MINISTRY OF AGRICULTURE, FISHERIES, FORESTS & ALTA

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PART 4

FISHERIES DIVISION

Overview
The year 1999 had its ups and down with the CDF coming to an end, we now have the Agricultural Diversification Programme (ADP) having its aim to promote development in the nation's fisheries sector, to benefit the artisanal and commercial fishery as a whole.

Industrial Fishery

Industrial Tuna Fishery
The industrial tuna fishery was made up of Pacific Fishing Company (PAFCO) cannery, snapper and fresh and chilled tuna and associated tuna species for export. Tuna and associate species (albacore, big eye, yellow fin, blue fin, and skipjack) are extremely important to the economy of the country.

The exporters of canned product, sashimi tuna and loin products have established niche markets and are getting premium price for the products. The industry also experimented with "value added" products to prosper in the competitive market and be a leader for quality tuna products.

The lesser-known pelagic species such as swordfish, marlin, Wahoo and sunfish, however, should not be disregarded because they provide considerable in-country commerce and are important source of protein for locals.

The importance of the fishery has been recognized by the Government and in collaboration with the private sector, it has made every effort to develop the industry and maximize the net economic benefit to the country. This has resulted in an increased trend in catches over the years.

The weather anomaly caused by El-Nino Southern Oscillation in the 1997/1998 seasons ceased in November 1998. This was immediately followed by the occurrence of the La Nina, which affected the local Tuna Fishery.1999 tuna fishing season was more productive than the 1997/98 season, which was La Nina disrupted by the ENSO, and was particularly beneficial to the local tuna industry. Large size tunas in abundance were crossing the Fiji waters during the La Nina prevalence, which were mostly taken by industrial tuna fishery.

The industrial fishery consists of:
- Pole and line fishery- cannery (offshore and EEZ licences)
- Logline fishery- Cannery (EEZ)
- Purseine fishery (Cannery (EEZ. occasionally)
- Long line fishery- sashimi (offshore and EEZ)

Pole and Line Fishery
Pole and line fishery started in Fiji in the 1980's and saw the establishment of the cannery (PAFCO) at Levuka. The target species for canning is skipjack. Locals and foreign vessels supplied most of the catch from EEZ waters.

The catch record for this fishery for the period 1992-1999 showed a decreasing trend, which affected the whole year operation in the cannery. Most of the catch was imported to maintain operation in the calendar year.

The total catch of skipjack that was unloaded in PAFCO by a local vessel in 1999 was 507.91mt. The Fisheries Division tried to revive the fishery through deployment of Fish Aggregation Devices to encourage small-scale investors (fishermen) to harvest the valuable fish resource. The fishery would further boost production of the lone tuna cannery in Levuka.

Table 117: CATCH UNLOADED BY POLE AND LINE VESSELS 1995-1999 (MT)

Year	Vessels Active(No)	Yellowfin (mt)	Bigeye (mt)	Albacore (mt)	Skipjack (mt)	Total (mt)
1995	9	557	8.5	-	4318	4884
1996	7	163	.7	-	3123	3287
1997	5	46	.02	-	986	1033.
1998	1	6	-	-	459	465
1999	1	-	-	-	507.71	507.71

1999 Data Source: FD Capture Fisheries, Lami

Pole and line vessel became increasingly unpopular because the method used in fishing was labour intensive and required live bait that were caught in customary fishing right areas (vessels have to be granted permission from Customary Fishing Right owners and pay goodwill to catch baits) This was one of the drawback faced by this fishery. A low turnover rate for skipjack compared with other tuna species has been another reason for declining catch. This resulted in switching to long line fishery.

This fishery was monitored by the collection of log sheet data and unloaded catch recorded from the fishing vessels. Baitfish log sheets are also collected and recorded locally for management purposes. Log sheets and unloading records were then sent to Pacific Community (PC) for regional database.

Long line

During 1999, only two foreign long line vessels were licensed to unload fish at PAFCO. Another 18 Foreign Long liners that fished in the region also unloaded fish at PAFCO. Summarized in the table below is catch total for the last five years for foreign long liners landing at PAFCO.

Table 118: FOREIGN LONG LINE LANDINGS AT PAFCO BY SPECIES (1995-1999)-(MT)

Year	Vessels (No)	Yellowfin (mt)	Bigeye (mt)	Albacore (mt)	Others (mt)	Total (mt)
1995	20	127.7	28.1	3961	157	4274
1996	24	-	-	2043	248-	2291
1997	20	2.4	-	3171	141	3312
1998	22	239		5051	3.4	5294
1999	33	-	-	1649	-	1649

1999 Data Source: FD Capture Fisheries, Lami

The competitive price offered by PAFCO during the year saw more catch being unloaded at the cannery from foreign vessels.

The locally licensed long line fresh fish vessels contributed record landings in 1999. This was expected because of the change in weather pattern from late 1998 (El Nino to La Nina). There were 43 domestic long line vessels operating during the year, targeting sashimi (fresh and chilled) tuna summarized in Table 119.

Table 119: PRODUCTION DATA FOR THE LOCAL LONG LINERS UNLOADING FOR THE SASHIMI MARKET

Year	Vessels Nos.	Yellowfin (mt)	Bigeye (mt)	Albacore (mt)	Other Species (mt)	Total (tonnes)
1995	48	949	378	702	1039	3068
1996	42	1303	439	1184	1413	4339
1997	53	963	403	1750	1039	4155
1998	36	862	459	2121	1359	4801
1999	43	725	462	2279	1589	5055

1999 Data Source: FD Capture Fisheries, Lami.

The Domestic long line fishery has large untapped resources in the twelve miles territorial and EEZ waters, and has the capacity to allow 150 vessels for sashimi tuna harvest. In the reporting year only 43 vessels were actively fishing for domestic sashimi market. The industry needs to encourage and create environment in order to introduce both local and foreign investment in long line fishing to harvest at a maximum sustainable level.

Due to high capital investment, locals do not have the capacity to take risk and therefore reluctant to invest in this fishery. Further, lack of air space for transportation is another ongoing problem faced by the industry, and with its current expansion plan, the future looks bleak. The division will certainly monitor the situation and will request the airline industry to give preferential treatment should the problem arise.

It is no doubt that the airline industry derives considerable income from the long line fishing industry since its inception in 1991, and the Division expect support will be forthcoming in future.

Fisheries Division has taken the initiative to develop infrastructure and monitor food safety under the health regulations (HACCP-to keep stable market) to attract private sector. This has opened doors to local processors to compete with other Pacific Island Nations in marketing fresh fish products to foreign markets with very high quality standard products.

It was anticipated that normalization of weather would attract more joint venture arrangements in the local long line industry. An increase in total catch landed by domestic long liners in the reporting year was recorded. The high production was due to wide variety of other species (by-catch.) being landed.

This was attributed to El-Nino effect. The fishing vessels tried new grounds and often ended up with large amount of by-catch. They had to increase their effort in order to meet their export commitment. The industry was able to maintain previous year's production of target species for export market.

In the process large quantities of fish (by-catch) were sold in the local market. It was in the fourth quarter of the year; the weather pattern normalized and good catches were recorded. Thus 1999 was predicted to be better year for the sashimi export.

It was estimated that $(F) 87.5 million of Sashimi Tuna and $(F) 7million of Loin product were exported mostly to Japanese and US markets, and $(F) 5 million of frozen tuna to Pagopago.

Purse Seiners Imports
PAFCO has received an estimated quantity of 10,632 tonnes of Skipjack tuna from purse seine operators in 1999. The sudden increase in supply of tuna from purse seiners is to supplement the declining catches of Pole and line vessels.

Supply of Skipjack by Locals to Cannery
The local registered fishing vessels supplied an estimated quantity of 867 tonnes of fish to PAFCO. This quantity also includes catches around the FAD deployed by Fisheries Division

Pacific Fishing Company (PAFCO)-Tuna Processing Cannery
The total volume of fish processed in 1999 was estimated to be 13,655 mt. The quantity has increased 14% over the same period previous year. It was very encouraging to see that PAFCO was recovering from downturn in the business and would be able normalize its production in the year 2000.

The company's operation was hindered due to lack of fish supply. The traditional suppliers, Ika Corporation was out of business and chartered foreign vessels opted to supply Solomon Taiyo rather than PAFCO.

PAFCO exported canned and Loin tuna with value of $(F) 15.9 million in 1999.
The company's operational cost was estimated to be $(F) 2.8m. The canned product has penetrated well in the local market and the market share will increase further as the operation expands.

LIVE-FISH PROJECT

As at December 10th, 1999 there were two companies operating under the Live Reef Fish project. They were Altraco (Fiji) Ltd, based in Bua and Satseas (Fiji) Ltd based in Macuata.

Altraco (Fiji) Ltd had a reasonably large operation in Bua and their operation site was at Galoa Island, 30 minutes boat ride from Lekutu Fisheries jetty. To date the company has 15 seacages deployed at its only station at Galoa Island. This company has for the time being restricted itself to LFTV's for transport of Live fish to Hong Kong.

Meanwhile Satseas (Fiji) Ltd has a much smaller holding station at Mali Island near Labasa.

The company had a total of 7 seacages however its collection sites have one cage each. This was spread over the Northern coast of Vanua Levu.

Both operations ran quite smoothly. Live fish price for the Fijian species in the Hong Kong market as supplied by China-Hong Kong Ltd, ranged from $25.00/kg for cod to $93.60/kg for wrasse (varivoce) in local currency in 1999. Twenty (20) tonnes of live reef food fish destined for the Hong Kong market was estimated to be worth $1 million.

THE ARTISANAL FISHERY

Overview

The commercial fishing in the inshore waters had been declining in the past years. The number of licenses issued in 1999 was 1012, a decrease of 2.9% over previous calendar year. The decrease could be attributed to resource constraints (excessive fishing pressure on the existing resource) and low economic yield. The number of licenses and crew operating in the inshore waters are summarized in Table 120.

Table : 120 NUMBER OF LICENCE AND CREW BY DIVISION

DIVISION	IDA* (No)	ODA** (No)	TOTAL CREW	VESSEL (No)
CENTRAL	164	90	699	253(excl 51 skiffs)
WESTERN	374	13	904	373(excl 2 skiffs)
NORTHERN	257	38	548	254
EASTERN	30	46	153	76
TOTAL	825	187	2304	956(excl 51 skiffs)

Data Source: Divisional Annual Reports 1999
* IDA = Inside Demarcated Area (customary fishing rights)
** ODA= Outside Demarcated area

Note: Lau province with its relatively rich fishing ground has stopped issuing fishing permit. Fisheries Division stopped issuing middlemen license because it has no significant bearing on management of the resource.

Individuals involved in fishing use various kinds of fishing vessel and are categorized into unpowered vessels (vessels that do not use external mechanical force), outboard motor (vessels that are propelled by outboard motors) and inboard (vessels with in built engines to hull). The table below shows its distribution and usage by administrative division.

Table 121: NUMBER AND TYPE OF VESSEL USED IN INSHORE FISHING

Type of Vessel	Central	Western	Northern	Eastern	Total (Nos)
Unpowered	9	2	12	2	25
Outboard	209	352	191	68	820
Inboard	35	21	51	6	113
Total	253	375	254	76	958

Data Source : Divisional Annual Report 1999

There was a decline of 1.9% in number of vessels used over 1998. The decline was due to low economic yield in the artisanal fishery. There was also a switch from fishing to seaweed farming in Central and Northern Division. Some fishermen therefore, derived most of their income from seaweed farming reverted to subsistence fishing.

Local Production- Artisanal Fishery

An estimated volume of 5102 metric tonnes of fresh and frozen finfish worth $16.9 million were sold through various outlets in 1999 by local fishermen, an increase in weight and value by 13% and 42% respectively over the same period in 1998. The catch was dominated by inshore species with some 12% harvested from archipelago waters. The mean weighted price of fish per kilogram was $4.22 and the price was still cheaper than land based animal protein supply such as pork, goat, sheep, beef and chicken. The price range was from $1.00 to $8.00.

Table 122: LOCAL FISH PRODUCTION (ARTISANAL) MAJOR FAMILIES (MT)

Major Families	1994	1995	1996	1997	1998	1999
Scrombidae	1057	1229	892	659	1189	1320
Lethrinidae	511	509	616	546	481	612
Carangidae	318	294	500	243	167	298
Mugilidae	306	345	341	360	486	617
Serrinidae	573	504	570	528	491	622
Sphyrinidae	272	335	315	233	276	407
Lutujanidae	386	317	420	270	296	427
Sub totals of 7species	3423	3533	3654	3839	3386	4303
Total of all families	4794	4691	4782	3485	4182	5102
% of major Families	71.4	75.5	76	81	81	88

Data Source: Fisheries Division Market Survey Unit

Non-finfish (i.e. shellfish, crustaceans, molluscs, gastropods, holothurians, seaweeds, etc.,) produced for local domestic market was estimated to be 4870 metric tonnes with the value of $6.21 million; an increase in weight by 20%, while a decrease in value of 24%. The decrease in value was mainly due to increase in harvest of lower value species such as kai and kaikoso. Freshwater mussel produced were 1470 tonnes, mud crabs (Qari) 123 tonnes, Kaikoso 206 tonnes and Prawns 312 tonnes.

The retail mean weighted price of non-finfish is $1.82 per kilogram and has a range of $0.55 to $25.00 per kilogram. The price was skewed to lower range thus favours low-income earners. It has been noted that kaikoso and kai (fresh water mussels) were dominant species in the local municipal market.

Off-shore By-Catch Consumption in Domestic Market

The offshore by-catch sales in the domestic market play an important role in offsetting fishing pressure in the inshore waters to meet the demand by local consumers. It was estimated that 3300 metric tonnes of offshore by-catch at an average retail price of $2.50 was sold in the domestic market. The offshore fishery products were the cheapest source of animal protein available in the country. The catches have started to penetrate the hotel industry and have the potential to grow in terms of production.

Marketing

The fisheries products were sold through a variety of outlets, which could be broadly grouped into five categories:

- Municipal markets
- Hotels, restaurants and cafes
- Butchery and fish merchants
- Retail shops and supermarket
- Roadside Stalls

Over 60% of fishery products were sold in the Central Division. The relative importance of these various outlet categories vary by Division. Notable features are the importance of Butcher Shops in the Central division, Municipal markets in the Western and Northern Divisions and Roadside in the Western Division.

Sales of fish in the municipal market have declined considerably compared to the last two decades. Only 13.59% of finfish were sold through traditional outlet of municipal market. The sale of fish to doorsteps of consumers especially in settlements and roadsides have

created problems for data collectors of the department. On the other hand, municipal market remains a comprehensive source of non- finfish product. However, products like Kai, Ura, Qari and kaikoso were mainly sold in markets on roadsides and in settlements, butcher shops and supermarkets.

Subsistence Fishery

The Fijian society was very much in a transitional state from subsistence to commercial economy. There was a small but significant population still living in subsistence sector and this subsistence living was going to be in the economy for a long time. This was probably due the geographical dispersion of some 80 inhabited islands of the country.

Therefore subsistence fishery was an important sector to the division. The division fully realized the impact of subsistence sector in managing the inshore resources. The extension officers continued to provide advisory services whenever required.

The subsistence production for 1999 was estimated to be 17800 metric tonnes (this included finfish and non-finfish). This figure was based on the survey carried out in early 1970's. This production estimated by the section included semi subsistence production.

Subsistence fishery production statistics for Viti Levu was completed in 1994 and for Vanua Levu, field survey had already been carried out in December 1998 and the report was expected to be completed by mid 2000.

The subsistence fishery, in terms of volume represents twice the size of artisanal fishery and puts significant responsibility on the Fisheries Division of management for sustainable use.

Although its distribution was throughout the islands with abundant resources, the areas near urban centres felt the effects on the resource and were had direct conflicts with commercial operators. Some of the fishing grounds near the urban centres were either banned from commercial fishing or only allowed restricted fishing practices.

Game Fishing and Ecotourism

About 50% of Fiji's economy depended on the tourist industry, which depended on the sea, beach and clean aquatic environment. It has a lot in common with Fisheries Division area of operation. Game fishing has attracted a lot of tourists to our shores both for professional game fishing and casual fun fishing.

The division has closely monitored fishing activities organized by the tourism industry, like Deuba game fishing for pelagic species of marlin, swordfish and etc, and wished to give its full support in developing the industry into its full potential. Game fishing has the potential to grow in future and will definitely contribute positively to the country's foreign exchange.

Resource Assessment and Development

Collection of Production Data

The Division continued to monitor catch statistics from municipal markets, roadsides, butcher shops and supermarkets regularly in order to formulate policies that suit management in the contemporary period. The raw data collection involved weight and price to species level and by fish outlets in central, western and northern divisions.

Tuna Catch Statistics

The industrial fishery was better organized in collection of data, as it was mandatory for tuna operators to submit catch/data forms to fisheries office after every fishing trip. This condition attached in the fishing license helps the department to receive data at virtually no cost. However, the data received by operators is often delayed up to 4 months. (The analysis of tuna fishery is evaluated under industrial fishery)

Fish Aggregation Device (FAD)

FAD is a very useful device that helps the fishermen to divert attention from reef areas and saves cost for industrial operators in locating fishing ground. The local fishermen who are supplying fish for domestic market are fully utilizing the device in Central and Eastern Divisions and have reported good returns from their fishing operation. The industrial fishing boats are also reporting good catches around the FAD's.

With high success from the project, the Division continues to deploy new FAD's and maintains the existing ones in order to support the need to harmonize fishing in the reefs, meet the demand from consumers and enhance industrial fishery development.

In the reporting year the division deployed 8 new FAD's, maintained all the previously deployed ones. Five new FAD's have been deployed in Western Division, two in the Central Division and one in the Eastern Division. The FAD's for domestic market are deployed near the two cities where the demands for fish species caught near the device have acceptable market.

The distinguishing features of FAD's are buoy s made of yellow purse seine floats joined together with green PVC wire rope. The floaters are attached to the anchors of 44-gallon drum filled with cement with 12-strand polypropylene and nylon mooring ropes.

Table 123: POSITION OF COMMON FADS

POSTION	LATITUDE (S)	LONGITUDE (E)	DEPTH (M)
Mua	18° 17 340	178° 19 536	850
Nasese	18° 16 500	178° 29 000	1000
Nukulau	18° 14 833	178° 34 747	850
Naselai	18° 11 750	178° 39 500	800
Mana	17° 41 500	176° 57 199	1154
Vatututolu	17° 14 250	177° 55 066	361
Waya	18° 11 750	178° 39 500	800
Viwa	17° 09 829	176° 56 883	369

Data Source : Fisheries Division FAD project, Lami

Sedentary Fishery Resource Development

The specific products like trochus, pearl shell, ornamental fishes, Beche-de-mer and corals are important commodities for foreign exchange. Although these species are not consumed, several people depend on the income derived directly from these products. The past trends have indicated that these resources are under severe constraint. The management of these resources is vital to maintain continuous flow of income to most rural population.

Beche-de-mer, (the most vulnerable resource), came under scrutiny by public due to the misery caused during its harvest. The department liased with all stakeholders to develop policies that would prevent further inconvenience to public health. (Model for Beche-de-mer management has been published in fisheries technical report).

Every effort was being made to monitor this resource for sustainable use. The department has helped to establish machinery like Beech-de-mer Association, Ornamental fish & Coral Association and Offshore Council to better manage the resources. Such gestures are in the right direction towards modern day trend of participatory management.

However, a follow up with appropriate legislation would see that every stake holder's interest was adequately catered for and paramount concern of sustainable development remains focused. (Details of sedentary resource exported are found in the export table).

Giant Clam

The giant clam project that was initiated in the early 1980's for breeding. Clams in hatchery, has successfully achieved its objectives in 1999. The project was initiated to reseed reefs that were over exploited (with juvenile clams) and some species that were extinct or in danger of extinction. Later, the project's commercialisation potential to earn foreign exchange was evaluated.

However, giant clam's ability to fully commercialise requires considerable time lag. The nature of the product, which matures in 12 years and lack of funds and personnel skill development are some of the associated factors. In 1999,the Giant clam project operation successfully achieved the following:

Table 124: DETAILS OF CLAM CULTURE AT MAKOGAI FISHERIES STATION

Raceway Number	Species	Number of Clams
1,2,13,15,16,17,18	T-derasa	28,800
3,4,9	T-gigas	10,680
5,11	T-squamosa	5,400
TOTAL		**44,880**

Data source: CDF culture and inshore programmes report 4th qtr. 1999.

Total Land Based clams – 270,880

Tank No	Species	No. of Clams
1,2,3,4,5,6,7	T-gigas	226,000

Seaweed

Commodity Development Framework helped to establish and secure overseas market for dried seaweed with a United States company, which has a subsidiary in Denmark. The dried product is used for carrageen production - substance used for preservation of edible food products for human consumption. This breakthrough led to the expansion of farms from Central Division to Northern (Macuata) and Eastern Division (Lau).

The target number of farms for the year was cultured and it is believed that maximum production from the farms will be possible in the year 2000.The total number of seaweed farms for 1999 was 632. The expansion of seaweed farming will continue to suitable areas next year as it has a lot of potential for development due to the presence of unused resources of the country.

Pearl Oyster

The pearl oyster has the ability to earn good income with low inputs. Although the pearl oyster farming has been around for some time, the technology transfer was not done. The commodity has been brought under CDF scheme to develop it as a potential source of income for rural areas.

The reporting year showed that the skills of current project staff has been developed through on job training and observation from a consultant engaged in the project. Also major breeding season of Blacklip pearl oyster was identified and this will help in collection of spats for mass culturing the animals on a farm. The establishment of an experimental farm at Nasavusavu with a stock of 3035 shells for seeding was carried out.

The project was able to secure assistance from international organization (ICLARM and ACIAR) in technical and financial areas and this will accelerate commercial development of the commodity.

The pearl oyster shells from the wild were exported to Japan, Korea and Taiwan. In the reporting year 10 tonnes of shells with the estimated value of $0.06 million of had been exported. The demand for the product by importers was not met by the fisher-people, indicating that the resource was under constraint. The Division hoped to carry out stock assessment and formulate policies that will help to manage the resource sustainable.

Trochus

Trochus is a valuable export commodity used for making fashionable buttons. The natural production in 1999 was estimated to be 92 metric tonnes worth over $(F) 1.84 million. Recently the production has declined despite the high demand for the resource.

Development of this resource has been necessitated to allow continuity of income to the rural dwellers and improve on the foreign exchange. In these respects trochus hatchery was established alongside Giant clam to study and breed the animals to improve stock status of the wild.

The trochus harvest from the wild was exclusively for export and the product has gained lot of prominence in major world markets. In 1999, 92 metric tonnes of trochus shell were exported raw while the rest were further processed locally in three button factories. The value-added product known as button blanks fetched a higher price and provided additional employment.

Beche-de- mer

Its trading has been carried out in Fiji over a century and little biology of the animal has been known. Thus management of the species has been a difficult task for the division. The 'boom and bust' management practices did not give full benefit of the resource to the custodians. The resource rent paid to resource holders presently has a high opportunity cost.

The annual production for 1999 was estimated to be 250tonnes worth $(F) 5 million. The production has declined over the recent years from peak of 800 tonnes in 1989. This has prompted the department to have a full-scale study of the commodity so that management of the resource can effectively serve the needs of the stakeholders.

In 1998, beche-de-mer hatchery has been set up with the aim of studying the techniques of breeding and reseeding the overexploited reefs with juveniles. The future potential of operating commercial farm is also being evaluated.

The study will provide biological information that will be used for formulating legislation such as, minimum size limit for harvest, potential closure of season to allow for breeding and recruitment, and ban on fishing on specific reefs to regenerate population stock.

Freshwater Aquaculture

Culture of freshwater species dates back to the 1950's, when Tilapia commonly known in Fiji as Malaya (Oreochromis mossambicus) were introduced from Malaysia for livestock supplementary feed, especially for piggery farms. In 1968 Grass carp was introduced for the purpose of biological weed control in the rivers around Fiji.

The major momentum for the freshwater aquaculture began in 1975, through the establishment of Naduruloulou Freshwater Aquaculture Research Station. Here major research work of grass carp was undertaken. Also during the same period new strains of Tilapia were introduced to assess its culture potential.

From 1975 to 1980 fish farming had been identified as subject of development efforts in the Fisheries Division Development Plan. In 1981 the rural aquaculture program was established to encourage farming to supplement protein in rural areas. In 1998, focus of the project changed from subsistence in individual collective ponds to income generating multiple ponds.

In order to preserve and develop the fishing industry, aquaculture and stock enhancement of valuable species has been considered by the government. One of the main species considered is tilapia for freshwater culture

Freshwater Tilapia

Tilapia farming was initiated in 1975 to supplement protein needs of rural population that were mostly living inland. The project was in the experimental stage for a decade before the technology was passed to farmers for subsistence purpose. Since tilapia is a hardy species, it adapted well in local conditions and lot of farmers showed interest in it. The fish stock in the inshore areas showed signs of restraint.

This has prompted the division to improve its efficiency in order to commercialise the production. The division looked into the possibility of improving genetic and preparing formula for suitable food at lower cost.

A team of scientists from Queensland University and Fisheries staff under ACIAR funding came up with fast growing species that are available from government and private hatchery for farming.

The feed formula has also been developed for commercial production and has been given to local feed process (Crest) for production. However, the cost of production of pellets (74cents/kg) and grower mesh (44cents) is high due to import of essential ingredients from overseas.

This made the division to recommend farmers to culture approved strains using this feed for commercial success. The feed formula has to be reviewed using local ingredients for commercial success and the division with the help of Koronivia Research station is working in this area.

To ease the problem of high cost of feed, aqua culturists in Naduruloulou are experimenting integrated fishing using tilapia in the pond and ducks in the house constructed above the farm. Economic analysis is yet to be carried out for its implementation.

CDF identified Tilapia Farming as a source of income for rural dwellers, good protein source supply and means of foreign exchange earnings. To achieve these objectives, effective management and large scale operation was necessary to reduce cost of production. The benefit of economies of scale by commercial production will be distributed to subsistence farmers through reduced cost of production of feed and seedlings.

In the reporting year the production of tilapia is estimated to be 297 tonnes in 45.57 hectares. The total number of farms in operation is 13 commercial and 268 subsistence. All the three hatcheries in Ba, Savusavu and Naduruloulou are operating efficiently and are ready to provide farmers with seedlings when requested.

The local market price for tilapia is $3-6 per kilogram and has capacity to absorb large quantities of harvest. The division has ready overseas market of 5-7 tonnes per week.

Ornamental Fish/Live Coral

The affluence in local community has seen an increase in the demand for aquarium fish. The present local market of $0.25 million exists and it is envisaged that huge export market can be tapped.

The division has identified this project to provide employment, serve the existing market and earn foreign exchange with relatively minimum input. The NRS has made progress in the production and distribution of gold fish (red comet) and fancy carps (koi).300 gold fish and 300 fancy carps were stocked at the hatchery for population enhancement program. Over 10,000 fingerlings of both species were produced through this program.402 gold fish/fancy carp were sold generating a revenue of $1650.00.

It should also be noted that natural stocks of commercial aquarium fish are exported to world markets from Fiji and this industry has been doing quite well in 1999.Seven companies were in operation this year in Fiji.

Corals

Another important species in the category of ornamental product is live coral, which is harvested for export to United States. After all the adverse publicity by environment lobbyists, the industry has proved its worth both environmentally and economically. Studies have found that extraction of coral wisely will not affect associated fauna and flora. The Division is closely monitoring the activities of the companies involved in this operation.

In the current year Fisheries Division issued license for export of 126,055 kg of coral and coral base rocks plus 186,852 pieces of corals.

Freshwater Prawn Polyculture

The freshwater prawn culture has attracted huge interest among local farmers for high return and ability of farmers to comprehend technology that has been disseminated by the Division. At present prawn farming is being polycultured with carps and tilapia. These species have different feeding habits at different water column and being non-predators of each other make it possible for the animals to stay in harmony in the same pond. This has enormous economic benefit that makes it very attractive.

The Division has already established three farms to gauge its full potential before going into large scale production and is closely monitoring the economics of these polyculture commercial farms. In 1999 further 6.4 hectares of land area was developed into polyculture farms.

The polyculture commercial farms aimed to produce 15 tonnes of carps and 7 tonnes of prawns in 1999 but managed only 4 tonnes of carps valued at $16,000, and 2.1 tonnes of prawns valued at $27,300 for the reporting year. The price for carp in domestic market is $6 per kilogram thus augurs well for future development.

The Local Prawn Industry

The prawn aquaculture industry has been supplying an average 150 tons to 200 tons of prawn for domestic consumption annually. This was achieved through protection of high tariffs on imports and duty concession on farm inputs and machinery. It has been reduced to 15% from 22% in 1999, and an increase in tariff for farm in puts from 0% to 3%.

A temporary hatchery was established at Galoa towards December 1997, capable of producing 2,000,000 post larvae per year. The temporary hatchery have produced a total of 3.923 millions post larvae since its operation. The resultant pond production was 37 metric tones of shrimps, valuing $1.075 millions.

The goal for the industry is to establish a permanent Hatchery capable of producing at the minimum 20,000,000 post larvae, and maximum of 60,000,000 post larvae per year. This is intended to produce a minimum requirement of the production of 1000 metric tones of shrimps per year.

Brackish water Shrimp Culture

Shrimp is regarded as a commodity with the highest economical return compared to other marine cultured animals. The coastal environment of Fiji is conducive to the culture of brackish species on a commercial scale. The task of Fisheries Division is to develop, promote and commercialise shrimp farming The Division has undertaken intensive research, Technological transfer, facilitating post larvae (seedlings) to farmers and imparting skill to private sector to achieve its goals.

The Division has developed a temporary hatchery in Galoa, Navua to supply post larvae to existing farmers and selected new starters. The post larvae hatching is the biggest obstacle to farming by interested private entrepreneurs. Previously the existing farmers used to import post larvae from overseas to fulfil their needs.

With the availability of seedling, local as well as foreign investment is likely to eventuate and production will substitute imports of shrimp for local market and the surplus will be exported for foreign exchange earnings.

There are five prawns farmers been established. Three in Navua and one in Ba, Only two are operating, namely; Coral Reef Prawn at Ba, and James Tilbury Prawn Farm at Navua. The exit of the three was due to disease imported Post Larvae which crashed their operation and created cash-flow difficulties. All these farms used their own funds for their capital development, and very little funds were left for operation. This was due to lack of knowledge on prawn farming by banking institution, hence its lack of confidence and funding.

Production at full capacity of all these already established pond areas should be producing 500-600 tonnes of prawns.

Milkfish Culture

The demand for milk fish as bait in tuna industry has given the Division incentive to develop this commodity to enhance tuna & live fish exports, retain cash in the country to realize better spin off, provide employment & income to coastal dwellers and provide protein to rural communities.

Twenty ponds of 5 hectares each were constructed together with installation of pump for seawater supply in 1998, and 22 sites were identified and surveyed for development in 1999 in Viti Levu (15) and Vanua Levu (7).

The seasonal pattern for collection of fry from natural habitat was established together with prominent sites in Bua , Macuata for collection of fry that will be used to stock the ponds in Dreketi, Labasa. The fry collection sites in the Ba and Ra (Western Division) established. The Dreketi Research Farm identifies a stock of 272,221 milkfish of average weight range of 12g to 3.5 gathered includes fish from new fry stocks, bloodstocks and old stocks.

The formulation of suitable feed is being studied in collaboration with Sterlin University. At the moment, the tilapia grower feed is being used at a rate of 2% body weight twice daily.

Market research for the Milkfish was carried out to ascertain its demand .It was found that tuna fishing vessel used 100-150grams of specimen, thus culture of Milkfish will be cycled around the industry requirement. A live fish exporter has positively indicated its requirement of 96 tones annually with current operation and it is likely that it will expand operation in near future. It should be noted that Milkfish can grow over one kilogram in a short period and be used for household consumption as valuable protein source.

The concept of culture is relatively new to the fishing communities and to gain its full momentum, human skill development has become part and parcel of the operation, therefore, time lag is inevitable.

ARCHIPELAGO WATER RESOURCE

Deepwater Snapper

Deepwater fishery was developed in early eighties for commercial utilization of the local Deepwater Snapper resources to divert fishing from reef areas to deeper waters .The fishery brought significant improvement to fishermen's income and foreign exchange of the country. The fishery was hampered with collapses of overseas market and the fishermen lost enthusiasm.

The CDF program revived the deepwater snapper project in 1997 with the involvement of a private company (Trans Pacific Seafood Limited). The company is renowned in the field and has ready market in developed countries. There are a number of local fishermen supplying fish to the company. The company is processing (value adding) the fish before exporting. Fisheries Division is monitoring the quality to improve the image of Fiji products overseas so that markets for other marine produce can be opened without difficulty. Quality product also helps to maintain the market and brings better return on the sales.

The Division has facilitated and encouraged several local fishermen in deepwater fishery. Training on fishing techniques and gear usage was carried out to equip the fishermen with modern fishing technology and methodology. The responses from the fishermen were tremendous and production for the year gradually increased in 1999. TPS handled 19 tonnes of snapper for export in 1998, and 22 tonnes until August 1999.Apart from the harvest of export species, fishermen also have some by-catch that is sold locally.

Currently 3 local industrial fishing vessels are registered to operate in the deep water snapper fishery, besides several small scale vessels which is a positive development for the snapper industry.

The project was expanded during the year to boost employment, production, improve fishermen's income and increase foreign exchange earning.

Table 125: SUMMARY OF LOCAL FISH PRODUCTION, 1995-1999

CLASSIFICATION	1995		1996		1997		1998		1999	
Weight (Tons) Values ((F$,000)	Weight (Tons)	Value ($,000)	Weight (Tons)	Value ($,000)	Weight (Tons)	Value ($,000)	Weight (Tons)	Value ($,000)	Weig ht (tons)	Value ($,000)
ARTISANAL FISH										
Municipal Markets	582	2057	547	2144	476	1981	481	1919	583	2058
Other Outlets	4106	14178	4580	17350	3008	15040	3701	14766	4107	14180
Smoked Fish	7	26	13	52	5	21	-	-	8	27
Salted Fish	12	77	7	75	5	61		--	13	78
Sub -Total	4707	16356	5147	19621	3494	17103	4182	16685	4708	16357
ARTISANAL NONFISH										
Municipal Markets	1438	2049	1469	1950	1477	2112	1660	2556.4	1439	2049
Other Outlets	1239	5402	681	4575	849	2867	970	1493.8	1240	5403
Sub -Total	2677	7451	2150	6527	2326	4979	2630	4050.2	2679	7453
INDUSTRIAL FISHERY										
Pole & Line	4885		3288		987		465		507.09	
Purse seine	1293		4374				3576			
Long line (Foreign)	4274		2732		3031		5296		1649	
Long line (Domestic)	3069		4340		4156		4801		5056	
Others (Imports)	3921		4378		4424.3		5000		10,632	
Sub -Total										
Bait Pole & Line										
Subsistence (est.)	17000		17200		17400		17600		17800	
CANNERY PRODUCTION										

Canned Tuna (48x 7oz)	92000		34000							
Fish Meal (Tons)	530	275		500						
EXPORT BY VOLUME										
Shark Fin	105		42		54		52		102	
Trochus shells	102		84		99		130		134	
MOP shells	40		75		57		10		71	
Beche-de-mer (Dried)	454	5595	666	5709	452		250		461	5691
Frozen Crab			.09	1	.13	1.9	.5		25	84
Frozen Fish others	2.2	5.92	5.25	12.78	2.271	5.258	3			
Frozen Fish (PAFCO)	1520	3480	1200	1550						
Chilled Fish (Sashimi)	1500		2000		2200		2185			
Seaweed	-	-	-	-	-	-	2			
Smoked Fish			.05	1	1.4.	17	.6			
Fish Dried Salted	21	208	86	312	1	28	1.3			
Crustacean & Molluscs	882	1742	419	1784	139	1297	120		22	209
Fish Meal	636	370	166	129	259	188				
Canned Fish excl. Tuna	273	535	1103	1882	735	1328	63			
Canned Tuna PAFCO est	6706	33617	5817	27407	4600	14500	6381			
SUBTOAL										
OTHER EXPORTS										
Aquarium Fish (No.)	116438	423	88017	220	129975	783	126233		118341	519
Coral & others (tons)		537401	1604	1180	2611		1279			
Pet-Food			28	22						
SUB TOTAL										
Local sale c/ Tuna (Tons)	1500	28000	1540		1650	3700	2500		1701	30101
Local sale Tuna Fish Meal (Tons)	530	275			700	500	110		545	291

Data Compiled by Market Survey Unit (FD)

Information And Library Service

The Fisheries Division Information Section has been instrumental in the production of Fisheries newsletters, pamphlets, reports, radio broadcasts, newspaper supplements etc. to enhance public awareness on the fisheries sector in Fiji and to support the activities of the extension section. The Division also through the Information Section participated in national events such as the Environment week, Careers Expo, World Food Day, Disaster Awareness Week with Fisheries themes of education relevant to the social and economic development in Fiji. The focus in the first quarter of the year was on intensified media coverage of fisheries commercialisation under the CDF. Thereafter, the fisheries awareness and educational programs were refocused on the Agricultural Diversification Programme.

The main Fisheries Division library at Lami contains of wide range of books, periodicals, and publications on relevant topics that are made available to Fisheries Division staff, USP students and interested citizens through the Division library at Lami and the branch libraries in Lautoka and Labasa. The two branch libraries at Lautoka and Labasa were officially opened in 1999. The computerization of all publication using Moana data basis (CD-ISIS program) has vastly improved efficiency of library search and customer service. It is envisaged that the main library will be linked to PIMRIS (Pacific Islands Marine Resource Information System) and other regional organizations.

Administration

Personnel

The Fisheries Division had on roll a total of 141 staff of which 109 were established and 32 unestablished.

At the end of 1999, the Fisheries Division had 100 technical posts and 9 administration posts. This brings the total number of established posts to 109.
The Division made 12 new appointments, 3 promotions and 4 transfers during the year. Further 1 officer retired from the service and 3 have resigned. Other workers at Fisheries Division, Lami include 1 Korean volunteer and 1 JICA Fisheries Development Officer.

Finance

The Fisheries Division was allocated $1.14 million for providing various services to the public. Apart from the operational budget, the department was also allocated $3.19 million under CDF program to develop specific commodities for commercialisation. Tables below show the release of money by quarter and its expenditure

Table 126: OPERATION BUDGET ALLOCATION & EXPENDITURE FOR FISHERIES DIVISION - 1999 ($'000).

Data Supplied by FD Accounts section

	Quarter - 1		Quarter -2		Quarter - 3		Quarter -4	
Central /Eastern								
Allocation	222.47	100%	276.66	100%	257.22	100%	179.23	100%
Commitment	183	67%	265.25	75%	250.15	72%	178	86%
Balance -Y-T-D	39.47	33%	11.41	25%	7.07	28%	.57	14%
Western								
Allocation	17.75	100%	35.69	100%	26.75	100%	23.22	100%
Commitment	16.32	94%	32.33	87%	25.5	88%	22.33	88%
Balance Y-T-D	1.43	6%	3.36	13%	1.25	12%	.89	12%
Northern								
Allocation	16.75	100%	39.03	100%	31.91	100%	10.59	100%
Commitment	12.45	75%	25.07	65%	30.01	89%	10.26	91%
Balance Y-T-D	4.3	25%	13.97	35%	1.9	11%	0.33	9%
National								
Allocation	256.97	100%	351.38	100%	315.88	100%	213.04	100%
Commitment	211.77	85%	322.65	88%	305.66	85%	211.25	89%
Balance Y-T-D	45.2	15%	28.73	11%	10.22	15%	1.79	11%

Commodity Development Framework
Table : 127: SUMMARY OF COMMITMENT AS AT 31ST DECEMBER,1999.

Programme	*Approved Provision*	*Actual Amount Release*	*Amount Utilised As To Date*	*Balance (Remarks)*
Mari culture	300, 000.00	208,088.00	372,052.00	(163,964)
Giant Clam		62,580.00	102,320.00	(39,740)
Pearl Oyster		125,008.00	183,920.00	(58,912)
BDM & Trochus		20,500.00	85,812.00	(65,312)
Sub Total		**208,088.00**	**372,052.00**	**(163, 964)**
Aquaculture	250,000.00	266,770.00	263,365.00	3,405.00
Tilapia		208,336.00	200,744.00	7,592.00
Poly – Culture		30,855.00	28,961.00	1,894.00
Ornamental Fish		27,579.00	33,660.00	(6, 081.00)
Sub Total		**266,770.00**	**263,365.00**	**3,405.00**
Brackish water	300,000.00	233,780.00	254,258.00	(20, 478.00)
Milkfish		233,780.00	254,258.00	(20, 478.00)
Sub Total		**233,780.00**	**254,258.00**	**(20, 478.00)**
Offshore	350,000.00	565,346.00	531,295.00	34,051.00
Tuna		376,012.00	343,271.00	32,741.00
Snapper Deep		189,334.00	188,024.00	1,310.00
Sub Total		**565,346.00**	**531,295.00**	**34,051.00**
Inshore	400,000.00	367,185.00	272,619.00	(5, 434.00)
Live Fish		167,300.00	173,089.00	(5,789.00)
Aquarium		69,885.00	72,321.00	(2, 436.00)
BDM		30,000.00	27,209.00	2,871.00
Sub Total		**267,185.00**	**272,619.00**	**(5, 434.00)**
Seaweed	2,800,000.00	1,350,000.00	1,888,395.00	(538,395.00)
Shrimp	424,571.00	300,000.00	481,695.00	(181,695.00)
Total	*4,824,571.00*	*3,191,169.00*	*4,063,679.00*	*(872, 510.00)*

Data Supplied by FD Accounts section.

Fiji Development Bank Assistance

FDB continued to play its role in providing financial assistance to fishermen throughout the country to procure fishing vessels and other infrastructures. The FDB has some stringent regulations that inhibit poor fishermen to access their services and there is a lot of concern by the fishing community who generally does not own very many assets.

Nevertheless, the bank assistance has helped many entrepreneurs to develop successful business.

Table 128: FDB LOAN

BRANCH	NO. APPLICATION /VALUE	NO.PPROVAL /VALUE	NO.DECLINE /VALUE
Suva	6/$334,822.00	3/$272,373.00	3/$62,449.00
Nausori	9/$484,191.39	7/$395,663.40	2/$88,527.99
Western	-	-	-

Data Source : Divisional Annual Report,1999

Boat Building/Repair Program

The existing facilities of boat building were brought into operation to build punts. Seaweed farmers culturing under CDF programs used the punts. A total of 310 new punts of 21 foot were constructed and delivered to the seaweed farmers while maintenance on other boats was carried out. The constructed boats are of excellent quality and costs are much lower compared to private builders.282 outboard motors were supplied to seaweed farmers in 1999.

Support/ Regulatory Services

The extension and technical officers continued to offer their services to fishermen. They participated in tikina, provincial and advisory council meetings to inform public on the developments. Training to disseminate information and new technology transfer was also carried out. The training focused more in post harvest handling. These help fishermen to maintain and supply high quality products and get better returns for their production.

The engineers play a crucial role in providing assistance and advice to fisher people in maintenance and efficient running of their outboard and inboard engines, in order to avoid mishaps at sea.

Regulatory Service

The Division with assistance of police and navy continued to regulate provisions under the Marine Space Act. Despite shortage of staff, sea surveillance, market and roadside patrols were carried. The main purpose of the patrols is to contain any infringement that may affect sustainability of the resource.

Human Resource Development (HRD) Unit

Staff training and development surely offers one of the best options to cope with challenges that we are now experiencing.

It is now recognised that in order to operate effectively and efficiently, we will have to rely on the quality of our workforce i.e. Fisheries staff capabilities. It becomes our duty to improve our knowledge, skill and attitude through proper identification of training needs. Not only this but the acquisition of our own knowledge skills and attitude to upgrade our own performance is very important. One can only deliver what he or she has acquired.

Overseas Training

Table : 129: OVERSEAS TRAINING

Country	Number of Participants
Australia	2
N/Caledonia	1
Taiwan	2
Malaysia	1
Philippines	2
Solomon's	1
Singapore	1
Thailand	1
Palau	1
Tahiti	1
Hawaii	2
W/Samoa	1
Korea	1
Japan	8
Total	25

Training Data Source : FD HRD Unit

Local Training

JOBS Fiji Ltd put up training courses for customer services to focus public sector organizations into commercial customer driven enterprises

Table 130: LOCAL TRAINING

	Eastern Division	Central Division	Western Division	Northern Division
G.T.C			2	1
School of Maritime Studies		10		
Co-operatives		4		
C.T.D Fiji (AUSAID)		2		2
JOBS Fiji Ltd		11	3	2
Asco Motors		2		
TOTAL		29	5	5

Ice Production

In 1999, a total of 1834.1 tons of ice was produced with a total value of $214,173 dollars. The total production has decreased by 24.8% over the same period previous year. It should be noted that ice production is slowly being privatised and figures given in the tables exclude their production.

Table 131: ICE PRODUCTION AND VALUE

Office	1998 (MT)	1999(MT)	Value 1999(F$)	% Change in Production
Lami	200	NA	NA	
Wainibokasi	171.7	282.1	32,862	+64.3
Navua	134	159.0	19,941	+18.7
Lautoka	1003	721.1	84,053	-28.1
Sigatoka	17.4	29.4	4324	+69.0
Ba	440	456	51,054	+3.6
Rakiraki	50.52	55.7	6931	+10.3
Labasa	228	N/A	N/A	N/A
Savusavu	124	N/A	N/A	N/A
Lekutu	44.2	60.6	6572	+37.1
Nabouwalu	7.9	12.9	1422	+63.3
Taveuni	33.8	37.4	4111	+10.7
Lakeba	.9	5.3	797	+488.8
Kadavu	30.6	14.6	2,106	-52.3
Total	**2486.02**	**1834.1**	**214173**	

N/A: Not available. Source of data : Divisional Annual reports (1999)

Vessels

Only one (Tuiniwasabula) out of three sixty-meter vessels was in operation in the reporting year. The other two vessels were under major repairs. Two of the three vessels (Gonedau, Adi Caginitoba) were over 40 years old and needed urgent replacements. This will save large amount of repairing cost and time thus allowing more time at sea. Tuiniwasabula was in operation last year easing excess usage of Gonedau.

The Gonedau was extensively used for CDF projects and Extension works. The vessels have the capacity to carry heavy load and were used to deploy FAD's and carry fishing accessories to inter-islands. The administrative Division used two 33-footer vessels and five 28-footer vessels in their respective Division are to deliver fisheries services.

Nearly 80% of the activities of fleet section was involved in assisting CDF and the rest with extension and technical services.

TRADE

Exports

Introduction of CDF has developed and made possible export of several commodities from fisheries sector. The main commodities developed are seaweed, ornamental fish, prawn larvae, trochus shell, Beche-de-mer, loin tuna and fish fillets.

The export of fish and non-fish product has become very important in the Fijian economy. This was clearly demonstrated during the collapse of sugar export due to drought. The economy of the country was revived with help of other agricultural and fisheries commodity exports.

It is difficult to give exact value of export due to existing marketing arrangements i.e. major portion of fish exported to Japanese market are auctioned. Nevertheless, it is reported that the

country earned F $55 million of foreign exchange during the reporting year. With easing of El-Nino effect during last quarter of the year, the industry exported large quantity of fishery products and hopes to gain momentum next year. This represents an estimate of 1.5 % of GDP. This figure (1.2%) is above the estimate made by Government statistician because their calculation is arrived through the base year of 1989 when sashimi export was not in existence.

The tables in the appendix give detailed break down by commodities. It should be noted that value presented in the table is calculated on accrual basis and differs slightly with cash flow system of Reserve Bank used in the report.

It is generally believed that value of fisheries resource export in the overseas market is much more than the foreign exchange earned by the country. This could be due to large foreign investors in the industry who may be holding funds offshore.

Imports
The import of fisheries products to the country is estimated to be $43 million. PAFCO and Voko canneries import large quantities of raw products for processing. The huge tourist industry is also responsible for large value of imports. Only 20% of imports by value are used for local consumption. It should also be noted that 10% of an estimated value of import is used for purchase of fishing accessories.

Re-export
Fiji re-exported $0.9 million of fisheries products to neighbouring countries.

International Linkage
Fiji is signatory to numerous international agreements. The most important for Fisheries Division is United Nations Law of the Sea Convention, Agenda 21, Convention on Marine Pollution, Conservation of Biodiversity and etc.

Fiji's Fisheries foreign earning very much depend on tuna ("Oil of the Pacific"), which is highly migratory species. Therefore, tuna has become a regional resource. The Pacific Island countries have formed a common organisation (Forum Fisheries Agency (FFA), Pacific Community (PC), and Forum Secretariat) to pursue their interest in managing, conserving and exploiting the resource.

The law of the sea convention makes it mandatory to cooperate in managing highly migratory species. Fiji with its background of its highly qualified personnel and infrastructure was looked upon as leaders in the positive direction towards development.

The Fisheries Division is supporting multilateral treaty in an effort to maximize net economic benefit to island countries. The multilateral approach helps to strengthen negotiating powers of Pacific states with distant fishing nations.

The collective voice also helps to persuade distant water fishing nations to use the resource wisely in open seas so that tuna resource of the Pacific is sustained. The main advantage of cooperation is to have a common voice to strengthen their interest in international scene, save cost of administration, have maximum utilization of available expertise and share knowledge and experience.

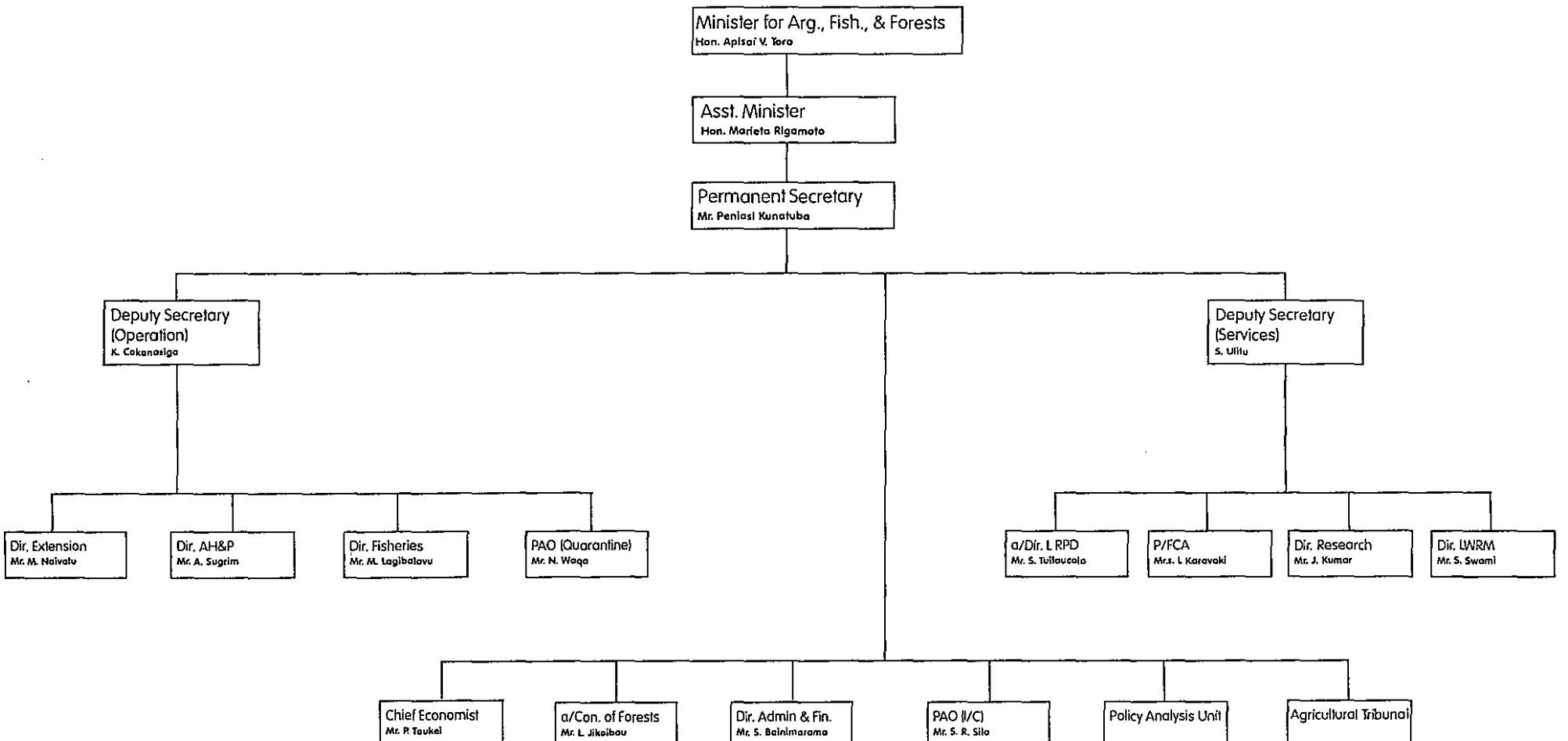
The Division also actively participated in other international organizations, such as FAO, to improve the welfare of people and provide & derive considerable information and expertise. Another area of involvement was in the international convention on green house gases.

The Division participated to study and prepare for the impact that may affect the nation, such as sea level rise, rise in temperature, increase in natural disasters like storms, drought, floods and etc. The effect of El Nino in 1998 had a devastating effect on industrial fishery in Fiji. This has reinforced the Division's position on the impact of external environment on the industry.

Programs of technical cooperation, collaboration, and assistance are maintained with the Government of Japan, United Kingdom, and USA, although these vary from year to year, expert assistance are lent to other countries of the region on request.

The Pacific Community played a pivotal role in assisting the regional countries in managing their resource. They readily provided technical assistance when requested.

MINISTRY OF AGRICULTURE, FISHERIES & FORESTS
with effect from 30/01/001
Organisation Chart



NEW ABBREVIATIONS:

- **LRPD** — Land Resource Planning and Development Division
  Made up of the old Land Development and Resettlement Unit, Landuse Section from Research and the Farm Management Section from the Extension Division
- **Q** — A new Quarantine Division to be formed
- **PAU** — A new Policy Analysis Unit directly responsible to PSAFFA