

Chapter 9. Fisheries Sector

The marine resources of the Federated States of Micronesia are contained within an Exclusive Economic Zone (EEZ) covering some 900,000 square miles extending from 135° to 165° east longitude and from 10° north to 1° south latitude in the western Pacific Ocean. Responsibility for the oversight and management of near-shore and coastal resources to 12 miles is vested in FSM state governments with the management of offshore oceanic resources retained as a national government function under the National Oceanic Resources Management Agency (NORMA).

Since the 1996 FSM Economic Report there have been a number of studies on FSM fisheries. The ADB TA 2832 – Fisheries Management and Development Project alone produced 40 substantial TA reports, many of which continue to remain relevant to the FSM.

9.1 Coastal and Near-Shore Fisheries and Marine Resources

Coastal and near-shore marine and fisheries resource use in FSM comprises inshore fisheries (those taking place in mangroves, reef areas, and lagoons), near-shore fisheries for large pelagic species (including tuna), and bottom fisheries for snappers, groupers and other demersal species. The coastal areas and lagoons have an enormous variety of living resources including reef and deep-slope fish, mangrove crab, land crab, coconut crab, lobster, deep-water shrimp, trochus shell, clams, pearl oyster, ornamental shells, turtles, octopus and squid, sea cucumber, sponges, and corals. Reef and lagoon areas also provide a source of sand and coral rubble for construction and road building.

Subsistence fishers make the greatest use of inshore resources with much of the artisanal (small-scale commercial) fishing effort focused on near-shore, bottom and coastal pelagic resources.

In the main islands of each state, small-scale fishers sell catch in excess of their own requirements through various outlets. A few fishers and traders also ship small quantities of fish to other parts of FSM and overseas although commercial activity in the export of reef fish has recently been controlled in Kosrae, Yap and Pohnpei due to resource depletion concerns. The greatest cash value resource is trochus (*Trochus niloticus*) shells, a commodity specific to Yap but which since the 1930s has been progressively introduced to many other locations within FSM.

Attempts to develop and structure small-scale commercial fisheries, through projects such as the financing (or gratis provision) of fishing craft have met with limited success. Problems with catch distribution and marketing are perennial

constraints. Nevertheless, a great deal of (mainly foreign) development funding has been directed towards the commercialization of inshore fisheries, and has included regional or village fisheries centers, infrastructure projects, and the provision of boats, motors, and other equipment.

The development and management of coastal fisheries encompasses all reef and lagoon fisheries as well as near-shore fisheries for coastal and ocean pelagic species, including tuna. Responsibility for marine resource fisheries development and management activities has been divested to separate agencies in Kosrae, Pohnpei and Yap with a single agency responsible for both management and development in Chuuk. The FSM national government, through the Fisheries Section of the Division of Sector Development within the Department of Economic Affairs, has the responsibility to provide support to state agencies involved in coastal fisheries development and management efforts. The Fisheries Section assists the states in implementing their development and management plans through the provision of technical support and information, facilitation of contacts between state agencies and external organizations, and coordination of the activities of FSM's international development partners in the fisheries sector. The Fisheries Section also retains responsibility for the operation of the National Aquaculture Center in Kosrae State.

Various other organizations, including environmental agencies, fisheries and economic development authorities, and non-government organizations are also involved in coastal resource management, making coordination of activities and harmonization of goals and objectives an ongoing challenge.

In the mid-1990s draft marine resources legislation was prepared for each State to enable community or traditional participation in fisheries management, and to harmonize key provisions among states and with the national government for effective management and enforcement. These respective marine resources laws, responding to different needs and situations in each state, were originally inspired by the concept of a "model law". Since then, there have been changes in personnel, political administrations, and priorities in the states causing uneven progress in revising the state fisheries laws. New laws have been passed in recent years in Yap and Kosrae but have yet to be adopted in Pohnpei and Chuuk. However, in Pohnpei, the recent adoption of a Marine Protected Areas Act has provided a partial framework for fisheries management.

9.1.1 Coastal Fisheries Landings and Economic Contribution

Dalzell et al. (1996), using information from Smith (1992), estimated coastal fisheries production and value as approximately 6,243 metric tons (mt) valued at

\$11,237,400 for subsistence fisheries and 637 mt valued at \$1,483,544 for small scale commercial fisheries. The Statistics Unit suggested that some 490 mt of fish and shellfish worth about \$1.2 million was “purchased by local fishing markets” in 1997.

The Household Income and Expenditure Survey reported that \$18,496,000 was spent by FSM households on fresh and frozen fish, the vast majority of which come from small-scale commercial fishing. Using average fish price information in Statistics Unit (1999), this equates to 6,323 mt of purchased fish.

Fisheries Engineering carried out extensive fieldwork in Pohnpei and estimated the total coastal fishery production of Pohnpei Island to be about 1780 mt (75% reef/inshore, 25% pelagic). Of this, 780 mt was attributed to subsistence catch and 1000 mt to commercial effort (with the proviso that approximately 28% of this was for non-sale domestic consumption).

If the catch level reported in Pohnpei (32% of FSM population) were extrapolated to all of FSM, the coastal fisheries catch would be about 5,500 metric tons. However, taking into account population increase and the likely higher per capita catches of the outer islands and Chuuk, a more likely catch estimate is approximately 8,000 metric tons per year. Gillett et al. estimated an annual catch of about 2,000 metric tons of tuna in small-scale coastal fisheries.

However, with known increases in fishing effort in recent years and increasing populations, an approximate indication of coastal fisheries production would possibly be in the range of 10,000 metric tons . At \$2.90 per kg for the commercial catch and \$2 per kg of value for the subsistence catch this equates to a value of \$24.5 million per year.

9.1.2 Problems, Constraints, and Issues

Near-shore marine and fisheries resources have increasingly become the target for commercial development. New fishing methods and associated technology, and the establishment of fisheries infrastructure have made commercial activity more prevalent and accessible, especially in proximity to urban development. In some cases, traditional communities have become more susceptible to the use of unsustainable fishing methods to meet needs for immediate cash income. Increasing population over the past fifty years has placed greater demands on coastal resources for income generating activity, food, housing, and other developments. Inappropriate fishing techniques have accelerated resource depletion.

Recent years have seen an increasing focus on resource management and issues relating to sustainability and the need to preserve fisheries for subsistence

and community access. This is clearly exemplified in the work of state marine resource agencies and NGO's, and reflected in the recommendation of the 2002 National Coastal Fisheries Consortium that FSM should "Take a precautionary approach to management of inshore resources and refrain from promoting or allowing commercial exploitation for export until it is determined to be ecologically sustainable."

Chuuk has the largest state fishery agency in FSM. It is also the state with the most serious fishery management problems. A rapidly growing population is creating greater pressure on resources. There is no current data on fish catches or production but anecdotal information suggests that large quantities of reef fish are being exported by air to Guam, and declines in abundance of some resources are said to have occurred. Dynamite fishing is prevalent, and dredging and sand mining for landfill and for building materials is largely uncontrolled. The dredging problem is exacerbated by the shortage of land on Weno, the state center, where development is leading to extensive shoreline reclamation. The state's numerous municipalities (and in some cases individual reef owners) nominally have some authority to control access to their fishing areas but these seem to be upheld only in the outer island and more remote parts of Chuuk proper, and are largely ignored close to the population centers.

Kosrae is the state with the least complicated fisheries management environment because historically its people were not into fishing. Kosrae's fishery management problems are mainly related to the smallness of the resource. Harvests of certain key species such as trochus and crabs are, or need to be, controlled, but most threats to coastal resources come from land-based developments that cause increased runoff, pollution, or sedimentation. Kosrae probably has the best-developed coastal management system among the states, with environmental review procedures being progressively implemented for all coastal development projects. Basic statistics on catches are said to be collected on a regular basis, but these are not analyzed or published.

Pohnpei is an intermediate case in terms of resources, degree of exploitation, and the extent of fishery management problems. Some production statistics are collected by the state fisheries agency, but these are not analyzed to show trends or even annual production data. The general perception in Pohnpei seems to be that resources are not yet in crisis but that the time is approaching when management action will be needed. As in other states, enforcement of State fishery laws by State police or conservation officers is largely ineffective, while the absence of traditional reef/lagoon tenure systems on Pohnpei proper may impede the development of community-based management arrangements. The island has lost a large proportion of its virgin forest to the cultivation of sakau and

this is thought to have caused increased runoff, sedimentation, and chronic reef degradation.

Yap is unique in the degree to which traditional marine tenure arrangements have been preserved. Inshore fishery management in the state is community-based because the state constitution and laws recognize that communities and their leaders have authority over access to, and use of coastal areas. Relative to other states, Yap has a large resource base and in most areas a small population, so management issues related to over-exploitation are generally not pronounced. Nevertheless some resources, especially of sessile types such as clams and beche-de-mer, or of other species close to the state center of Colonia, have been over-exploited in the past, demonstrating that the traditional system of tenure does not guarantee effective stewardship. For several years the state government has been progressively trying to introduce a coastal area management plan to be implemented through both Government and traditional groups.

9.1.3 Development Potential

Due to their distinct biological, physical, and economic characteristics, FSM's four states each have different prospects for the development of coastal living marine resources. In terms of resource endowment Chuuk and Yap and, to a lesser extent, Pohnpei, have extensive areas of reef and lagoon and therefore relatively substantial inshore resources. Kosrae, a single high island with a short coastline and small fringing lagoon, is much more limited in this regard.

The commercial potential varies considerably from state to state. Local markets for fish could be developed further in each state, particularly in Pohnpei, which, as the seat of national government, has the most extensive cash economy. Yap formally participated in a relatively steady reef fish export trade with Guam. As a resource management measure however, this trade has recently been restricted. Pohnpei also participates in a similar trade albeit with some species controls and a higher overall cost for fish transportation. Chuuk exports of reef fish have increased in recent years despite lack of transport hubs. Kosrae, which is hampered both by high transportation costs and limited resource endowment, is effectively excluded from such trade.

In all the states but Kosrae, there exist 'outer' islands that are either coral atolls or single coral islands. For most of the atolls, the lack of regular transportation and resource limitations preclude money-economy marketing of most coastal fishery resources. There are also uninhabited or lightly-inhabited atolls (and islands, in the case of Chuuk) which have commonly been seen as 'storehouses' of marine resources, and whose existence further complicates management in those states.

The main role of small-scale fisheries is likely to continue to be providing subsistence protein, contributing to dietary health, and helping maintain rural lifestyles in the face of a tendency to urban drift or emigration. Artisanal fishing may be able to expand in some areas through local market development or by taking advantage of export opportunities to Guam and Saipan. Where marketing problems can be overcome, however, resource constraints are likely to quickly limit commercial fishery expansion.

One possible area of development potential is in linking the management of inshore resources to key activities in the tourism industry based on sound environmental management. A pristine marine environment is one of the underpinning sales opportunities for tourism development. For example, if key selected areas of coral biodiversity or fish abundance were reserved as dive sites and marketed accordingly there could be greater overall community benefit from income generated by the dive industry. This has been clearly demonstrated in Palau which has an extensive Marine Protected Area (MPA) program.

Primarily due to the efforts of the Pohnpei Conservation Society, a network of 11 MPAs are already in place. The development challenge is to link conservation efforts to tourism marketing and establish mechanisms to ensure direct benefits to communities.

There may also be room to further develop coastal pelagic fisheries. Deployment of Fish Aggregating Devices (FAD's) in coastal areas has the potential to divert fishing effort from near-shore and reef-based fishing to targeting tuna and other coastal pelagic species. The emphasis in this scenario will be on diverting fishing effort from heavily-fished resources rather than increasing overall fishing effort.

Given the increasing focus on resource management and conservation, it must be concluded that there is very little real development potential in near-shore and coastal fisheries.

9.1.4 Aquaculture

Aquaculture has been the focus of technical and development attention in FSM, as well as in some neighboring countries, for at least 20 years.

A National Aquaculture Center (NAC) was established in Kosrae in 1991 to explore aquaculture potential and to undertake research and training. Its primary work involved the propagation of giant clams for farming and re-seeding in other states. In its early days the NAC was the operational base for aquaculture extension agents funded through the US Center for Tropical and Sub-Tropical Aquaculture (CTSA)/Land Grant Program, but these have now relocated their activities to Pohnpei.

Despite the activities of the Center, no private commercial culture operations for giant clam have commenced in FSM. There has been little reseeding activity and there appears to be little prospect of any such development in the foreseeable future. The operation of the NAC was reviewed in 2000 and it was concluded that the focus on giant clam aquaculture provided little or no economic benefit to FSM.

A number of other aquaculture initiatives have been undertaken by both local and international organizations. Sponge culture started in Pohnpei about 10 years ago and several pilot farms began with donor funding support. There are now nine established farms in operation but production volumes have yet to reach the levels required to attract export markets. The culture of *Eucheuma* seaweed was attempted in Pohnpei during the mid-1980s, but relatively low returns to farmers and other problems prohibited it from developing. Black pearl culture trials began on Nukuoro atoll in Pohnpei state in 1995. Initial harvesting has reportedly yielded good quality pearls and several other ventures are in the early stages of development. Operations in farming milkfish, tilapia, carp, and prawns have been attempted or proposed but have not resulted in sustained commercial success. More recently, a Korean Joint Venture company (Hans Micronesia Inc) has reportedly commenced an operation whereby fry are imported into Chuuk for sea-cage grow-out and subsequent export. In Kosrae, a project is underway to develop capacity for the culture of mangrove crabs.

Despite widespread investment and interest in the commercial potential of various aquaculture pursuits, there has been very little commercial development. Prospects for commercial activities have probably been overstated, and it seems unlikely that the sector will become a significant revenue earner for FSM, at least in the near future. However, there is still potential for subsistence and artisanal aquaculture activities to be successful, both in income generation or simply for food production.

9.1.5 Coastal and Near-shore Resources and the FSM Sustained Growth Strategy

Inshore fisheries and marine resources are seen as having a number of inherent advantages as a source of income and employment. If incomes fall (as a result of a decline in Compact funding) there is likely to be greater activity and supply from inshore fisheries for food and cash purposes, especially from subsistence and artisanal activity.

The overriding issue in near-shore and coastal fisheries is the sustainability of resources. The inshore resource has, in many cases, already been depleted and the immediate focus required is resource conservation and management .

9.2 Oceanic Resources

The Exclusive Economic Zone (EEZ) of the Federated States of Micronesia is one of the largest declared national jurisdictions in the Western and Central Pacific Ocean (WCPO). The EEZ supports diverse tuna fishery operations which range from subsistence and artisanal activities to industrial scale longline, pole and line, and purse seine fishing.

The main oceanic target species are skipjack tuna (*katsuwonis pelamis*), yellowfin tuna (*thunnus albacares*) and bigeye tuna (*thunnus obesus*) with the vast majority of fishing effort coming from the established distant water fishing nations (DWFN), the United States, Japan, People's Republic of China (PRC), Republic of Korea, Taipei, China.

The extent of the tuna resource of FSM has the potential to vary greatly depending on fishing effort, the migratory nature of the species, and the climatic events *La Niña* and *El Niño* which affect sea temperature. During a *La Niña* period (such as 1995), surface tuna schools are most active in the western Pacific Ocean in the area of the FSM EEZ. In contrast, the surface schools concentrate more to the eastern part of the central Pacific during *El Niño* periods, as was the case in 1998.

Tuna catches in FSM waters increased steadily to 253,174 mt in 1995 with subsequent significant declines through 1998. An improved catch in 1999 was followed by progressive declines to the low catch of 43,690 mt in 2002. The catch trend improved in 2003. Reflecting the *La Niña* and *El Niño* phenomena, the catch in FSM started declining in 1996 while overall Western and Central Pacific Ocean (WCPO) catches continued to increase.

Large purse seine vessels land more than 80% of the tuna. For the period 1999 – 2003, the largest catch went to Japan followed by Taipei, China, Republic of Korea, the US and FSM domestic vessels. The total catch for purse seine vessels fishing in FSM waters for the period was 562,509 mt.

Longline fishing showed a dramatic reduction in catches in the period 1999-2002 with a subsequent increase again reported in 2003. The downward trend matches reported catch reductions in other WCPO fisheries such as Fiji Islands, Samoa and Tonga.

From total landings for the period 1999 – 2003 of 32,900 mt, the Guam-based Japanese fleet vessels reported current landings of 16,799 mt inclusive of by-catch. The average catch per vessel in 1999 was 61.84 mt compared to 52.46 mt in 2003.

In pursuit of domestic capacity development in the longline fishery in the 1990s, FSM encouraged both public and private sector investment in longline

vessels. Domestic vessel numbers reached 25 in 1999 with 487 mt of landed catch. Domestic vessels numbers have declined to 18 in 2002, 21 in 2003 and only 12 vessels reportedly operating in 2004.

The Japanese pole and line fishing fleet has operated variously in FSM with catch highs achieved in 1991 and 1995 and a subsequent reduction in fishing from 2000 to 2003 where there were 6 licensed vessels and reported landings of 1733 mt.

9.2.1 Oceanic Resource Management

Following a review and consultation process spanning some 10 years, the Marine Resources Act of 2002 (MRA 2002) was passed into law as Title 24 of the FSM code. The law established the National Oceanic Resource Management Authority (NORMA), previously known as the Micronesian Maritime Authority (MMA) and the Micronesian Fisheries Authority (MFA), as the national agency responsible for the management of oceanic resources from 12 – 200 miles in the FSM economic zone. The mission of the Authority is to be an effective guardian and manager of the living and non-living marine resources in the EEZ of the Federated States of Micronesia.

The Authority is empowered to draft regulations for the management, development, and sustainable use of fisheries resources and related activities in the EEZ, in relation to fisheries monitoring and control and to implement access agreements and fisheries management agreements. Other regulatory powers relate to compliance with regional arrangements, the issuance of citations, and assessment of penalties. NORMA is also tasked with the regulation and management of marine scientific management and training, the delineation of boundaries in the EEZ, and the issuance of fishing licenses. The agency also has a coordination role in the implementation of fisheries monitoring and control activities but active surveillance activity and the operation of patrol boats is carried out by the Maritime Wing of the FSM National Police under the Department of Justice.

FSM has a history of participation in the programs of the regional fisheries agencies such as the Oceanic Fisheries Program of the Secretariat for the Pacific Community and the Forum Fisheries Agency (FFA). As such, FSM is a party to the 1982 Nauru Agreement Concerning the Management of Common Interest and the 1994 Federated States of Micronesia Arrangement for Regional Fisheries Access. Agency managers have attended all 7 sessions of the Preparatory Conference for the Establishment of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific.

The FSM has been selected to host the new Commission that is being established as the major coordinating agency for western Pacific oceanic fisheries management.

In 2000, the FSM President directed NORMA (then MMA) representatives to establish a National Steering Committee in support of the development of a Tuna Management Plan for FSM. A comprehensive plan has subsequently been developed and approved and is now recognized as the guiding instrument for tuna resource management in FSM. The specific goals adopted in the plan are to ensure that the tuna catch does not exceed sustainable levels, obtain national revenue from foreign fishing access agreements, support development of FSM-owned and/or foreign FSM-based fishing enterprises, encourage investment in enterprises related to tuna fisheries, promote employment opportunities, and enhance international relationships beneficial to FSM. The plan recognizes that the tuna resource is shared with other countries in the region and is finite. It thus embodies principles relating to the precautionary approach to fisheries management.

9.2.2 Situational Analysis and Economic Contribution

The contribution of oceanic fisheries to the economy of FSM can be divided into benefits derived from activities as follows:

Access arrangements

By far the largest and most consistent contribution to the economy has been the income derived from access fees. With the inclusion of a 2003 access fee return of \$13,473,183, total income for the period 1990-2003 is close to \$200 million. Purse seine fees have stabilized with the implementation of 5-year access agreements with the Republic of Korea and Taipei, China. However, fees dropped in 2000 as a result of reduced fishing effort due to depressed prices. In addition, as party to the Forum Fisheries Agency-administered Multilateral Treaty with the United States, FSM receives around \$110,000 annually for fisheries development projects. The Japanese agreement also includes an annual payment of goods and services with an estimated value of \$550,000.

Infrastructure and long line transshipment

FSM national and state government investment in fishing vessels and infrastructure during the early 1990s is reportedly \$100-130 million. Much of this investment was channeled through government-owned corporations in each

State with the intention that the establishment of fisheries infrastructure would stimulate state economies and foster further investment. The various government entities established for fishing, vessel servicing, and transshipment have ultimately not performed well. They have accumulated high debt levels and financial loss and have either ceased to operate or scaled back their activities. Utilization of facilities in Yap, Chuuk, and Kosrae are reduced to the extent that facilities in each port are now inoperable and longline transshipments no longer take place.

For the purpose of overall operational efficiency, the longline fleets of Japan, People's Republic of China, and Taipei, China have opted to move their operational base for transshipment to Guam. Operators cite airfreight issues, high costs, and poor service as the principal reasons for the transfer.

A 1995 fisheries development study estimated the retained value of longline transshipment at \$120,000 per annum per vessel. With only 21 Chinese vessels continuing to transship from Pohnpei in 2004 the overall loss to the economy from the departure of the foreign longline fleet could be as much as \$21,000,000 per year. The degraded state of the transshipment facilities represents an additional economic loss.

Domestic operated long line and purse seine vessels

Government and domestic private sector investment in longline and purse seine vessels has proven to be high risk as seen in the significant reduction in the number of operational vessels in the domestic longline fleet. Since 1999, the number of operational vessels has decreased annually with only 18 vessels active in 2002, 21 in 2003, and only 12 vessels reported operational in 2004.

The State Governments of Pohnpei, Chuuk, and Yap have all invested in the purchase and operation of purse seine vessels. Pohnpei has two small seiners operated by the Caroline Fishing Corporation. Following issues relating to joint venture ownership and a period of receivership, the operational performance of these vessels has improved in recent times with higher international bulk tuna prices. Yap also experienced difficulties with the operational management of their purse seine business. However, with a vessel purchased from South America and tight management, Yap's Diving Seagull company has performed well in recent years and is reportedly debt free in 2004 and able to pay dividends to the state. The Chuuk investment also involved complex joint venture arrangements. These ultimately led to the ownership of a single vessel, the *Nien Feioch*, by the Chuuk Public Fisheries Corporation. This vessel sank at the wharf in Chuuk in early 2004 and was uninsured.

Under a foreign investment permit, Tri-Marine was established in FSM in 1999 and by 2004 had 3 operational FSM registered vessels.

The purchase and on-sale or value adding of by-catch

Outside of the construction of cold stores in Kosrae and Yap, major investment in processing and value adding capacity has been limited to the Pohnpei Fisheries Corporation (PFC) which was established as a Pohnpei State public corporation in 1993. PFC is engaged in two principal lines of business – the provision of ice, and processing and marketing of second grade tuna, marlin, and bi-catch. A review of PFC in 2000 revealed significant cumulative loss, cash flow difficulties, and an inability to source sufficient raw material to adequately utilize facilities.

Services provided in support of purse seine transshipment

Since 1993, there has been a regional ban on at-sea in-zone transshipments of purse seine catches. This was intended to facilitate monitoring of catches, increase port usage, and generate revenue. In subsequent years, a large amount of tuna has been transshipped through FSM ports with an estimated 2400 individual transshipments for 1993-2003.

The majority of FSM transshipments in the past 2 years (130 in 2002 and 100 in 2003) have been in Pohnpei. The number of transshipments in a particular port in any given year cannot be guaranteed as decisions on location are most often made by the company operating the carrier vessels in consultation with the purse seine vessel owners or managers. However, other factors are also taken into consideration, such as the availability of licenses in the particular country concerned, weather conditions, and recent experiences in that port.

Purse seine transshipment does not require specific infrastructure other than general wharf facilities and port services associated with standard cargo handling. It contributes to local economies through the purchase of goods, services, and labour as well as in the collection of fees and charges. The extent of spending in any single transshipment will depend on the goods and services available. In the current study, the estimated retained value from each purse seine transshipment is \$10,200 per vessel.

Employment and employment opportunities

Formal employment in tuna fisheries or related activities was estimated in 2001 to total some 614 jobs comprising those on foreign vessels (150), jobs on

locally based vessels (86), those in domestic tuna enterprises (178) and employment on artisanal vessel operations (200). This estimate is at odds with the 2000 census data that reports formal employment at 226. Possible reasons for this discrepancy are that 200 of the reported jobs are essentially informal and many of the 178 reported jobs in domestic tuna enterprise are likely to be casual in nature.

While the loss in formal employment in the fisheries sector (Table A6) is reflective of the general downturn in transshipment and FSM port based fishing, it must also have been seen as a serious indicator of the major problems facing the sector. Accepting the median incomes of the respective census periods, this reflects a loss of annual wage income in the vicinity of \$1.7 million.

The real contribution of oceanic fisheries to the economy of FSM in any given year is difficult to define. Account must be taken of fluctuations in prices for purse seine caught species as well as the substantial variations in prices obtained for sashimi exports. There is also an issue in defining retained value in the services provided to the sector and in the value of the subsistence sector contribution. While the data provide a reasonable estimate of the total value of the resource, they do not in any way take account of costs or contribute to the determination of profitability. In reality, further analysis would reveal a very high production cost in achieving the overall value. This has been exemplified in the generally poor performance of domestic longline vessels.

9.2.3 Problems, Constraints, and Issues

The most significant problem with oceanic fisheries in FSM is the failure to fully realize the potential benefits associated with the exploitation of available resources.

While FSM has enjoyed a reasonably consistent return from receipt of fisheries access fees, attempts to promote returns through infrastructure investment, transshipment, domestic fishing, value added processing, vessel servicing, and employment have essentially failed to add significant value or return on investment.

Since 2000, Pacific Island domestic-based sashimi tuna industries have experienced a downturn across the region. Operators in Fiji Islands, Samoa, and Tonga have had declining catch levels (despite increasing fishing effort) and increasing competition from international suppliers to the principal market in Japan. Primarily as a result of supply and the sustained Japanese economic recession, sashimi tuna market prices have remained flat. The Asian economic crisis and the SARS epidemic have also impacted sashimi market prices. Coupled

with post 9/11 security issues, increases in fuel prices and airfreight costs, there has been an overall reduction to profit margins in sashimi tuna longlining.

The supply of tuna for canning from purse seine fishing is essentially a commodity trade and is thus subject to significant market price variations. The very high regional catch levels of the late 1990s saw bulk tuna prices reduced to as little as \$350/mt in 1999 and 2000. Prices have subsequently stabilized in 2003 – 04 at \$ 750 - \$850/mt. As a result of the volatile nature of the market, commercial purse seine fishing is a high-risk business, especially for small operators.

The fisheries policies of FSM, as developed during the 1990s, promoted foreign access arrangements, government and private sector investment in infrastructure and fishing vessels, the provision of transshipment services, and value-added processing and employment as principle development strategies.

An evolution is apparent in the national direction regarding sectoral investment. Fifteen years ago the general perception was that, because of the weak private sector and other factors, development opportunities relating to tuna were in government investment in infrastructure and fishing, and government participation in commercial activities. Following a generally poor performance from these government interventions, the direction shifted to the idea that the most favorable opportunities were for domestic private sector companies to longline for fresh tuna. In subsequent years, numerous failed operations of this type appear to have resulted in an additional evolution in direction. This is essentially that tuna fishing itself is too risky and that value adding ashore and servicing of fishing vessels are the most important opportunities.

In considering development constraints, the 1995 study on tuna industry development noted the major issues to be:

- *The limited size of the FSM labor pool in both number and range of current skills. The tuna industry specifically needs foreign skills and foreign management until Micronesians can be trained and can gain experience in the industry. Imports of foreign labor are discouraged by bureaucratic administration and the requirement to annually renew elaborate work permits.*
- *All non-service FSM State and National government enterprises that have been in operation for more than 2 years have proven unprofitable.*
- *For longline transshipment, the inability to extend airport runways in almost every state without major capital cost could be a development limitation in the future. Additional runway length allowing larger aircraft and improved payloads could be a key factor in achieving improved airfreight economies of scale.*

- *Though simple to administer and understand, Gross Receipts Tax (GRT) is a “cascading” tax and the prevailing tax regime is a disincentive to primary industry and manufacturing investment.*
- *A very significant problem in the FSM is the difficulty in finding out exactly what the current law is.*
- *The FSM currently is a comparatively highly protected economy with highly priced resources. The FSM economy is further protected by investment and recruitment approval processes that emphasize sanctions and concessions as opposed to open, uniform treatment.*

While strategies to mitigate these constraints are reflected in policy documents, there has been limited success in addressing these issues. The principal issue is generally limited accountability in policy implementation and a lack of political will. This is particularly apparent at the state level, especially in relation to dealing with difficult issues such as the commercialization of state-owned assets.

The development of domestic fisheries capacity throughout the Pacific region was reviewed in detail in 2003. The FSM component of this review reiterated the perspectives put forward in 1995, and cited the principal constraints to include:

- *Reductions in air freight capacity and availability, and the economic limitations of restricted freight volumes due to aircraft and runway limitations;*
- *Increases in the cost of air freight due to escalating fuel costs;*
- *A poor business environment and inadequate provision of services;*
- *Government agencies with commercial involvement in the tuna industry detracting from the functioning of private sector tuna firms, especially the Economic Development Authority (EDA) in Pohnpei;*
- *Requirements for local vessels fishing in FSM waters to undergo customs and immigration formalities and the high cost of these services;*
- *High cost of operation – high prices for fuel and skilled labour; and a requirement to air- freight many parts/supplies.*

Other issues raised included fee variance, higher access fees compared to Palau and the Marshall Islands, the provision of conflicting consultancy advice, the inadequacy of port infrastructure for vessel maintenance, the scarcity of skilled labor, declining catch rates, unclear legislation, and unnecessarily high penalties for regulatory transgressions.

The demise of transshipment services from FSM ports and the associated loss of income generating opportunities is a clear indication that FSM has failed to adequately deal with constraints and issues that have been on the table for a number of years.

There has been a very large amount of technical assistance focused on the development of FSM's fisheries sector with more than 20 documented interventions. There is a sense that outside assistance to tuna industry development is fatigued by the continued failure of FSM to address key issues. Constraints to industry development have been widely documented, especially those relating to the lack of progress on privatizing government fishery companies and continued government monopolies providing essential commercial services to the tuna industry. While much of this failure can be attributed to a lack of accountability and political will, there is an additional issue relating to lines of communication and the need to clearly define responsibilities in relation to policy implementation. The formation of the FSM Offshore Fisheries Association in 2002 has provided a clear direction for an industry voice in policy determination and implementation. However, the same cannot be said of Government. There is a range of conflicting national and state agencies with varying responsibilities. For a potential foreign investor in fisheries, there is no clear process or specific agency to facilitate the investment process.

It is clear that further development of the sector cannot take place without additional investment. State governments having previously invested large sums in fisheries projects are reluctant to commit further investment. The domestic private sector has been similarly affected by poor sectoral performance. Investor confidence will continue to be constrained by an ongoing failure to address development issues and achieve progress with policy implementation. Perhaps the key requirement to address the sector's development issues is a clear political will to do so.

9.3 Fisheries Sector Policy

The process of developing a fisheries policy for the FSM was initiated with the declaration of the FSM EEZ in 1989 and was first articulated in a 1991 study. More detailed analysis was undertaken in 1996 for the consideration of the National Fisheries Summit of FSM in December 1996. The recommendations of the National Summit resulted in the presentation of a National Fisheries Policy Document.

Key elements of this policy were the promotion of the private sector, the creation of a favorable business environment, and privatizing government owned fisheries enterprises. FSM ownership of fishing vessels and shore enterprises was proposed with the possibility of using access fees to finance enterprises and the promotion of other possible incentives such as tax breaks and amended investment rules.

A more strategic approach to human resource development was also proposed, as was a commitment to conservation and management of resources. Consolidation of responsibilities for fisheries policy development, management and enforcement under one well-financed and autonomous body was suggested to lead the reform of laws inhibiting fisheries development (tax, duties, levies, foreign investment, fisheries and maritime laws and land tenure). The promotion of value-added investment in processing, manufacturing, and marketing was also proposed, as was more stringent control of fisheries access. A public awareness program to stimulate FSM citizens' interest in fisheries through information programs underpinned these key policy areas.

In the lead-up to the 1999 Second Economic Summit, these policy elements were expanded to detail strategies, activities, and accountable agencies in two separate strategic policy framework documents covering oceanic and inshore fisheries. These policy frameworks and detailed activity plans were subsequently adopted by the Summit and can thus be accepted as the agreed National fisheries policy for the period 1999 – 2004.

The expected process leading up to the Third Economic Summit was that the 1999 framework would be tabled to both public and private sector stakeholders for review and comment, especially in relation to implementation progress, issues, current relevance, and changing circumstance. However, policy implementation has not been widely reviewed, perhaps because it is also apparent that very little progress has been made in implementing the 1999 policy.

While the passing of the Title 24 fisheries law, the adoption of the tuna management plan, the consolidation of NORMA, and the re-opening of the Yap Fisheries Academy are positive steps, the majority of key policy directions remain as sector development issues.

Strategies to clearly promote investment and growth have not been forthcoming and private sector investment has not been successful. Domestic-based foreign longline vessel numbers have dropped to a low of 20, SOE infrastructure is either closed or underutilized and remains the responsibility of Government agencies. The majority of long-line transshipment activity has essentially transferred to Guam. Considering the time-span for policy implementation (1999 – 2004), the lost opportunity for economic benefits

from the successful implementation of previously recommended policy elements is substantial.

In situations where the activities associated with policy elements have been actively facilitated (such as in the preparation of a Tuna Management Plan by NORMA), policy implementation has been successful. In many cases, the absence of a facilitator for activities would appear to have limited activity success. For example, in the absence of a committed driver to campaign for a fuel subsidy, there is no incentive for Government to establish such a subsidy.

Policy elements that relate to wider fiscal management or changes in legislation (such as taxes, labour laws, immigration laws, subsidies and duties) are much broader in application than just fisheries, and are thus more complex and challenging to achieve. Even if there is a strong driving influence from the fisheries sector, success in legislating industry-backed measures will be determined by wider political considerations. It is apparent that one of the key factors in policy implementation is political will. This is most evident in the apparent failure to produce results in relation to the performance and future direction of certain SOE's. Clearly, without the support of State Governments, an activity to promote private sector or investor management or ownership of these facilities will not succeed.

In determining the future direction of policy, it is perhaps useful to consider the scenario that FSM would like to achieve for fisheries in the next five-year period. In a review context, it appears that there are no major differences from the overall objectives of the past five years. However, it is important to consider policy direction in relation to 'lessons learned' from the previous period and also in relation to possible changes in the wider (international and regional) sector environment in the coming period.

The key lessons in relation to policy implementation are:

- *There need to be clear responsibilities assigned to undertake activities associated with policy implementation;*
- *The agency or entities assigned such responsibilities should be required to account for progress in relation to activities undertaken;*
- *In situations where a particular policy requires the wider endorsement of government or legislative enactment, the implementation strategy should include activities that take account of the need to generate political will.*

Taking into account the findings of the situational analysis for the sector and the intent of the Third Economic Summit, the following policy themes are apparent:

For Coastal Fisheries, increased focus on:

- *resource management strategies encompassing traditional practice and protected areas;*
- *ensuring resource exploitation is carefully managed and priority access is accorded to subsistence and low level artisanal activities rather than commercial fisheries;*
- *aquaculture activities at the subsistence and artisanal levels;*
- *community participation in management.*

For Oceanic Fisheries:

- *a continued emphasis on improving economic benefits, utilization of infrastructure, and domestic commercial activity;*
- *in the context of the Tuna Management Plan, a more focused emphasis on resource management and monitoring;*
- *acknowledgement of the urgent need to attract investment.*

A revised fisheries policy matrix has been prepared as part of the fisheries sector strategic development plan that was drafted at the request of national government in follow-on to the Third Economic Summit.