisheries harbor with a wide range of support facilities.

When the facilities are operational it is expected that they will attract the present, privately owned fleet of larger boats, including boats currently operated by fishers on Atauro island, without benefit of a harbor or market access. This will give early benefits from increased utilization of the existing fleet of some 24 boats.[5] It is expected that the fleet will then grow as marketing and support services develop.

3. Development Impacts – Current and Prospective

a. Poverty Impact

The poor will share the social and economic benefits, including better diet from increased supply of cheaper fish and increased employment opportunities.

The poor will particularly benefit from the reduced pressure on the coastal zone and consequently increased sustainability of the inshore fisheries as these are the basis for subsistence fisheries which the poor are able to access.

Appraisal of the project estimated the Poverty Impact Ratio—the discounted net benefits to the poor as a percentage of the total discounted net benefits—to be 76%, indicating that the benefits are focused on helping the poor.

b. Social and Economic Impacts

Development of offshore pelagic fisheries will allow a substantial increase in the sustainable catch. This will increase the supply of cheaper fish protein and allow recommended fish protein consumption levels to be achieved for the first time,[6] producing quality of life benefits in the form of improved nutrition and health.

The present low level of catch (about 950 tons per year) combined with demand from large numbers of expatriate staff has resulted in prices rising from about $0.8/kg to $5.3/kg. These high prices are unaffordable for many Timorese. With the number of expatriates already reduced and as the catch is increased prices are expected to fall substantially and be affordable by most ordinary Timorese.

The increased production will directly increase economic activity and employment and will provide the basis for indirect economic and employment benefits through downstream marketing, processing, and distribution and upstream provision of supporting services.

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5 Including boats built under the Australian boat building project at Hera,

6 The inshore catches in the 1990s provided about a third of the required fish protein.

c. Institutional and Capacity Development

The previously cited technical assistance has provided data related to the exclusive economic zone to help the Government negotiate and plan the use of the country's living marine resources.

Implementation of the civil works is funded by a fixed budget allocation from ARP II with little scope for feasibility studies and designs to be included in tender documents. The project has, thus, adopted a design and construct contract which is novel in Timor-Leste and may provide a model for subsequent use in similar budget constrained construction.

4. Key Issues

a. Sustainability

Sustainability of the inland fisheries will be increased through reduction in the pressure upon them.

Financial sustainability of the fishing boats will be improved through better access to support services and markets. Boats which are currently idle will be utilized and economies of scale from their larger size and the richness of the pelagic fisheries will allow them to operate in a viable manner despite the lower prices of fish projected.

Costs of port operations will be recovered in charges for landing fees, mooring fees and the like. Estimates suggest that, in addition to recurrent cost recovery, the revenue should produce a modest financial return.

b. Lessons Learned

Design of the project and the FMES strategy of which the project is part have allowed for lessons learned on previous fisheries projects. However, at the early production stage this project has not yet generated lessons to be learnt.

c. Continuing Needs

Physical development of the fishing fleet, supporting and marketing services is the province of the private sector. Donor support may usefully be used to assist FMES in developing the legal framework and regulations that will enable the private sector to function in a responsible manner consistent with the needs of sustainable natural resource management.

Further assistance to carefully monitor catches may be needed as a tool to implement the precautionary approach to fisheries utilization.