STRATEGIC REVIEW OF INSHORE FISHERIES POLICIES AND STRATEGIES IN MELANESIA

FIJI, NEW CALEDONIA, PAPUA NEW GUINEA, SOLOMON ISLANDS AND VANUATU

PART II: COUNTRY REPORTS

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PREFACE / FOREWORD

At the Special Melanesian Spearhead Group (MSG) Leaders Summit held in Suva from 29-30 March 2012 leaders decided to develop a roadmap for the protection of inshore fisheries. To this end the MSG has established an Inshore Fisheries Working Group (IFWG) citing the need for a concerted and coordinated sub-regional effort in addressing inshore fisheries resources sustainability because inshore activities have direct impact on the resources, which impinge on people's livelihood and food security of most small island communities. Livelihood approach and management of small-scale fisheries is a key component that should be considered in the promotion of community based and co-management approaches because of its correlation to promoting and preserving subsistence livelihoods of the majority of the people. The role of the IFWG is to consult, review and develop a regional Roadmap for the protection and promotion of inshore fisheries in Melanesia for consideration by the MSG Constituent Bodies. The SPC has been requested by the MSG to assist in the development of the roadmap, and the present report provides background materials for Fiji, New Caledonia, Papua New Guinea, Solomon Islands, and Vanuatu needed to take this process forward.

The strategic review provides a brief overview of the major issues facing Melanesian inshore fisheries, an outline of the possible responses that have emerged in the region and beyond, the opportunities and limitations present in current national strategies and finally provides input to a possible roadmap. This Annex contains the in-country reviews performed in Fiji, New Caledonia, Papua New Guinea, Solomon Islands, and Vanuatu.

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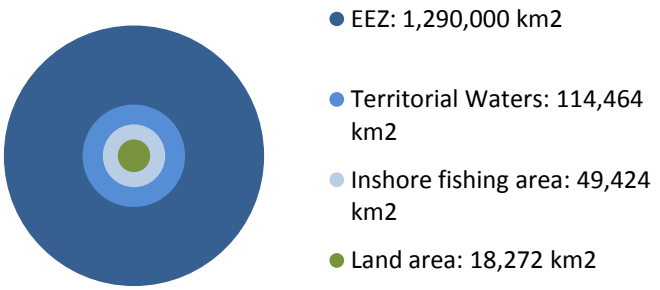
Fiji



POLICY CONTEXT

The purpose of this section is to provide an overview of the high level and sectoral policy context relating to inshore fisheries management highlighting in particular aspects that are likely to promote or detract from sustainable management.

HIGH LEVEL POLICY

The People's Charter for Change, Peace and Progress 2008 is Fiji's overarching policy since 2007 which is further elaborated by the Strategic Framework for Change announced by the Prime Minister on 1st July 2009. These high level policies guide the Roadmap for Democracy and Sustainable Socio-economic Development (RDSSED) 2009-2014 which in turn shapes Ministry's three year and yearly corporate plans.

This high level policy, while not omitting economic growth, strongly emphasizes sustainability, improvements in the legal and institutional enabling environments for management, building capacity for community management and promotion of women's advancement in the context of fisheries.

The People's Charter for Change, Peace and Progress 2008

Pillar 5 on "achieving higher economic growth while ensuring sustainability" refers to increasing food security through the revitalization of the agriculture and marine sectors and strengthening the institutional capacity for environmental management. It also calls for giving priority to the protection of environment, sustainable management and utilisation of natural resources.

The Roadmap for Democracy and Sustainable Socio-economic Development (RDSSED) 2009-2014

Notes that legislation governing the fishery sector needs reviewing as the present Fisheries Act dates back to 1942, and despite amendments and additional regulations, is outdated. Similarly, the Marine Spaces Act is over 25 years old. A multi-pronged approach to fisheries management is advocated taking account of economic, environmental, and social performance moving away from production orientation towards a resource management, conservation and service orientation. Key priorities identified in the RDSSED are:

- Review existing institutional arrangement including legislation to take account of global and national developments.
- Provide appropriate support through institutional strengthening and reform of the Department of Fisheries.
- Build capacity at community level to manage its resources, including inshore fisheries and coral reef management.
- Promoting rural women's advancement in economic activities without destroying sustainability of women's fisheries and therefore household food security.

Well worthy of note is the high level international commitment made by Fiji at the at the Mauritius International Meeting to Review the Implementation of the Barbados Programme of Action for the Sustainable Development of Small Island Developing States on 13 January 2005:

"…by 2020, at least 30% of Fijis inshore & offshore marine areas, (I qoliqoli's) will have come under a comprehensive, ecologically, representative networks of MPAs, which are effectively managed and financed" (Hon. Minister for Foreign Affairs Kaliopate Tavola)

This challenging target had been met and surpassed by 2011 (Govan et al. 2012).

SECTOR POLICY

Relevant sector policy is primarily provided in the form of the Ministry of Fisheries and Forests (MFF) Annual Corporate Plan the latest of which pertains to 2013.

Other relevant sector policies include that of the Department of Environment under the Ministry of Local Government and Urban Development and that of the Ministry of i-Taukei Affairs.

Ministry of Fisheries and Forests Annual Corporate Plan (ACP) 2013

Promulgation of the Offshore and Aquaculture decrees are planned for 2013. The Offshore Decree has already been promulgated but conspicuously absent is any mention of the Inshore Fisheries Decree which was being consulted on under the ACP 2012. The Plan covers a wide range of activities though many of them not described specifically. Of relevance to inshore fisheries management are:

- 20 Marine Resource Inventory Surveys (Qoliqoli profiles) and 6 management plans developed.
- Reseeding of 8 MPAs using hatchery produced stock
- Promotion of Fisheries Development through 8 Awareness workshops, 20 talkback radio programs and 15 press releases.
- 8 fish warden trainings on effective management of fisheries resources
- Reef Enrichment Initiative – 100 "awareness materials" and 3 pilot sites
- Issuing 200 inshore licences to 200 women, 500 involved in offshore fishery activities and 20 in freshwater aquaculture.

The majority of activities relate to coastal and offshore commercial, aquaculture, monitoring and surveillance, marketing, fisheries service centres and ice production, fish processing, routine data collection, FAD deployment, licencing, collection of products for market from maritime islands (5 trips), upgrading fisheries infrastructure.

Ministry of i-Taukei Affairs Annual Corporate Plan 2011

The Native Land and Fisheries Commission (NLFC) is is charged with resolving registered disputed native land and fishing grounds as well as disputed chiefly titles. The NLFC also adjudicates on disputes of lands, customary fishing grounds and traditional leadership titles. It is also the custodian of various registers kept at NLFC which are the maintained and updated from time to time. Tasks in the 2011 ACP include:

- Dispute Resolution – Native Title Boundaries and Ownership and Native Land and Fishing Areas.
- Land Survey – Native Land, Village and Fishing Boundaries.
- Rural Community and Development Projects.
- The Ministry had a budget of approximately FJD 18 million in 2011 and 15-20 staff allocated to the NLFC

Department of Environment plans and strategies

The Department implements a number of policies and plans including on Integrated Coastal Management, Mangroves, Endangered Species and the National Biodiversity Action Plan (NBSAP). The NBSAP covers 7 thematic areas including Inshore Fisheries, Coastal Development, Species Conservation, Protected Areas and Inland Waters. The national strategies and activities identified to promote the conservation and protection of biodiversity include marine managed areas, aquaculture and capacity building. Implementation is carried out by partner government agencies and NGOs.

LEGISLATION

FISHERIES ACT (CAP. 158)

The primary piece of legislation for coastal fisheries management is the Fisheries Act (Cap. 158) which recognises customary fishing rights within the customary fishing areas or I qoliqoli for the I taukei (native Fijians). The Act also establishes the Native Fisheries Commission charged with the duty of ascertaining the customary fishing rights in each province of Fiji, prohibits the taking of fish in Fiji's fisheries waters by way of trade or business without a licence and

empowers the Minister to appoint honorary fish wardens. Several fisheries regulations have been made under the Fisheries Act and these have been consolidated into the Fisheries Regulations 1992. The regulations cover licences/registration, prohibited fishing methods, mesh limitations, size limits, and exemptions. These regulations were modified twice in 1997 (Gillett 2011).

The government acknowledges that the Fisheries Act is long overdue for review as the present legislation dates back to 1942, and despite amendments and additional regulations, is outdated (RDSSED 2009). The Fisheries Act does enable limited community involvement in coastal marine management via provisions that require community consent over commercial and subsistence fishing in their customary fishing rights areas (qoliqoli). Section 13 of the Fisheries Act is the window through which customary law may be applied to govern the coastal marine areas. This Section and Regulation 4 of the Fisheries Regulations requires commercial and non-commercial harvesters to obtain a permit to fish on any reef or shellfish bed in a registered qoliqoli from the customary owner of the qoliqoli, with a few exceptions. For commercial harvesters, this is a precondition on obtaining a license to fish in the area. An exception is contained in the Act for non-commercial harvesters who use a hook and line, spear or portable fish trap that can be handled by one person. The licensing and permit system under Section 13 allows customary owners to exercise jurisdiction over the qoliqoli and any fishing by harvesters from outside the community must obtain a permit from the District Commissioner, which in practice must be based on the approval of the local chief. Fishing cannot be completely prohibited by the Fisheries Act and Regulations (Troniak 2009).

Consultations towards the drafting of an Inshore Fisheries Decree have been ongoing but not straightforward. Currently the development of this decree appears to be on hold (Annual Corporate Plan 2013) and the reasons are not clear. A large number of relevant reviews have been prepared (Minter 2008, Troniak 2009, Clarke and Jupiter 2010, Govan et al. 2012, Vukikomoala et al 2012) and possibly the following issues bear a wider public discussion:

- Providing sufficient rights over fisheries resources in qoliqoli to the local inhabitants to ensure enforceable CBRM regimes including a transparent basis for legally enforceable closures and other CBRM rules
- Ensuring mechanisms for access to subsistence fishers who are not from adjacent land-owning units but depend on marine resources for food
- Reassuring other coastal users that appropriate mechanisms for securing non-extractive use will be provided

The widespread expansion of CBRM in Fiji and the considerable investment in CBRM as the inshore management system of choice means that, more than any country in Melanesia, Fiji is encountering the limits of post-colonial legislation. It is becoming urgent that this be addressed to avoid conflict or disillusionment.

SNAPSHOT OF POLICY AND LEGISLATION

National and sector policy	Strongly supportive of sustainable management, community-based approaches and improved legislation and reformed/strengthened institutions
Legislation	In need of major revision and encountering the limits of its utility in terms of supporting rights based fisheries management or CBRM
Community rights	Customary fishing rights recognized but not always legally enforceable
Decentralized approaches	Potential mechanisms for stronger provincial and district level roles but mismatched by national legislation. Provision for honorary fish wardens at the community level is being implemented but the functions of these are limited by the flaws in the fisheries laws.
Jurisdiction	I qoliqoli / customary inshore fishing areas are registered but CBRM rules are legally unenforceable.
Other	Draft inshore fisheries decree is on hold and a new perspective on moving this forward urgently needed.

INSTITUTIONAL ARRANGEMENTS

The institution primarily responsible for fisheries management is the Fisheries Department (FD) of the Ministry of Fisheries and Forests (MFF). The structure of the FD is currently undergoing a process that may result in divesting

functions such as licencing, compliance and enforcement to a "Fisheries Competent Authority" while retaining Research, Extension and Management functions. For now the FD structure comprises 4 main divisions in addition to General Administration and Fleet and Technical Services, these are:

- Offshore Fisheries
- Research, Resource Assessment and Development
- Extension & Advisory Services
- Aquaculture

The Research, Resource Assessment and Development division and to a lesser extent the Extension and Advisory Services perform inshore fisheries management functions.

HUMAN RESOURCES

The FD has 118 staff out of an approved total of 138 of which nearly half are based in Suva (Table 1).

Table 1: Approved and actually filled posts for established and support staff at the Fiji Fisheries Department. Showing proportions of the filled posts based in Suva and relative proportion of filled posts between divisions (Fisheries Department data December 2012).

	Established				Support (GWE)			
	Approved	Actual	Suva %	% Total	Approved	Actual	Suva %	% Total
General Administration	18	17	47%	14%	14	6	100%	21%
Offshore Fisheries	33	30	87%	25%				0%
Research, Res. Ass. & Dev. (RRAD)	14	11	36%	9%	12	9	33%	31%
Fleet & Technical Services	28	22	45%	19%	4	2	100%	7%
Extension & Advisory Serv. (EAS)	30	28	29%	24%	3	1	0%	3%
Aquaculture	15	10	10%	8%	11	11	0%	38%
Total	**138**	**118**	**48%**		**44**	**29**	**38%**	

The largest staff allocation is to Offshore Fisheries followed by Extension (EAS). Around one third of total staff have duties that include inshore fisheries management functions under the EAS and Research (RRAD) divisions combined and nearly a third of these are Suva based. To these have to be added some 15 part-time project staff working on the Marine Resource Inventory. Some 25 project staff are employed in fisheries ice centres and 11 on the new multi-purpose fisheries vessel. A further 22 are employed in various aquaculture related activities. Most of the non-Suva staff are based at divisional headquarters and it is probable that only those based at provincial level or at fisheries centres (13-25 functioning centres) have regular access to rural people – maybe as few as 20%.

The two major undertakings of the RRAD division are:

Reef Enrichment Initiative (REI):Considerable variation in understanding amongst staff on what this will entail, originally envisaged as a large scale reseeding of community reefs with hatchery cultured juvenile invertebrates, it is suggested that focus may be shifting to a predominantly awareness raising activity encouraging better management and translocation of remaining broodstock of pressured stocks to fishing reserve areas. The budget is reported to be FJD200,000 of which half is to be spent on awareness raising.

Marine Resource Inventory Surveys (MRI): The MRI is a massive undertaking which is the main responsibility of the 11 staff in RRAD, utilizes a further 15 project staff and supported by the ToR of field staff in the EAS section. In addition to these resources a budget of FJD400-500,000 is allocated yearly for the MRI.

STAFF RESPONSIBILITIES AND ACTIVITIES

The majority of senior positions share responsibilities for inshore, offshore and inland fisheries as well as aquaculture. Almost all positions substantially mix management and development activities and in some cases these development activities are likely to significantly displace time and resources available for management activities - such as the maintenance of fisheries centres and ice making equipment. However, there is sufficient basis in the ToR for the main functions associated with community focused inshore fisheries management should the incumbents have the resources

and political direction to do so. There is no mention of ecosystem approach related functions though this may be part of networking and provincial meetings.

Table 2: Analysis of sample Terms of Reference (ToR) of staff activities and responsibilities in the two Fiji Fisheries Department divisions with inshore management responsibilities: Extension & Advisory Services (EAS) and Research, Resource Assessment & Development (RRAD). ToRs provided by FD as of 2013 and many are new, revised or proposed. In brackets number of staff in place.

Position	*	Selected tasks, responsibilities and activities
Director		Policy, environmental trends, partnership with regional and NGOs inc FLMMA
Principal Fisheries Officer	c	General Administration: Promote sustainable development, participation of resource owners, outputs of the corporate plan, fisheries development
Principal Research Officer	?	
Senior Fisheries Officer	?	
Senior Research Officer	B (1)	RRAD: Operations including Mariculture station, resource inventory and chairing FLMMA network, policy advice for fisheries development and livelihoods, promote sustainable fisheries in the Eastern Division
Fisheries Officer	c/d (2)	EAS tasked with sustainable development to contribute F$10 million to GDP. Offshore, inshore, inland and aquaculture. "Ensure resource owners participation" and provide community awareness. Resource assessment. Promote industry development.
Fisheries Officer	c (2)	RRAD: Surveys and impact assessments, post-harvest fisheries development, community awareness inshore, offshore, inland, aquaculture on management and policy initiatives, promote industry development, fisheries development proposals, increase export earnings, infrastructure development
Fisheries Technical Officer	c (6)	EAS: Contribute to F$10 mill GDP, Offshore – Aquaculture. Management and development, infrastructure development, promote community based fisheries, technical support to Fisheries stations, training on post-harvest etc.
Fisheries Technical Officer	B/c (1)	RRAD: Resource assessment and profiles of customary areas, research for development of fisheries, monitoring, research for conservation, infrastructure, training in aquaculture (2 draft or unfilled position acts as secretariat to FLMMA and specific conservation and MPA functions and inshore)
Fisheries Assistant	B (15)	EAS: Contribute to F$10 mill GDP, attend local meetings, development of inshore, licencing, funding for inshore, awareness on sustainability, surveillance for undersize fish, data collection, training of fish wardens on gear technology, collaborate with NGOs, supervise ice machine
Fisheries Assistant	B (6)	RRAD: Includes inshore, inland and aquaculture. Customary fishing area inventory, investigate resources, establish fisheries sustainable development indicators

* A: Mainly management-related tasks (75-100%), B: Predominantly management tasks (50-75%), C: Predominantly development tasks (25-50%), D: Mainly development-related tasks (0-25%). Lower case letters indicate duties are mixed with offshore and/or aquaculture.

Interviewees suggested that field staff had little time left after ensuring the functioning of fisheries centres and delivery of ice. Attendance on behalf of the Fisheries Department at local meetings was generally considered passive with little guidance as to management interventions they should make.

The MRIS deploys substantial numbers of part time staff to villages to carry out around 20 surveys per year which may support up to 6 community management plans. There is opportunity for discussion of management issues with villagers but it is not clear that the part-time staff have adequate preparation to field questions or present important management concepts in the Fiji context. Staff are involved in activities organized by NGOs and USP generally under the umbrella of the FLMMA network; with mixed outputs.

BUDGETS

The FD budget is projected to increase from FJD5.8 million in 2010 to FJD8.8 million for 2012, payroll and capital construction account for more than half the overall budget though maintenance and operations is projected to increase sharply with the arrival of the fisheries vessel (Table 3 and Table 4).

Table 3: Fisheries Department details of expenditure by budget headings in thousands of Fiji Dollars (Ministry of Primary Industries).

	Actual 2010	Estimated 2012
1. Established Staff	1,667	2,700
2. Government Wage Earners	585	377
3. Travel and Communications	81	200
4. Maintenance and Operations	813	1,518

5. Purchase of Goods and Services	62	105
6. Operating Grants and Transfers	0	0
7. Special Expenditures	488	498
8. Capital Construction	1,716	2,650
9. Capital Purchase	0	0
10. Capital Grants and Transfers	0	0
13. Value Added Tax	392	753
Total FJD '000s **(USD '000s)**	**5,803** **(3,054)**	**8,800** **(4,974)**

Table 4: Fisheries Department details of expenditure by activities in thousands of Fiji Dollars (Ministry of Primary Industries).

	Actual 2010	Est. 2012
General Administration	792.8	1,351.8
Offshore Fisheries	159.9	976.3
Res., Resource Ass. & Dev.	1,223.9	2,515.4
Fleet & Technical Services	991.4	1,305.4
Extension & Advisory Serv.	1,435.7	1,504.0
Aquaculture	1,199.3	1,146.8
Total **(% of which in payroll)**	**5,803.0** **39%**	**8,799.7** **35%**

ESTIMATION OF ACTUAL SUPPORT TO INSHORE FISHERIES MANAGEMENT

In order to calculate the proportion of the Fiji Department of Fisheries budget that may be available for inshore fisheries management the budget detail provided for 2012 was examined. The budget for 2012 exhibits a sharp 50% increase over previous years accounted largely by some major intended capital investments in fisheries centres and ice plants, running costs of the new fisheries vessel as well as increased expenditure on aquaculture distributed across several activity headings. For 2012 the maximum amounts likely to be available for inshore management per sec are approximately:

- FJD 300,000 from the Extension and Advisory budget (20%) after removing costs of operating and maintaining the fisheries centres and ice plants.
- The Marine Resource Inventory Survey from under Research and Development, budgeted at FJD400,000 plus an estimated 75% of associated R&D operations and staffing costs coming to FJD830,000. But see reservations on the MRI above.

It should be noted that proposed development-oriented expenditures for 2012 from the same budget lines include iceplants and rural fisheries centres at around FJD750,000 and the operation of the new fisheries vessel (500k operations) the potential impact of which depends on the extent of its use for fisheries management or the envisaged minimum 5 trips for transport of fisheries produce. Aquaculture may receive the major share of funding in 2012 with a requested allocation of FJD1,800,000.

In addition to the investment in fisheries infrastructure aimed at increasing fisheries production there are also tax exemptions for equipment and small fisheries businesses as well as increased fiscal duty on the import of canned fish.

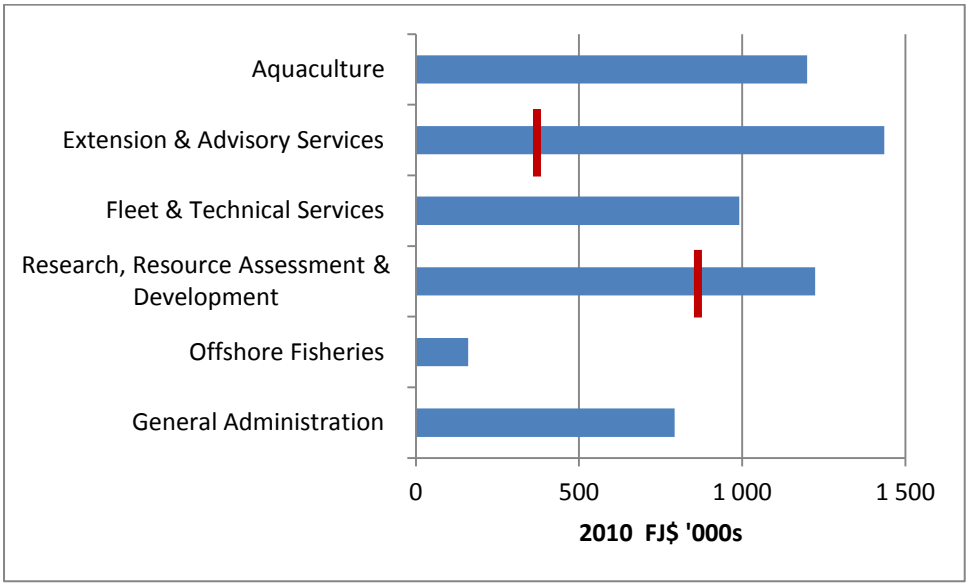
The maximum amount estimated to be available for inshore fisheries management activities in 2010 is therefore:

- 20% of the Extension and Advisory budget for that year
- Around FJD830,000 of the Research and Development budget (the cost of implementing the Resource Inventory)

This comes to a total of FJD1,100,000 to which may be added approximately 31% in terms of General Administration and Fleet and Technical Services (Figure 1).

Figure 1: Fiji Department of Fisheries budget breakdown by activity for 2010 in Fiji Dollars. Note: red lines indicate approximate

proportion available for inshore fisheries management calculated in this report.



RELATIVE INSHORE FISHERIES MANAGEMENT INVESTMENT AND REVENUE

The Fiji National Government Budget in 2010 declared a revised expenditure of FJD 1,715,453,500 of which the Fisheries Department allocation of FJD 5,803,000 comprises 0.34%, this compared to 2.16% for the Ministry for Social Welfare, Women and Poverty Alleviation or 11.3% for Law and order.

Estimates of fisheries contribution to Gross Domestic Product have suggested that this was 1.7% in 2007, 1.4% was derived from coastal fisheries. The Fisheries Department budget comprised 3.5% of the estimated total value of the fishery and the estimated investment in inshore fisheries management was 1.4% of the value of coastal fisheries (Table 5).

Table 5: Estimates of the value of Fiji Fisheries, their contribution to GDP compared to the Fisheries Department budget, allocations recalculated as part of this study (thousands of Fiji Dollars).

	Value of Fisheries[1]	Contribution to GDP[2]	% GDP[2]	FD budget 2010 (Recalc.)	FD budget 2010 (% value)
Coastal	108,100	72,980	1.4%	1,464[3]	1.4%
commercial	*54,000*	*29,700*	*0.6%*		
subsistence	*54,100*	*43,280*	*0.8%*		
Offshore	47,714	9,374	0.2%	209[3] (~1,200)[4]	0.4% (~2.7%)[4]
Freshwater	6,860	6,174	0.1%		
Aquaculture	2,799	1,400	0.0%	1,568[3]	56.0%
Total	**165,473**	**89,928**	**1.7%**	**5,803**	**3.5%**

1: Government figures for 2007according to Gillett (2009)
2: Using the alternative calculation of Gillett (2009). The official figures are not broken down and show a value of 102,000 and 1.9% contribution to GDP for the same year
3: Includes 31% General Administration and Fleet and Technical Services
4: Appears low. For 2012 Offshore is budgeted at FJD980,000 which would be nearer 2.7% of value in 2007

Recent revenue data were not available. Gillett (2009) reports around FJD1.7 million from access and management fees by the locally based offshore fishing fleet (FJD 957,660) and most of the rest from foreign based vessel access fees. The management fee of FJD432,000 from the locally-based fleet largely support the Management Service Unit while the access fees go in to consolidated revenue. The fees for coastal commercial fishing licenses amounted to less than FJD10,000 in 2006.

PROVINCIAL AND NGO INVESTMENTS IN INSHORE FISHERIES

PROVINCIAL

The bulk of non-Suva based Fisheries Department staff are located at headquarters in each of four divisions. Individual fisheries officers are located at provincial level but are reported to be overburdened with duties relating to ice provision. The provincial councils have duties relating to fisheries resource health and are administered under the Ministry of i-Taukei Affairs. The potential to increase provincial level support to fisheries management and environmental conservation is being developed by the i-Taukei Affairs Board through a Conservation Officer (CO) program which aims to place one CO in each province. One is in place already and two are in process - their duties include environmental awareness, building capacity, supporting community fish wardens and assisting communities in establishing bylaws.

CIVIL SOCIETY, NETWORKS AND NGOS

Traditional marine resource management by Fiji's coastal communities has been documented since at least the beginning of the 1900s (Johannes 1978). In the early 1990s communities were variously reported to be reviving their management approaches and by 1997 various NGOs and the University of the South Pacific were actively supporting community based coastal resource management (Johannes 2002). NGO and government efforts began to coordinate under the regional LMMA Network from 2000 and by 2001 the national Fiji Locally Managed Marine Areas Network (FLMMA) was established as a charitable association working to promote and encourage the preservation, protection and sustainable use of marine resources in Fiji by the owners of marine resources. These coordinated efforts have seen the number of Qoliqolis (customary fishing areas) under CBRM rise to 143 of the 385 marine I Qoliqolis by 2012 or more than half of the total customary fishing area. Within this managed area some 415 fishing reserves or tabu areas have been recorded covering nearly 1000km^2 (FLMMA secretariat 2013).

The FLMMA network is a partnership between government departments (Fisheries, I Taukei Affairs Board, Environment and Tourism), NGOs (WWF, WCS, PCDF, FSPI, MES, Resort Support, GVI, Pacific Blue, CORAL, Fiji Peace Corps, CCC), Institutions (USP, FIT), hotels and resorts, qoliqoli owners and communities. The initiative nominally coordinated by the Fisheries Department has gained nation-wide support from communities to policy-makers, though surprisingly it is not mentioned in Fisheries Department policy documents. The FLMMA network performs a variety of functions including commenting on government policy, coordinating the identification of research priorities, screening and

facilitating incoming research efforts, developing best practice guides and exploring emerging issues. Under the umbrella of FLMMA; work on Integrated Coastal Zone Management has been trialed and is now being upscaled as are approaches to Ecosystem Based Management. The network places particular emphasis on strengthening existing community, provincial and government structures and processes.

FLMMA launched provincial or sub-provincial networks in recognition of the drawbacks of centralized approaches (transport cost and limited opportunities for contact with communities). Piloted in Kadavu the Yaubula Management Support Teams have been replicated in Cakaudrove province and other islands such as Gau, Koro, Vanuabalavu, Vanua Balavu, and Tikina Lakeba in Macuata.

Fiji is well placed to carry out much of the pioneering research relating to inshore fisheries management and CBRM as it hosts USP (the regional university) and several NGOs endowed with qualified staff and access to research funds. Research and analysis has been carried out on best practices in community facilitation for LMMAs, types and performance of monitoring, the impacts of LMMAs on stocks, biodiversity and livelihoods, the contribution of national systems of CBRM/LMMAs to national conservation objectives, indicator species and state of the habitats.

ISSUES, THREATS AND OPPORTUNITIES

- Inshore fisheries are increasingly exploited and many areas are considered to be showing clear signs of overexploitation (e.g. IAS CPUE data unpublished, Teh et al. 2009, Zylich et al. 2012).
- The system of CBRM is relatively advanced thanks in great part to the partnership with NGOs but has encountered the limits of existing legislation - which is in need of review.
- Inshore commercial species especially beche-de-mer are a major source of income in rural areas but are in decline and management is not adequate.
- There is no inshore fisheries policy or clear institutional strategy for inshore fisheries management support.
- The sustainability of inshore fisheries management is undermined by policies or interventions such as exemptions to the ban on the use of Underwater Breathing Apparatus
- The promotion of fisheries development strategies such as fisheries centres for ice making or the provision of new transport opportunities for remote islands will increase pressure on stocks unless it is preceded by, and linked to, coherent inshore fisheries management in the affected areas.
- Local Fish Wardens are being successfully used as a key tool for CRBM including training and support, but more training and support is needed.
- The efforts of NGOs, USP and other government departments to incorporate or promote ecosystem approaches to resource management greatly outstrip those of the Fisheries Department.
- Awareness of fisheries rules and, just as important, their rationale is considered to be extremely low in rural areas. Efforts to establish key information needs and a national comprehensive awareness campaign have so far been inadequate.
- Despite a relatively well financed Fisheries Department, key initiatives relating to inshore fisheries management (such as the Marine Resource Inventories) do not represent cost-effective or strategically sound investments compared to alternatives.
- Unlike the potential of seaweed or freshwater aquaculture for rural livelihoods, the expensive hatchery production of invertebrates does not seem justified as a cost-effective management intervention especially given its undemonstrated impact.
- Independent assessments suggest that the cost of basic level support to coastal communities engaged in CBRM could be as low as FJD450/year and that of a provincial network around FJD10,000 (Govan et al. 2009). Some of the more costly NGO approaches may cost several orders of magnitude more (Claussen pers. comm.) and these are overshadowed by the large investments in resource surveys and aquaculture by government.
- Fisheries Department Extension and field officers have ToR that would permit a greater involvement in effective support of inshore fisheries management but in practice duties such as ice-making are excessively time-consuming. These officers require increased capacity for inshore fisheries management.
- Reports that holders of offshore licences are fishing inshore need verification and if true need appropriate enforcement action.
- Licencing of inshore fishermen needs comprehensive review to address issues including cost of licences, conditions, improving data collection and management, linking of licences to CBRM rules, and whether licences could be used to ensure that those accessing development services are fishing from managed stocks only.

- Enforcement is inadequate and may benefit from a multistakeholder process to address appropriate strategies for improving enforcement using the strengths of communities, fisheries departments, police and other stakeholders in a practicable manner and increasing awareness.
- The current licencing system does not appear to enable data analysis by area or in any other way that would be useful for management decision-makers.

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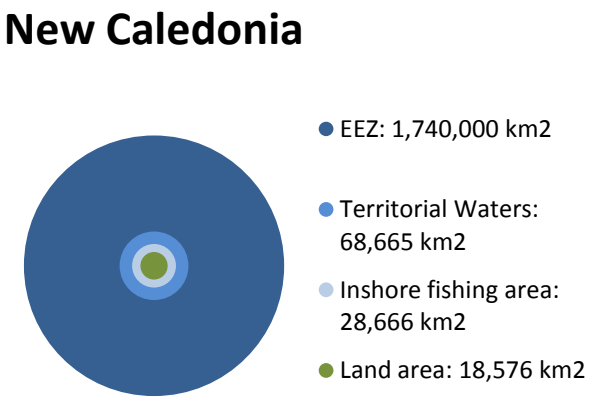
NEW CALEDONIA[1]



POLICY CONTEXT

The purpose of this section is to provide an overview of the high level and sectoral policy context relating to inshore fisheries management in New Caledonia highlighting in particular aspects that are likely to promote or detract from sustainable management.

HIGH LEVEL POLICY

The 26 June 1988 Matignon Accords were signed following clashes between anti-independence and pro-independence groups. The accords represented both parties' willingness to write the Territory's history together from then onwards in peace and prosperity. They provided for a 10-year development period with economic and institutional safeguards for the Kanak community, after which New Caledonians would vote on whether or not to change status. This was the first major policy blueprint for New Caledonia. The accords also created the Territory's provinces under Act no 88-1028 of 9 November 1988. New Caledonia has since been divided into three provinces, i.e. the Southern, Northern and Loyalty Islands Provinces.

Ten years later, on 5 May 1998, a second set of agreements was signed by all the active political groups in the country and was called the Noumea Accords. Developing New Caledonia continued to be the main thrust in the Noumea Accords that succeeded the Matignon Accords, launching a new development phase for the Territory and laying the foundations for New Caledonian citizenship in view of emancipation through the transfer of sovereign powers. It was the result of a political consensus defining New Caledonia's political structure and outlining the emancipation process over the next 20 years.

The Noumea Accords, New Caledonia's roadmap, are based on two basic concepts:

1. The "common destiny" concept. The Accords have contributed to the full recognition of the Kanaks' identity as the first people, which paved the way for a social compact between all of New Caledonia's communities, binding them firmly together and laying the foundations of New Caledonian citizenship; and
2. The "redistribution" concept. With a status change on the horizon, power sharing with and power transfer from France is the order of the day. The redistribution notion is, therefore, the guiding principle for New Caledonia's sustainable economic, social and cultural development policies and strategies.

[1] Compiled by Alexandre Brjosniovschi

Concept of "Redistribution" in the Noumea Accords

The Noumea Accords provided for 20 years of redistribution policy in New Caledonia. This commitment can be divided into two parts, i.e.:

1. The devolution of powers. The devolution of the powers of the French Government to New Caledonia, as provided for by the 1998 Noumea Accords, is aimed at making New Caledonia more self-governing so that it can develop public policies that are more in tune with reality on the ground. It makes New Caledonia responsible for organising and managing areas of public life previously administered by the French Government. Devolution covers several areas ranging from higher education to mining regulations. Only defence, law and order, the judicial system and foreign affairs now remain within the French Government's purview.
2. Redistribution across the Territory. There has been a genuine commitment to offset the imbalance between the Southern Province, which is very well developed economically and socially, and the other less well-developed provinces by means of redistribution. Over the last 20 years, public policies fostering political, economic and social redistribution have been implemented, namely:
   - ⇨ a commitment to political redistribution. The aim has been to redistribute powers across the Territory so that the whole population can contribute towards nation building;
   - ⇨ a commitment to social and cultural redistribution. This is aimed primarily at fully acknowledging the Kanak culture but also New Caledonia's multiculturalism. In social terms, the objective is to develop the health and education systems throughout the Territory; and
   - ⇨ a commitment to economic and industrial development. This is mainly a drive to redistribute wealth more evenly across the regions. Such redistribution has created jobs throughout the Territory and developed industry, particularly with major industrial projects, such as the Koniambo nickel processing plant in the North. It is also a commitment to diversifying industry in various sectors, including fisheries.

The push towards redistribution is driving New Caledonia's strategic policies through to 2018, notably by requiring that the whole Territory be developed.

NC 2025 Blueprint: a planning response to the redistribution directive

A "Development Blueprint for New Caledonia to 2025" is currently being drafted. It provides for evenly distributed development up to 2025, particularly by redistributing government expenditure for the provinces and townships. It sets the goals and, by using the scenario method, a technique in which a series of events leading to a future situation is simulated stage by stage, anticipates the resources that the French and Territorial Governments, the Provinces and the townships will have to provide to achieve them. Rather than a decision-making tool, this is a means of guiding the government in policy planning. Its aim is to guide public policy and thereby enable the French Government to articulate its town and country development funding goals (Art. 211, 1999 New Caledonia Organic Act). The Blueprint has several chapters, including the sea chapter that deals with the strategic management of New Caledonia's marine resources.

Sea Chapter of NC 2050

This chapter shows just how important it is for the Territory to develop fisheries, particularly inshore fisheries, owing to the significant social and economic role they play. It also recommends strategic scenarios for planning, preserving and developing UNESCO World Heritage-listed areas.

SECTOR POLICY

"Sustainably developing maritime industries is a golden opportunity for our country but in order to shape its maritime future, New Caledonia must avail itself more thoroughly or more effectively of the powers devolved to it by the French Government."

Harold Martin, President of the Government of New Caledonia, 7 November 2012,
New Caledonian Maritime Conference.

In New Caledonia, inshore fisheries management falls under the Provinces, with each province responsible for managing and controlling its natural resources. The Provinces control territorial waters up to 12 nautical miles off their shores. The Territorial Government, however, oversees the decisions and regulations made by the Provinces. Its role is,

inter alia, to supervise operations, provide support for jobs and manage shipping safety and the ship register. The Territorial Government is also responsible for the exclusive economic zone (EEZ) and local fisheries operating within it. The French Government retains the power to manage relations with foreign countries for access to New Caledonia's EEZ in close liaison with Territorial authorities. The various players who manage inshore and lagoon fisheries work together very closely to harmonise their operations throughout the Territory. Each agency formulates its own strategies for sustainably managing and developing inshore fisheries.

Territorial Government

The current President of the New Caledonian Government, Harold Martin, sees fisheries and particularly inshore fisheries as an important industry. The natural heritage contained in New Caledonia's waters is extremely important as demonstrated when it was UNESCO World Heritage-listed. This is why a 2010-2014 Action Plan was drawn up by the Merchant Marine and Maritime Fisheries Department (SMMPM) and its maritime fisheries and marine resources unit. The plan aims at sustainably developing management of maritime areas. With regard to inshore fisheries, item 3.4 of the 2010-2014 Action Plan mentions the aim of providing substantial support to fishermen's advocacy through industry organisations. Point 22 of item 3.4 states that the Territorial Government will ensure that the next New Caledonia Economic Development Agency's (ADECAL) ZONECO programme will be broadened to cover fisheries industry issues, including economics, organisation and labour legislation, etc.

Southern Province

The Southern Province's policies are contained in the Cap Sud 21 plan, a roadmap for effectively managing provincial activities to sustainably develop the province. Inshore fisheries feature in three major Cap Sud 21 policy areas, i.e.:

1. "To prosper and share." Will to boost the economy and sustain its development to create jobs, but also to improve the purchasing power.
2. "Be aware of how crucial the environment is" – the environment is a major sector for New Caledonia and needs to be effectively managed, in particular by preserving marine resources; and
3. "At least have a choice" – this is about involving women and giving them the opportunity to make career decisions, especially in seafaring occupations.

These three inshore policy areas are an integral part of a policy entitled "Developing the economy and fostering employment", one of 10 major Cap Sud 21 policies.

Northern Province

The Northern Province has introduced a Development Code that mainly addresses economic development. The Code highlights a commitment to introducing public policy for developing various sectors, including the environment and, more specifically, marine resources. The Code includes an inshore fisheries section which features a commitment to prioritise support to reef and lagoon fishers.

Loyalty Islands Province

Information not available

LEGISLATION

ORGANIC LAW OF NEW CALEDONIA, 19TH MARCH 1999

The Organic Law of New Caledonia of 19th March 1999 states that the three provinces of New Caledonia regulate and exercise the rights of exploration, exploitation, conservation and management of biological and non-biological natural resources (article 46 or the organic law).

Laws and regulations for inshore fisheries in New Caledonia are therefore established and enforced at the Province level. The Provinces also decide of the development of projects such as infrastructure or aquaculture farms, and of the levels of subsidies for fuel.

Northern and Southern Provinces have collated all regulations and orders about conservation and exploitation of natural resources including fisheries in their respective environmental codes, published in 2008 and 2009. The Loyalty Islands Province is in the process of establishing its own environmental code. Apart for two decisions regarding bottom fisheries and coconut crab, the Loyalty Is Province still applies the laws and regulations that were in force before the creation of

the Provinces by Matignon Agreements in 1988. In the environmental codes of the Loyalty Islands there will be a part dedicated to the preservation of the areas classified as UNESCO world heritage.

LEGAL DOCUMENTS RELATED TO FISHERIES MANAGEMENT

Provinces	Documents	Date
Southern Province	Environmental code of the Southern Province	May, 2009
Northern Province	Environmental code of the Northern Province	October, 2008
	Resolution no 243-2006/APN of 1 September 2006 on fishing requirements in the Northern Province's territorial and inshore waters	September, 2006
Loyalty Islands Province	Environmental code of Loyalty Islands Province	In draft
	Resolution no 2008-92/API of 19 December on sustainable bottom fisheries	December, 2008
	Resolution no 93-51/API of 22 December 1993 on coconut crab (*Birgus Latro*) protection	December, 1993
	Laws and regulations on the statute books prior to the Matignon Accords	1988

The environmental codes general principles are based on the French Charter of the Environment of 2004 (constitutional law 2005-205 of 1st March 2005) which proclaims that

1. Everyone has the right to live in a stable environment which respects health
2. All persons have a duty to take part in the preservation and the improvement of the environment.
3. All persons must, under the conditions defined by law, forewarn of adverse factors that they are likely to carry into the environment or, failing that, to limit their consequences
4. All persons must contribute to repair the damage that they cause to the environment, under the conditions defined by law.
5. As soon as realization of damage could affect the environment in a serious and irreversible manner, even though [its recognition] might be uncertain in the current state of the scientific knowledge, public authorities should monitor, by the application of the precautionary principle in their relevant domains, the implementation of risk assessment procedures and the adoption of proportionate, provisional measures in order to prevent the realization of the damage.
6. Public policies should promote sustainable development. To this effect, they should reconcile the protection and enrichment of the environment, with economic development and social progress.
7. All persons have the right, under the conditions and limits defined by law, to have access to information relating to the environment held by public authorities and to participate in the elaboration of public decisions having an impact on the environment.
8. Education and training about the environment should contribute to the exercise of the rights and duties defined by the present Charter
9. Research and innovation should participate in the preservation and the enrichment of the Environment
10. The present Charter inspires France throughout her European — and her international action.

SNAPSHOT OF POLICY AND LEGISLATION

National and sector policy	Strongly supportive of sustainable coastal resource management
Legislation	The Organic Law of New Caledonia of 19th March 1999 states that the three provinces of New Caledonia regulate and exercise the rights of exploration, exploitation, conservation and management of biological and non-biological natural resources including fisheries. Each province collated all regulations and orders about conservation and exploitation of natural resources in their respective environmental codes (Loyalty Island Code still in draft).
Community rights	For marine environment and fisheries, the law does not formally recognize community rights. But their use, for fisheries management purposes, is already experimented in the Northern Province for

	the management of a specific fishery (sea cucumber) in a limited area (Boyen).
Decentralized approaches	The management of the inshore areas is enforced at the Provincial level. The Provinces are responsible for their coastal areas; they decide of development projects, laws and regulations related to coastal aquatic resources.
Jurisdiction	The Provinces control, regulate and manage inshore fisheries. The Government makes sure that the decisions from the Provinces are respected. There is no formal legal framework for CBRM in New Caledonia.
Other	The Loyalty Islands Province is in process to write its own environmental code.

INSTITUTIONAL ARRANGEMENTS

The three Provinces are tasked with managing coastal fisheries while the Territorial Government is responsible for oceanic fisheries through its Merchant Marine and Maritime Fisheries Department (SMMPM). The French Government manages international relations including boundary disputes involving New Caledonia's exclusive economic zone (EEZ).

While each Province regulates its own area, all three Provinces and the Territorial Government work closely together to ensure marine resources are sustainably managed. By working closely together, they are able to harmonise the work carried out by the various agencies managing fisheries throughout the Territory. The Provinces provide support to oceanic resource management just as the Territorial Government assists the provincial authorities in managing inshore fisheries.

The Territory is represented by the Territorial Government and its Merchant Marine and Maritime Fisheries Department based in Noumea. The Southern Province comprises the southern part of the main island from Canala and Poya to the Isle of Pines and its headquarters are located in Noumea. The Northern Province comprises the northern part of the main island from Canala and Poya to the Belep Islands and the seat is located in Kone. The Loyalty Islands Province is made up of four islands, i.e. Lifou, Mare, Ouvea and Tiga, and the Province's headquarters are located on Lifou.

Community-based fisheries management (CBFM)

This method of management has been experimented with success in Boyen, in the Northern Province for the management of sea cucumber resources by one coastal community. The Northern Province is however, actually studying ways to integrate the possibility of community-based management in their own legislation framework. Nothing yet in legislation is related to CBRM as it somehow contradicts the French and New Caledonia laws, which stipulate that marine resources belong to all citizens.

CBFM will not be applicable to all of New Caledonia as many areas are far beyond the possible monitoring of coastal communities (reefs can be miles away from the shore), and mixed populations not necessarily belonging to coastal communities harvest costal resources. But, as shown with the Boyen experiment, it certainly has a potential in areas where communities with traditional rights are well established.

HUMAN RESOURCES

Some 64 people work in New Caledonia's public sector in positions related to fisheries and aquaculture. Of the 64 people in Table 6, an estimated 35 full-time-equivalent employees perform tasks related to fisheries and aquaculture management and development. Most of the positions indicated below have cross-sectoral duties spanning inshore and oceanic fisheries and aquaculture.

Table 6: Public sector staff working in relation to fisheries in New Caledonia (2013)[2].

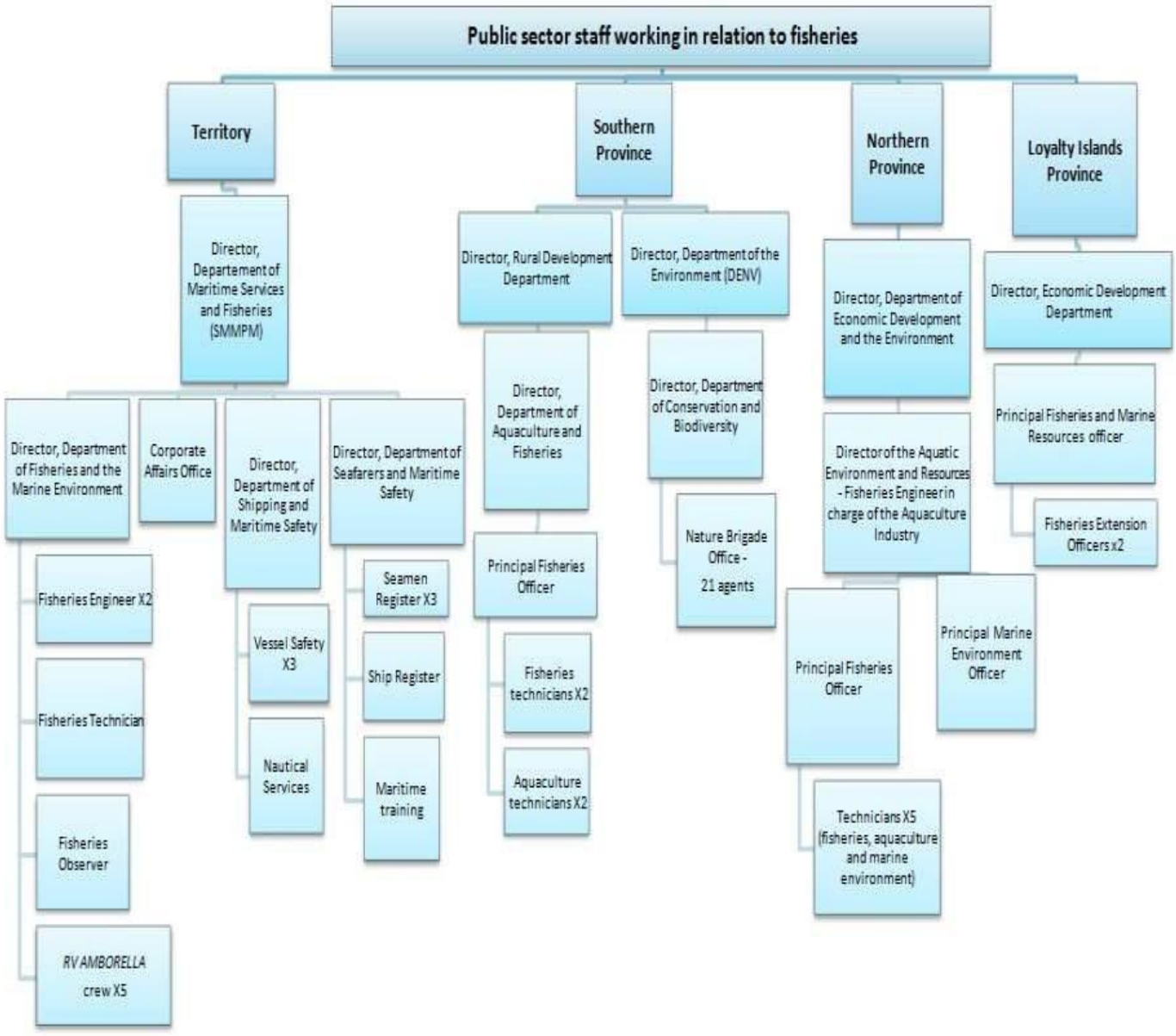


Table 7: Distribution and percentage of positions related to fisheries and aquaculture management and development throughout the Territory (2013).

Positions	Estimated number of equivalent-full-time positions	% of full-time positions territory-wide
Inshore Fisheries	24	68%
Offshore fisheries	5	14%
Aquaculture	6	18%
Total	35	100%

[2] *AMBORELLA* is a ship that belongs to the New Caledonia Government. Its mission is to help preserve the natural resources of the marine environment. It serves as the base for scientific missions and also provides support to the inshore fisheries sector, in particular by deploying FADs and doing surveillance and control of the maritime areas that have been placed on UNESCO's World Heritage list.

The above estimate of equivalent-full-time positions reflects the cross-sectoral duties performed by the various fisheries officers by indicating the percentage of their time devoted to each category. The table shows that fisheries-related staff in New Caledonia mainly work in inshore fisheries.

In full time equivalent, it is estimated that, out of the 24 staff working for inshore fisheries, only 9 are effectively dealing with coastal fisheries development or management issues (1 staff for the Territory, 3 for the Southern Province, 3 for the Northern Province and 2 for the Loyalty Islands). Other staff time is devoted to control and surveillance missions or work linked to regulations.

Research: The above does not reflect public research bodies that work on marine issues. These bodies include IRD (Research Development Institute), IFREMER (French Marine Development Research Institute) and the New Caledonia Economic Development Agency's (ADECAL) ZONECO programme. These organisations work on their own programmes developed nationally or at a territorial level, but sometimes also respond to specific requests from territorial or provincial bodies seeking scientific opinions for developing their policies.

STAFF RESPONSIBILITIES AND ACTIVITIES

The majority of senior positions share responsibilities between inshore, offshore and coastal fisheries as well as aquaculture. Some positions substantially mix management and development activities, other are solely linked to control and surveillance tasks. For positions performing management activities, there is the possibility to work for community-focused inshore fisheries management should the incumbents have the resources and political direction to do so.

Table 8: Breakdown of the various positions related to the fishing industry

Position	Selected tasks, responsibilities and activities
Directors **Territory – Department of Fisheries and the Marine Environment** **Southern Province – Department of Aquaculture and Fisheries & Department of Conservation and Biodiversity** **Northern Province – Aquatic Environment and resources department** **Loyalty Island Province – Fisheries and marine resources department**	General administration: promote sustainable development. Territorial and provincial focal points for all matters involving marine resource development. Supervise commercial development and enhancement of marine resources. Co-ordinate activities in the fisheries and aquaculture sectors. In terms of local development, monitor, develop and organise the fishing industry. Prepare and manage the budget and manage departmental resources.
Principal Fisheries and Marine Environment Officers, **Territory - the director of the Department of Fisheries and Marine Environment** **Southern Provinces – Principal Fisheries Officer** **Northern Provinces – Principal Fisheries Officer & Principal Marine Environment Officer** **Loyalty Island Province – Principal fisheries and marine resource Officer**	Implement sustainable marine resource management. Supervise fisheries technicians. In charge of relations with fisheries industry organisations, scientific bodies and territorial and French Government departments. Monitor the marine environmental impacts of certain development and land operations. Contribute to drafting fisheries regulations. Oversee fisheries industry development, organisation and support.
Fisheries Technicians	Provide technical support to fishers by disseminating information and facilitating sector organisation and the enhancement of industry practices. Work on resource management and environmental conservation issues. Duties are cross-sectoral, involving fisheries, aquaculture and the marine environment in general. Contribute to the FAD monitoring programme and manage inshore fisheries.
Nature Brigade Officers (Southern Province)	Enforce Southern Province regulations and the various environmental codes. Monitoring, surveillance and prosecution.
Fisheries Observer (Territory)	Only deal with oceanic fisheries. Local longliner onboard monitoring and surveillance, port sampling and catch logsheet controls, etc.
Fisheries Extension Officers (Loyalty Island Province)	Accompany and assist fishers in maintaining and managing vessels and with fishing techniques, etc.

BUDGETS

In New Caledonia, the total government fisheries and aquaculture budget allocated to the four bodies that have fisheries management responsibilities (the Southern, Northern and Loyalty Islands Provinces and the Territorial Maritime Services and Fisheries Department) — which are referred to as the four "Fisheries Departments" in Table 9— indicated

below does not account for total funding to the fishing and aquaculture industries. Some grants awarded by the Territory, French Government and European Union are not included. In addition, all the agencies dealing with fisheries implement cross-sectoral policies with budgets funded from different sources. This is especially the case for the Loyalty Islands Province whose salary budget is a budget that is separate from the Department of Economic Development's budget. The funding detailed below, therefore, only accounts for the four "Fisheries Departments'" own budgets, excluding salaries, as relevant figures were not available for several of the agencies.

Table 9: Overall 2012 budget for the "Fisheries Departments" of the three Provinces and the Territory.

Territory	**XPF 46,800,500**
Southern Province	XPF 117,500,000
Northern Province	XPF 230,827,632
Loyalty Island Province	XPF 251,041,891
TOTAL	XPF 646,170,023

As can be seen from Table 10, these budgets are not comparable to each other as they do not cover the same operations. For example, the Loyalty Islands Province's fisheries department budget includes funding for building a dry port on Lifou (> 70 % of the budget) whereas this type of expense is attributed to the budgets of other agencies in the Northern and Southern Provinces. The Northern Province budget indicated here includes environmental and research support allocations not provided for in the Loyalty Islands or Southern Province's fisheries budgets as these are handled by different agencies.

For the Territorial Government (SMMPM), the fisheries-related budget (excluding salaries) has been separated from the overall departmental budget.

Table 10: Breakdown of allocations to inshore fisheries / other operations in the four "fisheries departments" (2012)

Budget (excluding salaries) allocated to fisheries within the Department of Merchant Marine and Maritime Fisheries(Territorial Government) – 2012[3]	
Inshore fisheries support (XPF 5,780,000)	**Other (XPF 41,020,500)**
• Item A1305-01 – maintaining the d'Entrecasteaux Reefs on the UNESCO World Heritage list	• Item A1305-02 – Resource development monitoring in the exclusive economic zone (EEZ) • Item A1305-03 – Remote island marine resource management and conservation • Item A1305-05 Support and management
Southern Province Budget (excluding salaries) Fisheries and Aquaculture Department – 2012	
Inshore fisheries support (XPF 55,500,000)	**Other (XPF 62,000,000)**
• Investment support – economic project grants • Maritime zone facilities – FADs • Social welfare fund (RUAMM) support • Fuel subsidies	• Aquaculture investment support • Research assistance for the ZONECO programme

[3] Source: Merchant Marine and Maritime Fisheries Department's 2012 annual report.

Northern Province Budget (excluding salaries) Economic Development and Environment Department – 2012	
Inshore fisheries support **(XPF 43,000,000)**	**Other** **(XPF 187,827,632)**
• Investment support – economic project grants • Funding or co-funding for various industry bodies, e.g. Northern Fishermen's Federation • Producer subsidies (fuel, freight and interest rate subsidies) • Maritime zone facilities – FADs • Minor equipment grants (dinghy repairs, minor equipment purchases) • Feasibility study for a seafood packaging plant	• Investment support – aquaculture • Funding or co-funding for various industry bodies, e.g. aquafarm grouping • Funding or co-funding for research institutes and technical centre programmes (Ifremer, ZONECO, CTTDP). • Funding technical facilities (CCDTAM, pilot fish farm) • Funding marine environment management and conservation materials and equipment (information boards, MPA signage) • Specific study grants (sea cucumber farming, symbolic species such as dugongs) • Oceanic fisheries funding (longlining)

Loyalty Islands Province Budget (excluding salaries) Economic Development Department – 2012	
Inshore fisheries support **(XPF 71,041,891)**	**Other** **(XPF 180,000,000)**
• Economic projects (grants to inshore fisheries economic projects) • Service provision, e.g. agreement with qualified mechanics for vessel maintenance and repairs, mechanical tools • Support to fishers (fuel and marketing subsidies) • Maritime zone facilities – FADs, boat ramp maintenance, seafood packaging plant subsidies	• Major infrastructure funding, e.g. dry port on Lifou

RELATIVE INSHORE FISHERIES MANAGEMENT INVESTMENT AND REVENUE

The total budget for all four New Caledonian "fisheries departments", therefore, amounts to XPF 646,170,023, excluding salaries.

New Caledonia's GDP was estimated at XPF 768,100,000,000 in 2007. The percentage of GDP generally attributed to fisheries and aquaculture in New Caledonia was estimated by Gillett (2009) at 0.3%, and 0.21% if only inshore fisheries are considered. The estimated value of fisheries and aquaculture, therefore, accounts for a much smaller share of GDP in New Caledonia than in other Melanesian countries such as the Solomon Islands (6 %), Fiji (1.7 %) or Vanuatu (1.6 %).

By comparing the "coastal fisheries" component in the 2012 budgets of the four New Caledonian "fisheries departments" (XPF 175,321,891) and the 2007 estimated value of inshore fisheries (XPF 2,128,000,000, according to Gillett 2009), it appears that the 2012 "fisheries department" budgets account for over 8 % of the 2007 value of inshore fisheries, although they do not include salaries, research-related expenditure or major infrastructure expenditure, such as for port facilities, or other spending (Table 5).

The total 2012 budgeted amount for the four "fisheries departments" (XPF 646,170,023) apparently accounts for 14.9 % of the total estimated value of fisheries for 2007 (XPF 4,320,692,000 according to Gillett 2012). The ratio could probably be higher, as the aquaculture and inshore fishing industries are currently struggling and probably less productive today than in 2007.

Table 11: Estimates of the 2007 value of New Caledonia fisheries, their contribution to GDP compared to 2012 total estimated budget of the 4 "Fisheries Departments" (XPF).

	Value of Fisheries (XPF)	Contribution to GDP (XPF)	% GDP	Fisheries related budget 2012 (Recalc.) (XPF)	Fisheries related budget 2012 (% value)
Coastal	2,128,000,000	1,589,000,000	0.21%	175,321,891	8.23%
commercial	*756,000,000*	*491,400,000*	*0.06%*		
subsistence	*1,372, 000,000*	*1,097,600,000*	*0.14%*		
Offshore, Aquaculture & other activities	2,192,692,000	802,257,800	0.10%		
Total	**4,320,692,000**	**2, 391,257,800**	**0.3%**	**646,170,023**	**14.9%**

Revenue: No international fishing agreements have been signed for New Caledonia's EEZ since 2001 and the Territory does not earn any revenue from it. Licences and special permits are issued to inshore fisheries for token fees as the purpose is to monitor the number of commercial fishing concerns in the Territory and their operations rather than to raise revenue. Fisheries and aquaculture are not heavily taxed and enjoy preferential import duty rates for equipment. Direct revenue from the fishing and aquaculture industries can, therefore, be considered insignificant in terms of provincial and territorial government revenue.

NGO INVESTMENTS IN INSHORE FISHERIES

Several non-governmental organisations (NGOs) and associations are actively involved in preserving the marine environment, including the World Wildlife Fund (WWF), Conservation International (CI), the New Caledonian Nature Conservation Association (ASNNC) and the Environmental Observatory (OEIL).
All these organisations deal directly with the public, particularly with communities, for issues related to the marine environment:

- OEIL is a monitoring body that functions as an association. It contributes to marine resource management by providing input to public sector decision-making. OEIL assesses the results of research agencies such as IRD, reviews the data, passes them on to government decision-makers and reports to local communities.
- Since 2008, ASNNC has taken part in projects organised by the Merchant Marine and Maritime Fisheries Department. It does, for example, serve on the department's committee tasked with examining and preparing the d'Entrecasteaux Reef Management and Marine Park Plan. It has also been working since 1989 on protecting marine turtles. In addition, it carries out awareness and communication work with fishing communities and the general public on territorial and Province initiatives for preserving marine environments.
- WWF recently took part in the UNESCO technical committee overseeing the heritage listing of New Caledonia's lagoons and an eco-regional assessment of New Caledonia's marine environment. WWF has also set up marine protected areas with the Northern Province and managed them jointly with the Pouebo and Hienghene coastal indigenous communities.
- Conservation International works with the Loyalty Islands Province on issues related to UNESCO World Heritage-listing for very large maritime areas, particularly Ouvea, and deals directly with local communities.

Although these organisations work on natural environment protection issues rather than on developing such environments through sustainable management, their involvement with local communities and the general public makes them valuable partners and civil-society counterparts for carrying out community resource management operations.

ISSUES, THREATS AND OPPORTUNITIES

- The overall status of inshore fisheries stocks in New Caledonia is estimated to be in a reasonably good state, but there are wide differences according to areas. Resources appear to be heavily impacted in proximity to urban centres, while wide remote areas, difficult to access or too far from consumption centres, carry healthy stocks (Auclair Dupont et al. 2004, Kulbicki 2007).

- In places where the lagoon is extensively used for recreational activities other than fishing (e.g. snorkelling or scuba diving) — such as Noumea, where more than half of New Caledonia population lives or Bourail the second main urban centre — marine protected areas have been established.
- All commercial fishermen are required to hold a fishing permit, and the renewal of this annual permit is linked to the provision by the fisherman of his fishing logbook (which must indicate annual catch per species and value of first sale). To control the possible overfishing of fragile species, annual special permits are also required for the commercial fishing of several groups of marine resources.
- Special permit holders are required to provide twice a year a detailed report indicating their monthly catches per species, fishing locations, trader names and first sale value of products. The renewal of the special permit is only granted when these reports have been provided.
- No quota or limitations to the number of special permits that can be granted each year have yet been put in place (B. Fao, pers. comm.). Authorities will, however, have the possibility to reduce the pressure on a specific resource by reducing the number of permits delivered if global catches are estimated to impact too heavily on a resource.
- Despite these measures, some resources, such as sea cucumbers, may show sign of overexploitation. In the Northern and Southern Provinces of New Caledonia, a special permit is required to fish for sea cucumbers, and there are size limits for the eight main commercial species. Some experiments of restocking in the wild are conducted in collaboration with a private sea cucumber farm, but a close monitoring and management of the resource will anyway be necessary to make sure this fishery, which is important to some remote communities as one of their rare cash-income opportunities, remain sustainable.
- In their study "Planning the use of fish for food security", Bell et al. (2009) have listed New Caledonia as one of the rare Pacific Island countries and territories — the only one from Melanesia — where sustainable production from coastal fisheries is expected to meet future needs (up to 2030) for fish, taking into account the population increase. The study refers however to "sustainable production", which means that particular efforts will be needed to control and monitor fishing activities and ensure production levels remain sustainable. These efforts will need to be even more important around urban areas as this where the population increase will be the most important.
- The growing international demand for seafood will also induce additional pressure on coastal resources. But, the impact will be limited to costal marine species that are exported. Currently, only three coastal commodities are exported: beche-de-mer, trochus and marine ornamentals. For other commodities, the local market almost always offers a better return than the export market. The situation is not expected to change, as the high local demand for coastal seafood — which almost always exceeds the offer—, and the high cost of local labour and shipping limit the attractiveness of export markets.
- Land run offs from mining and onshore developments are a concern. The environmental codes for the Northern and Southern Provinces and the mining code for New Caledonia carry many instruments for the control of possible run offs from mining or onshore development activities. Nevertheless, considering the importance of the mining industry in New Caledonia, the size of the areas where mining occurs, as well as the rapid increase of onshore development projects related to the development of the mining industry, costal marine habitats will be impacted
- Recreational fishing is almost a "national sport" in New Caledonia, and subsistence fishing is a regular activity for most rural coastal communities. Considering the number of people involved and the huge number of possible landing sites, controlling and evaluating the impact of non-commercial coastal fishing activities is very difficult. Estimates of annual catch from recreational and subsistence fishing vary from 920 t (equivalent to the commercial catches) (Kronen et al. 2009) to 3500 t (ITSEE 2012 and Auclair Dupont 2004) or even 4000–6000 t (Ducrocq 2011). Whichever figure is correct; these activities have an impact at least equivalent to artisanal fishing on coastal resources. On some resources vulnerable to spearfishing, they may well have a far greater impact than commercial activities as this technique can be used by non-commercial fishers, but not by licensed commercial fishers. Some measures are in place to limit non-commercial coastal fishing (catch limited to 40 kg per boat and per fishing trip; catch cannot be sold and must only be distributed to family or close relatives), and there are restrictions to the fishing gear that can be used (net mesh size and length, number of traps, etc.). But, controlling the compliance with these measures can only be done sporadically, and no proper system for data collection of non-commercial catches is in place, as it is for commercial catches. The importance of recreational fishing is also often cited as a limiting factor to the development of the artisanal fishing sector. But, several studies (including Auclair Dupont 2004 and Virly 2000) have come to the conclusion that reducing or even

further limiting recreational fishing activities in New Caledonia would be very difficult because: 1) of the high economic value of the sector (sales of boats, safety and fishing gear, fuel, etc.) — gains in the commercial fishing sector would probably be largely offset by losses in the recreational sector, 2) of the technical difficulty of enforcing the measures, and 3) such measures would be highly unpopular.

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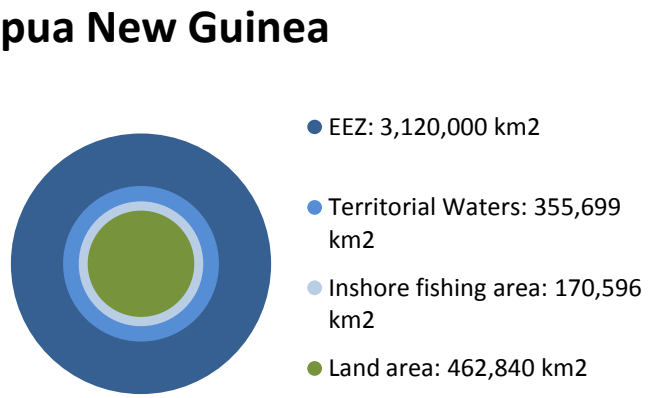

POLICY CONTEXT

The purpose of this section is to provide an overview of the high level and sectoral policy context relating to inshore fisheries management, highlighting in particular aspects that are likely to promote or detract from sustainable management.

HIGH LEVEL POLICY

The Constitution of the Independent State of Papua New Guinea sets out in its 4th Goal on Natural resources and environment to be for "natural resources and environment to be conserved and used for the collective benefit of us all, and be replenished for the benefit of future generations".

The PNG national strategic plan 2010-2050 "Papua New Guinea Vision 2050" proposes that the 'ideal' of the Vision 2050 is that, PNG develops and builds a solid and sustainable economic foundation based on renewable sectors. These renewable sectors are agriculture, forestry, eco-tourism and fisheries.

Key supporting development policy includes the Development Strategic Plan (DSP); the Medium-Term Strategic Plan (MTDS, 2010-2015); the draft Environmentally Sustainable Economic Growth (ESEG) Policy and the recently formulated Climate Compatible Development Plan (CCDP). All sector policies, plans and strategies (this includes fisheries) are to be re-aligned to the DSP and this has major implications for both inshore and offshore fisheries.

The high level policy is extremely oriented towards economic development with comparatively very little emphasis on sustainable management. The ESEG policy may go some way to redress this, when approved, as it proposes a shift in PNG's Department of Environment and Conservation's (DEC's) approach to environmental management and conservation. The proposal is to enable DEC to facilitate greater economic and social development whilst ensuring that environmental values are maintained at a level of quality; and ensuring the sustainability of the development activities that they support. If DEC develops an Environment Protection Authority it is possible that the various fisheries would need to be assessed for sustainability, similar to what happens now in Australia and the application of the Guidelines for the Ecologically Sustainable Management of Fisheries under Part 13A of the 1999 Environment Protection and Biodiversity Conservation Act.

Constitution of the Independent State of Papua New Guinea

National Goals and Directive Principles #4: Natural resources and environment Papua New Guinea's natural resources and environment should be conserved and used for the collective benefit of all, and be replenished for the benefit of future generations. It calls for wise use to be made of natural resources and the environment in and on the land or seabed, in the sea, under the land, and in the air, in the interests of development and in trust for future generations; and the conservation and replenishment, for the benefit of ourselves and posterity, of the environment and its sacred, scenic, and historical qualities.

PNG national strategic plan 2010-2050 "Papua New Guinea Vision 2050"

The strategic direction for Vision 2050 is that, "Papua New Guinea will develop and grow the manufacturing, services, agriculture, forestry, fisheries and eco-tourism sectors from 2010 to 2050". The challenge therefore is, 'How do we shift an economy that is currently dominated by the mining and energy sectors, to one that is dominated by agriculture, forestry, fisheries, eco-tourism and manufacturing, between 2010 and 2050?'

Fisheries is seen as a core strategic development area and the aim is to promote wealth creation through establishing fisheries projects, access to credit and markets and developing onshore processing using revenue from the mining and energy sectors.

Mention is made of the importance of building institutional capacity at provincial, district and local government to improve coastal fisheries management. Under the section on environment and climate change it is stated that "The issue of sustaining our environment, cultural heritage and resource management will remain major challenges for the future. Urgent measures must be taken to protect PNG's environment and its future sustainability."

Development Strategic Plan (DSP) 2010-2030

The Fisheries Goal is: Develop a fisheries sector that is both sustainable and highly profitable for PNG, including the establishment of PNG as a world leader in the supply of tuna.

State administrative capacities need to be enhanced to oversee the sector, including the enforcement of policy. Development of maritime surveillance capacity of the defence and security force is a key strategy for achieving higher returns from PNG"s fishing resources. To assist fishers to gain from their traditional fishing grounds, fishing cooperatives can be set up that will have responsibility for administration, marketing of local catches, providing cold storage and processing facilities, organising credit and arranging the acquisition of pump boats and other equipment for its members.

The Environment Goal: Promote a sustainable environment.

In accordance with the Constitutional recognition of PNG ways, customary practices for enhancing and preserving the environment will be strengthened. Landowners often have a cultural obligation to ensure the benefit of future generations, supporting the goal of sustainable development. Ongoing efforts are required to improve the legislative framework, together with monitoring and evaluation mechanisms in order to protect the environment. This is an ongoing process because over time, new environmental challenges arise and scientific understanding improves.

Medium-Term Strategic Plan (MTDS) 2010-2015

States that "Developing PNG's fishing industry will be a high priority for the Government. But this will be done in a manner that ensures that the sector's potential is realized and the resource is managed in a sustainable way". Most of the envisaged actions however relate to development of revenue from the fisheries sector with relatively few opportunities to ensure sustainable inshore fisheries management for food security:

- The first MTDP does propose reviewing existing legislative framework and policies of the sector to strengthen and enhance the capacity of the National Fisheries Authority (NFA) BUT to promote development of the sector.
- In the period 2011-2015, a number of marine industrial parks will be established in the maritime provinces of PNG. These will provide an outlet for local fishers which will support fishing incomes.
- The Coastal Fisheries Development Authority (CFDA) through the concept of fish port development will help mobilise and enable local fishermen to improve traditional fishing methods and increase their catch.
- The capacity of the NFA to do stock assessment on commercial species and conduct policy enforcement will be strengthened and enhanced. Revamp fisheries licenses providing greater property rights but with additional development conditions.
- Pursue fisheries development for aquaculture and other small wild capture fisheries such as trepang or aquarium

In terms of the environment provisions in the MTDS focus appears primarily on land-based and forestry issues though the following potential opportunities for sustainable coastal resource management are mentioned:

- The formulation of an environmentally sustainable economic growth policy is thus essential to ensure appropriate levels of impact assessment are conducted (Environmentally Sustainable Economic Growth (ESEG) Policy)
- Emphasis will also be placed on the strengthening and utilisation of customary practices in preserving the natural environment, encouraging its conservation through sustainable development in ensuring the benefits for present and future generations.
- Creation of systems of protected areas management at all levels and forest and biodiversity conservation
- Develop management strategies for coastal and marine resource management **and e**nhance the coastal zone conservation management plan (2016-2020 subject to funding).

Of note are the PNG tailored targets for the Millennium Development Goals with regards to the MDG Target 7 which originally read "Target 7A Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources. Target 7B Reduce biodiversity loss, achieving, by 2010, a significant

reduction in the rate of loss" The tailored targets are "MTDS Target 13 Implement the principles of sustainable development through sector specific programs by 2010 and no later than 2015. MTDS Target 14 By 2020, increase commercial use of land and natural resources through improvements in environmentally friendly technologies and methods of production.

SECTOR POLICY

PNG has established a large number of policies that specifically relate to fisheries management, these include:

Fisheries Policies

- National Aquaculture Policy
- National Tuna Long-line Policy
- National Fishing Aggregating Device Management Policy
- Trail Fishing Policy

Fisheries Management Plans

- National Tuna Management Plan
- National Beche-de-mer Management Plan
- Barramundi Fishery Management Plan
- Torres Strait and Western Province Tropical Rock Lobster Management Plan
- Gulf of Papua Prawn Fishery Management Plan
- National Shark Long-line Fishery Management Plan
- National Live Reef Food Fish Fishery Management Plan (drafted, and reviewed in 2009 to incorporate Ecosystem Approaches to Fisheries Management)
- National Marine Aquarium Fishery Management Plan (drafted)

Fisheries management plans in PNG are prepared under the authority of, and in accordance with Section 28 of the 1998 Fisheries Management Act (amended in 2012), and include the:

- identification of the fishery and its characteristics, including the current status of the fishery and resource, possible adverse environmental effects of fishing, and any regional and international context;
- specification of the management objectives for the fishery;
- identification where possible of any relevant customary or traditional fishing rights and management practices or plans of customary resource owners;
- specification of any management measures, including prohibitions, licensing requirements and any special fees and other charges, to be applied to the fishery and any access to be allowed for foreign fishing vessels; and
- appropriate provision in relation to any other matter necessary for effective conservation and sustainable use of the said fishery.

Strategies outlined in respective management plan in general have the following principles:

- sustainable development which meets the needs of the present without compromising the ability of future generations to meet their own needs;
- the use of the 'Precautionary Approach' (as pursuant to the 1982 FAO Code of Conduct for Responsible Fisheries) which recognises that sufficient data or research may not be available to manage fish stocks using formal assessments;
- community-based engagement which emphasises the fundamental need to engage communities in the fishery management process, and for communities to take greater responsibility for managing their marine resources;
- informed decision making and communications to stakeholders on fisheries management decisions; and
- the NFA as a regulator and facilitator via suitable policies that encourages and facilitates private sector development through strategic support.

At present, the Live Reef Food Fish Management Plan is the only fisheries management plan that has been revised in PNG to incorporate Eco-system Approaches to Fisheries Management (EAFM).

The National Beche-de-mer Management Plan includes amongst its objectives ensuring the benefits to coastal

communities and ensuring the sustainability of the resource with minimum impacts to the marine and coastal environment. The plan includes a degree of provincial decentralization and recognizes customary management measures that are consistent with the plan.

NFA has recognised the possibilities of Community-based Fisheries Management (CbFM) and assistance was provided by FAO in 2006 to develop a Policy Framework and Strategic Plan (2006-2008) for Community-based Fisheries Management in Papua New Guinea (FAO, 2006) but this has not been finalized.

LEGISLATION

Legislation and policy rely on one or more Acts of Parliament which define the regulatory provisions that either apply to fisheries or marine spaces. Such legislation affects fisheries management at the national, provincial and local levels.

NATIONAL FISHERIES LEGISLATION

Control over PNG's fisheries resources is constitutionally vested in the people under customary ownership rules. PNG's laws (the Constitution, the National Seas Act, and the 1998 Fisheries Management Act) provide the State with sovereignty and territorial rights only to the national seas. They do not expressly vest ownership of the fisheries resources in the State. Section 5 of the Customs Recognition Act of the Constitution bestows ownership rights over water, to reefs, seabed and to species of fish to traditional owners. The section states:

- the ownership by custom of rights in, over or in connection with the sea or a reef, or in or on the bed of the sea or of a river or lake, including rights of fishing; or
- Subject to this Act and to any other law, custom may be taken into account in a case other than a criminal case only in relation to:
- the ownership by custom of water, or of rights in, over or to water;

The law thus provides for the acknowledgement of existing traditional rights of ownership of inshore waters and fisheries. The difficulty is that marine tenure systems vary greatly in PNG. Those villages which have a tradition of fishing and of sea travel across substantial bodies of water have an attitude of exclusive ownership over the waters they consider to be their territory. Fishers are tolerant to fishing in their waters by outsiders, provided the person is from a neighbouring village and they are fishing for subsistence only, whilst a more stringent attitude is adopted towards commercial fishing, especially by outsiders (ANZDEC, 1995). Although the State claims jurisdiction over all waters with three-miles of the coast, the community ownership of inshore waters inside of the three-mile limit still needs to be clarified, as does Provincial waters.

The Fisheries Management Act 1998 defines the role and responsibilities of the National Fisheries Authority (NFA). The Act empowers NFA to manage, control and regulate all of PNG's fishery resources, whether these be inland, coastal or offshore. The Act recognises and allows for customary uses, rights and traditional resource ownership, but it does not in itself empower provincial or lower level governments to manage fisheries in what they may consider to be their areas of jurisdiction. Apart from the Fisheries Act, there are at least 28 other legislative instruments currently in force and relevant to the fisheries sector. Most important of these is the Organic Law on Provincial and Local-level Governments of July 1995, which gives provincial governments the responsibility for fisheries and other development activities and the provision of basic services. (Gillett 2011). Amendments have been proposed to the Fisheries Management Act in 2012 which would allow for Community-based Fisheries Management (CbFM) but these have not been formalized.

Public Acts

- Fisheries Management Act 1998 (amended 2012)
- Whaling Act (Chapter 225)
- National Seas Act (Chapter 361)
- Fisheries (Torres Strait Protected Zone) Act (Chapter 411)
- Torres Strait Treaty (Articles 22 and 23)

Regulations

- Fisheries Management Regulation 2000
- Fisheries (Torres Strait Protected Zone) Regulation

Gazettal Notices

- Prohibition of Fishing Activity (ban on commercial fishing of shark by long-line or gill-nets) – G84 (2001)
- Prohibition of Fishing Activity (by non-Citizens in the purchasing and selling of sedentary organisms) – G57 (2002)
- Prohibition of Taking Sedentary Resources (by the use of night lights and underwater breathing devices) - G57 (2002)
- Prohibition of Taking Sedentary Resources (size limits restrictions) - G57 (2002)

Bill

- Fisheries Management (Amendment) Bill 2012

PROVINCIAL GOVERNMENTS POWERS OVER FISHERIES MANAGEMENT

Devolution of fisheries management powers from the National level to Provincial Governments is provided for under the auspices of the 1997 Organic Law on Provincial Governments and Local-level Governments, whereby lower level governments can make management regulations for natural resources under Sections 42 and 44.

Under Section 42 of the Organic Law, the Local Level Government (LLG) and the Provincial Legislature retains law-making powers over a large number of issues among which the following are related to conservation and resource management activities, most notably 42 (t) which relates to 'renewable and non-renewable natural resources'. Issues to which the LLGs have law making power under Section 44 of the Organic Law include:

- 44 (i) Dispute settlement;
- 44 (p) Local environment; and
- 44 (ab) The imposition of fines for breaches of any of its laws.

These sections provide room to draw up local-level conservation and resource management laws which can stipulate the establishment of protected area, the seasonal closure of fishing areas (as long as they do contravene regulations made under the 1998 Fisheries Management Act), intruding fishers from other areas, and the harvest and use of natural resources.

Currently, only the Louisiade LLG in the Milne Bay Province has taken the opportunity to make its own regulations under the Organic Law and passed an Environment Bill in 2000, whilst the Maramatana LLG has drafted one with the assistance of the conservation Non-government Organisation (NGO), Conservation International, and is still waiting formalization through the Milne Bay Provincial Executive Council. The Talasea, Bialla, and Hoskins LLGs have also based Marine Environment Laws in 2004, again with assistance from a conservation NGO, The Nature Conservancy. The objectives of these Marine Environment Laws are:

- to protect the marine environment while allowing for compatible economic development in a way that improves the quality of life of local communities and maintains the ecological processes on which life depends;
- to sustain the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations, and safeguard the life-supporting capacity of air, water, sea, land and ecosystems;
- to ensure that proper weight is given to both the long-term and short-term social, economic, environmental and equity considerations in deciding all matters relating to environmental management, protection, restoration and enhancement;
- to avoid, remedy or mitigate any adverse effects of activities on the environment by regulating in an integrated, cost-effective and systematic manner, activities and substances that cause environmental harm; and
- to regulate activities which may have a harmful effect on the environment in an open and transparent manner and ensure that consultation occurs in relation to decisions under this Act with persons and bodies who are likely to be affected by them.

The Manus Province developed both a 1989 Manus Marine Resources Protection Act, and an accompanying Regulation but it is not known if this is actually enforced or superseded by other later legislative instruments. More recently, the Manus Provincial Fisheries Office (PFO) has developed the Manus Provincial Management Policy for the Fish Aggregating Devices (FADs).

CUSTOMARY FISHING RIGHTS IN PAPUA NEW GUINEA

Currently, the 1998 Fisheries Management Act (amended in 2012) states under Section 26 on Customary Resource Ownership, that:

- the rights of the customary owners of fisheries resources and fishing rights shall be fully recognised and respected in all transactions affecting the resource or the area in which the right operates.

A practical application and evidence of this possibility is found in the NFA's Live Reef Food Fish (LRRF) Fishery Management Plan where it is a requirement that no LRFF fishing shall be authorised without the consent of resource owners or that fishing shall be conducted only by the resource owners. Other than these, there is no provision under the current 1998 Fisheries Management Act (amended in 2012) that can facilitate meaningful introduction and implementation of co-management.

The poor performance of current fisheries management approaches and the need to improve governance to achieve sustainable utilisation of inshore fisheries resources has led decision-makers to question the effectiveness of conventional top-down or command and control management approaches in fisheries. The main criticisms of conventional management approaches include:

- lack of involvement of stakeholders in the decision-making process resulting in a lack of legitimate basis for regulations or management measures and consequently non-compliance;
- implementation and enforcement in such systems rely heavily on adequate technical capacity and other resources, which are often too expensive to maintain; and
- resource users do not appreciate that the sustainable use of fisheries resources is vital to their livelihood or the nation's economy because they are, to a large extent, excluded from the management process, measures and implementation.

NFA recognised the possibilities of CbFM and assistance were provided by FAO in 2006 in developing a Policy Framework and Strategic Plan (2006-2008) for Community-based Fisheries Management in Papua New Guinea (FAO, 2006). This policy's goals are to:

- achieve sustainable livelihood of stakeholders, particularly the rural-based population, in socio-economic terms;
- attain a balanced level of conservation and management action that ensures sustainable use of natural resources and protection of the environment for the benefit of present and future generations;
- contribute to local, provincial and national revenue generation for the promotion and continuation of sustainable development of Papua New Guinea.

This policy has not been finalised nor have the amendments to the 1998 Fisheries Management Act (amended in 2012) which would allow for CbFM.

ANZDEC (1995) noted a progressive increase in 'rent-seeking behaviour' by customary resource owners in PNG seeking to extract from commercial fishing vessel operators royalty payments that were frequently out of all proportion to the value of the resource or the profitability of harvesting. This still occurs today. Disputes over royalty payments were partly responsible for the closure of the previous pole-and-line fishery in PNG during the early-1980s, the result of which was considerable loss of national earnings and employment. While CbFM could be an effective fisheries management tool, there is also a need to be mindful of the naivety that can surround CbFM that government and community will act in good faith (particularly when it is evident that communities are over-fishing a resources, for example, sea cucumbers), and that CbFM can in some instances also impede sustainable fishery management.

SNAPSHOT OF POLICY AND LEGISLATION

National and sector policy	Strongly oriented towards economic development with relatively little mention of sustainable management for food security outside of the Constitution though some support exists for building institutional capacity in provincial, district and local government to improve coastal fisheries management, review of the existing legislative framework and policies, and utilisation of customary practices in environmental resource management. A specific Inshore Fisheries Policy is lacking and an FAO initiated Community-based Fisheries Management Policy has not been finalized.
Legislation	Existing national and provincial provisions for inshore fisheries management would benefit from gazettal of the draft changes to the Fisheries Management Act (amended in 2012) to support community based resource management and allow for more formal 'fishing rights agreements' between customary owners and fisheries operators.
Community rights	Customary ownership of rights over water, reefs, seabed and to fish recognized in the

	constitution and other legislation.
Decentralized approaches	Devolution of fisheries management powers to Provincial Governments and Local-level Governments from the National level is provided for. The minister has the power designate fisheries officers but the figure of community authorized officers or honorary fish wardens has not been formally established.
Jurisdiction	The State has sovereignty and territorial rights only over the national seas. Customary ownership rights over water, to reefs, seabed and to species of fish are attributed to traditional owners. The State claims jurisdiction over all waters with three-miles of the coast, the community ownership of inshore waters inside of the three-mile limit still needs to be clarified, as does Provincial waters.
Other	

INSTITUTIONAL ARRANGEMENTS

NATIONAL FISHERIES AUTHORITY

The PNG NFA is a non-commercial statutory authority established under the 1998 Fisheries Management Act (amended in 2012), and is self-funded through access agreements. Negotiated access to PNG's productive waters has long been the primary source of tuna-related revenue for the national government. With better organized and more transparent procedures for access agreements in place since the restructure of the old Department of Fisheries and Marine Resources and the birth of the NFA in the late-1990s, annual access revenue has steadily increased over recent years, involving bilateral arrangements with the People's Republic of China; Republic of Korea; Taiwan; several Philippine companies, US multilateral treaty, FSM Arrangement, and other concessionary arrangements for locally based foreign vessels.

Today, the NFA is headed by the Managing Director who is appointed by the NEC and empowered under the 1998 Fisheries Management Act (amended in 2012). There are nine Business Groups, each headed by an Executive Manager:

- Directorate
- Corporate Services
- Finance
- Project Management
- Provincial Support and Industry Development
- Licensing and Data Management
- Fisheries Management
- Monitoring, Surveillance and Control
- National Fisheries College

The core functions of the business units relevant to inshore fisheries management are presented in **Erreur ! Source du renvoi introuvable.**

Table 12: National Fisheries Authority business units of direct relevance to inshore fisheries management in PNG.

Business Unit	Core Functions
Project Management	• Ensure effective project identification, design and implementation of projects; • Undertake economic and benefit analyses in relation to major fisheries projects; • Facilitate the successful negotiation of fisheries trade agreements; and • Maintain effective working relationships, networks and strategic partnerships.
Provincial Support and Industry Development	• Provide leadership to the government in relation to any domestic or international agreements relating to fisheries including access agreements and fisheries management arrangements; • Liaise as appropriate with provincial and Local Level Governments, district authorities, communities and relevant stakeholders in order to facilitate fisheries development and management strategies; • Liaise as appropriate with agencies and persons, including stakeholders, industry, government agencies, regional, international organizations and experts in order to facilitate maximized sustainable and equitable benefits from PNG's marine and fisheries resources; and • Intoduce and appraise stakeholders on fisheries sector development policy issues, trade and market

	development opportunities and programs of the Business Unit and overall activities of the NFA.
Fisheries Management	• Develop new and review existing Fisheries Management Plans; • Arrange the design, collection, processing, reporting and publishing of relevant information on PNG's fisheries; • Liaise with national and international agencies to access research and development expertise and information; • Work closely with all stakeholders to ensure that requirement of relevant Fisheries Management Plans are understood; • Facilitate required research for the effective develop and management of PNG's fisheries; and • Facilitate environmentally sound and sustainable aquaculture for commercial and subsistence purposes.
Monitoring, Surveillance and Control	• Combat breach of licensing conditions by domestic license operators and unregulated operators; • Consolidate enforcement duties, linkages and agreements with appropriate enforcement and prosecution agencies and other relevant stakeholders; • Coordinate and organize capacity building programmes and activities in support of enforcement functions; cooperate with agencies to provide effective patrols of fisheries waters and te Torres Strait Protected Zone; and • Coordinate and implement a focused program of fisheries compliance awareness. • Manage the official fish and fishery products control systems and process to ensure PNG meets domestic and international market access requirements; • Undertake stakeholder and agency liaison, consultation and cooperation in support of relevant policy development and national and international regulatory compliance; and • Coordinate and facilitate targeted interventions to build technical capacity in seafood safety and regulatory compliance. • More…
National Fisheries College	• Provide effective and well organized training and education programmes in support of human resources skills and capacity development for the effective sustainable management and development of PNG's marine and fisheries resources; • Efficiently develop and manage resources, facilities and equipment and provision of administrative and organizational services in support of program and activity development and delivery; and • Give effect to NFA policy implementation through strategic project and activity implementation, income generation and strong stakeholder relationships.

The 'Vision' of the NFA is to effectively manage PNG's fisheries and marine resources for sustainable and equitable benefits. To achieve this, the NFA is mandated under the 1998 Fisheries Management Act (amended in 2012) to:

- promote the objective of optimum utilisation and long-term sustainable development of fisheries resources, in balance with the need for economic growth, employment creating and ecosystem maintenance;
- conserve fisheries resources for both present and future generations;
- ensure management measures are based on the best scientific evidence available and are designed to maintain or restore fish stock at levels capable of producing maximum sustainable yields, as qualified by relevant environmental and economic factors including fishing effort, the interdependence of stocks, and generally recommended international minimum standards;
- apply a precautionary approach to the management and development of fisheries resources;
- protect the ecosystem as a whole, including species which are not targeted for exploitation;
- preserve biodiversity;
- minimise pollution; and
- implement any relevant obligations of PNG under applicable rules of international law and agreements.

Due to the high levels of revenue obtained from the PNG tuna fishery and associated access agreements from foreign fleets, understandably, the concentration of effort by the NFA to date for fisheries management has been in the offshore fishery. Some of the fisheries management and development planning for inshore fisheries is currently inadequate in PNG, as seen by the moratorium placed on the sea cucumber fishery.

COASTAL FISHERIES DEVELOPMENT AGENCY

Papua New Guinea's National Executive Council authorized the creation of the Coastal Fisheries Development Agency (CFDA) to address coastal fisheries management. The draft strategic plan describes CFDA as ''an office established by NEC Decision 151/2009 with the objective of bridging the link between the national, provincial, and local level governments to the rural masses as far as coastal fishery and marine resources are concerned''. Some believe

that the CFDA has the potential to address shortcomings of NFA with respect to community fisheries "NFA focuses on commercial fisheries and CFDA will focus on community fisheries: our service is focusing on extension service, we do not want to do what NFA is doing, we want to be different in the sense that we want to be there for the 4 million people of PNG, we want to get to them" (Benson 2012).

Relatively little information is available regarding the activities of the CFDA. According the 2013 budget (www.treasury.gov.pg) staffing consists of 1 CEO and 12 Managers and 2 Vacancies, the recurrent expenditure is approximately 2.5 million kina of which half is allocated to personnel and a major development expenditure of 15 million kina is envisaged on "Wharves and Jetties Rehabilitation and Construction".

PROVINCIAL AND LOCAL GOVERNMENT

Inshore fisheries development at the Provincial and lower levels of government are determined not only by the national development agenda (discussed above), but also Provincial and LLG Development Plans; as well as respective Provincial Fisheries Office (PFO) Corporate Plans and Annual Activity Plans.

In general, all PFOs essentially have the same core activities of:

- developing aquaculture to meet food security needs;
- enhancing and strengthening management and administrative capacity (including financial arrangements) to effectively coordinate the implementation of extension services and management activities;
- ensuring suitable and adequate stakeholder consultation;
- promoting fisheries development;
- implementing suitable data collection programmes on fishery resources and fisher and aquaculture groups;
- improving transport and market access;
- mobilising and empowering local fishers through the establishment of co-operatives and associations;
- providing advisory roles to the Provincial Executive Council and its administration; and
- providing effective implementation of Memorandum of Agreement (MoA) functions.

Memoranda of Agreement (MoA) between the NFA and PFOs aim to assist in bridging the divide between national and provincial-level activities, the NFA has signed MoAs with all the 14 Maritime Provinces in PNG. These MoAs devolve some national functions of the NFA to the PFOs, as well as providing some funding (PGK 35,000 annually), equipment and technical expertise.

Areas that were recently identified by PFOs for the effective implementation of inshore fisheries development, management and monitoring activities in the Provinces of PNG include:

- a clearer understanding of the roles and responsibilities of organisations and agencies involved in inshore fisheries including the NFA, PFOs, the Coastal Fisheries Development Agency (CFDA), and NGOs;
- identification and effective utilisation of existing policies, plans, processes or mechanisms to address common key issues involving inshore fisheries;
- the establishment of an effective communication strategy or networking system process that ensures PFOs are consulted and informed appropriately of any NFA intentions that may affect inshore fisheries development, management and monitoring activities in respective Provinces, this includes the selection of PDF beneficiaries, utilisation of the FCF, the Cooperative movement, resource assessments, MCS activities, and any other cross-cutting issues;
- supporting PFOs in building their capacity to effectively address and implement activities involving inshore fisheries, including the lack of suitable human resources, infrastructure and equipment; and
- the strengthening and effective implementation of the MoA between NFA and PFOs.

As far as inshore fisheries management is concerned in PNG, delegation of powers to the PFOs and further devolution of management responsibilities to communities may assist better management overall; particularly as each Province has its own individual needs in terms of fisheries management, practices, and administrative structures, and it may be easier to assess and understand local needs at this level. Whichever the case, with the current move by the NFA to support coastal fisheries in the Provinces, PFOs will need additional support to implement certain activities in alignment with NFA directions (e.g. provincial management mechanisms for management of inshore fisheries, implementation and monitoring of the Inshore Fish Aggregating Devices (IFADs) program, MCS, etc.).

HUMAN RESOURCES

The overall NFA Staffing stands at 170 and the National Fisheries College (NFC) stands at 22. There are 9 inshore Fisheries staff assigned in Port Moresby (J. Kasu pers. Comm.). A full staff structure is not available for NFA. Provincial Fisheries Offices have between 4 and 12 staff coming to a total of 77 staff in the 9 maritime provinces for which there are data.

STAFF RESPONSIBILITIES AND ACTIVITIES

Five job descriptions were provided pertaining to the 9 Inshore Fisheries staff at NFA (Table 13).

Table 13: Details from the job description of 5 of the 9 NFA staff with inshore fisheries responsibilities (source NFA).

Position	*	Selected tasks, responsibilities and activities
Executive Manager, Fisheries Management (EMFM)	?	
Manager Inshore Fisheries	A	Ensure the fishery is managed in accordance with sound and responsible fishery management principles Recommend strategies to ensure fishery contributes to food security and interests of community Identify and manage research and ensure results are circulated. Undertake consultation with sector stakeholder groups Work with Provincial governments, agencies and stakeholders to ensure the fishery is well managed
Senior Fisheries Management Officer – Inshore (proposed)	A	Ensure the fishery is managed in accordance with sound and responsible fishery management principles Recommend strategies to ensure the fishery contributes to retained economic benefits in the domestic economy. Identify and manage research and ensure results are circulated. Undertake consultation with sector stakeholder groups Work and liaise with regional agencies and stakeholders to ensure the fishery is well managed.
Senior Fisheries Management Officer - Aquarium (proposed)	B	Assist and ensure that aquarium fisheries project inception strategy is in place for new communities and areas. Liaise with provincial fisheries and communities when the aquarium program enters a new province or area to initiate dialogue with community leaders, elders and other stakeholders or partners. Ensure Local fishermen are trained on aquarium fishing technologies and management Provide assistance and encourage Local fishermen to develop and form management committees for the Fisheries Management Areas.
Fisheries Management Officer – Inshore	A	Ensure the fishery is managed in accordance with sound and responsible fishery management principles Recommend strategies to ensure the fishery contributes to retained economic benefits in the domestic economy. Identify and manage research and ensure results are circulated. Undertake consultation with sector stakeholder groups Work and liaise with regional agencies and stakeholders to ensure the fishery is well managed.
Aquarium Fisheries Officer– Resource Assessment & Management	B	Provide assistance to the private sector in the development of the Aquarium fishery in PNG particularly in Resource Assessment and Management Assist in the design, development and implementation of the Aquarium fishery management plan Assist in conducting inspection with ACU on export and holding facilities in compliance with national and international standards Initiate dialogue with community leaders, elders and other stakeholders or partners and organise consultative meetings Assist in the activities of the Resource Assessment and Management activities Recommend strategies to ensure the fishery contributes to retained economic benefits in the domestic economy

* A: Mainly management-related tasks (75-100%), B: Predominantly management tasks (50-75%), C: Predominantly development tasks (25-50%), D: Mainly development-related tasks (0-25%).

The position titles for fisheries staff at the 8 PFOs for which there are data (Table 14) include Fisheries Officer (22), Extension Officer (8), Director/Advisor (8), Enforcement Officer/coordinator (5), Fisheries Coordinator (5), Project Officer/Coordinator (4). 6 provinces have staff allocated at the District level and Milne Bay has two staff at the LLG level as well.

Table 14: Staffing allocations and positions for Provincial Fisheries Offices in 2012 (source NFA data and PNG National census 2011).

Province	Staff	Province	Staff
Autonomous Region of Bougainville **Population 234,280** **Coastal population 55,200** **Coastline (km) 806**	Provincial • Director Districts • 3 x Fisheries Officers	**Milne Bay** Population 269,954 Coastal population 170,340 Coastline (km) 2,624	Provincial • Advisor • Aquaculture Fish.Coordinator • Coastal Fisheries Coordinator • Fisheries Enforcement Coordinator Districts • 4 x Fisheries Officers LLGs • 2 x Fisheries Officers
Central **Population 237,016** **Coastal population 66,127** **Coastline (km) 748**	Provincial • Advisor • Enforcement Officer • Project Officer Districts • Fisheries Coordinator • Extension Officer	**Morobe** Population 646,876 Coastal population 43,340 Coastline (km) 752	Provincial • Advisor • Provincial Fisheries Officer • Project Coordinator • Senior Extension Officer • Scientific Officer • Extension Officer • Statistician • Enforcement Coordinator New structure currently being proposed
East Sepik **Population 433,481** **Coastal population 25,575** **Coastline (km) 304**	Provincial • Director • 6 x Fisheries Officers	**Oro** Population 176,206 Coastal population 20,263 Coastline (km) 650	Provincial • Advisor • Field Coordinator • Technical officer • Marketing and Resource management Officer Districts • 2 x Fisheries Officer • 6 x Extension Officers
Madang **Population 487,460** **Coastal population 50,695** **Coastline (km) 628**	Provincial • Advisor • District Fish.Coordinator • Project Coordinator • Enforcement Officer • Coastal Fisheries Officer • Inland Fisheries Officer Districts • 4 x Fisheries Officers	**West Sepik** Population 227,657 Coastal population 28,001 Coastline (km) 278	Provincial • Director • Project Co-ordinator • District Fisheries Coordinator • Enforcement Coordinator • Data Officer Districts • 2 x Fisheries Manager • Fisheries Officer
Manus **Population 50,321** **Coastal population 26,972** **Coastline (km) 568**	Currently advertising new structure which will have 13 staff (as opposed to the current nine positions)		

BUDGET

Detailed budget estimates for NFA were not available but NFA operational expenditure in 2012 was approximately K80 million pa (NFA data) and development expenditure envisaged for 2013 comprised 5 million kina for the National Fisheries College and 3 million kina for tuna tagging in PNG waters (www.treasury.gov.pg). The main direct revenue stream is access and licence fees received by NFA on behalf of the State – amounting to over US $ 54 million (PGK120 million) in 2012 and with considerable potential to increase this in future. After deduction of NFA operational expenditure the balance of this revenue is potentially available for other uses. Until recently, much of this had been made over to consolidated revenue, but following a Prime Ministerial directive in 2008, these surplus funds are now to be directed to development activities, for the large part at provincial level.

As a comparison, in 2004, NFA had a total staff of 71, and an annual operating budget of K19.5 million. NFA received no recurrent funding from Treasury, operating on an approved budget funded from income derived from access fees, licensing fees, penalties and other miscellaneous charges. In 2003, income from these sources totaled K61.0Million, K23.25 million was returned to government as the annual dividend, with the balance held in investments (Cartwright and Tuqiri 2004).

Through its Provincial Support and Industry Development Business Group, NFA provides direct finding support to the provinces under the mechanisms shown in Table 15.

Table 15: NFA direct finding support to the provinces (source NFA data).

Concept	*Amount*
The Memorandum of Agreement (MOA) with provinces to provide support for administrative services and functions. Under the MOA K35,000 is currently available for all the provinces for operational costs; provinces which have undertaken fisheries activities submit claims to NFA and get paid for undertaking delegated functions eg transhipment monitoring	K350,000 per year, increasing to K950,000 in 2013.
The Project Development Fund (PDF) associated with the US Multilateral Treaty on Fisheries.	K5 million per year which is distributed to small fisheries projects (150 in 2012) at provincial level
Grants Committee (NFA Board) – support for approved fisheries projects	K 650,000 in 2012
Support for fisheries cooperatives	K1,900,000 in 2012, similar in 2013
Project development funding in provinces (made available on application)	K3 million in 2012, dramatically increasing to K9.5 million in 2013
Counterpart funding for OFCF (Japan) projects (Madang, Milne Bay, Manus)	K1 million in total between 2010 - 2013
Wewak Market and Jetty and associated facilities	K15 million, from 2009
Madang Town Market Rehabilitation and associated facilities	K500,000 In 2013
Aquaculture development projects (various)	K6.4 million, similar in 2013
FAD deployment, eventually in many maritime provinces	K2million in 2012

NFA is also providing K15 million to a Fisheries Credit Fund with the National Development Bank, over a 15 year period, and made available to fishermen in the provinces to provide credit facilities for support measures to the fisheries sector.

In 2013, there will a dramatic increase in budgeted project expenditure, to K82 million from K 23 million in 2012. The largest element of this will be a new provincial Fisheries Project Grants scheme, which will see grants of K2 million made available for each of the 14 coastal provinces and K 0.5 million for the 7 highlands provinces. No priorities have been identified by the NFA for the project funding, with provinces appropriately determining these themselves and submitting a range of projects for approval and funding. Projects ranging from administrative and infrastructure support for Provincial Fisheries Department or Authorities to support for fisheries cooperatives and fisheries development projects were outlined at a provincial Consultative meeting in February 2013 and are now under consideration for funding.

PFOs are generally under-financed by their Provincial Governments, with most receiving on average (n = 8) around PGK 300,000 (including the MoA funding) for all costs including salaries, administration, extension; and Monitoring, Surveillance and Control (Table 16). Also, many PFOs lack adequate staff (see Table 14).

Table 16: Budget Allocations for Provincial Fisheries Offices in 2012 (source NFA data).

Province	Budget (PGK)	
Autonomous Region of Bougainville	35,000 270,000 **305,000**	NFA MoA Provincial Government **Total**
Central	35,000 200,000	NFA MoA Provincial Government

	138,000 **373,000**	Primary Production Function Grant **Total**
East Sepik	35,000 150,000 **185,000**	NFA MoA Provincial Government **Total**
Madang	35,000 198,000 **233,000**	NFA MoA Provincial Government **Total**
Manus	35,000 308,000 **343,000**	NFA MoA Provincial Government **Total**
Milne Bay	35,000 460,000 **495,000**	NFA MoA Provincial Government **Total**
Morobe		
Oro	35,000 135,000 **170,000**	NFA MoA Provincial Government **Total**
West Sepik	35,000 292,000 **327,000**	NFA MoA Provincial Government **Total**

ESTIMATION OF ACTUAL SUPPORT TO INSHORE FISHERIES MANAGEMENT

Unlike other Melanesian countries, much of the population lives distant from the coast and despite the comparatively high population of PNG this discussion focuses on the 14 Maritime Provinces. The coastal population of these provinces ranges from 20,000 to 170,000 with an average of 61,000 and the total coastal population is around 850,000 or very similar to the population of Fiji (Table 17).

Table 17: Population of PNG's 14 maritime provinces and estimates of the coastal population therein (source 2011 census).

	Average	Minimum	Maximum	Total
Population	267,138	50,321	646,876	3,739,927
Coastal population	60,800	20,263	170,340	851,197
Coastline (km)	945	278	2,624	13,226

The estimation of actual support to inshore fisheries management is therefore in the context of a coastal population comparable to fellow Melanesian countries and a coastline 0.3 – 6 times longer.

In terms of staffing the contributions to inshore fisheries management are:

- 9 national staff at NFA tasked with inshore fisheries management out of a total of 170. Several of the inshore staff have job descriptions that include fisheries development aspects.
- Over a 100 provincial fisheries staff (77 in 9 provinces for which there are data so potentially around 120 in 14 provinces). The job descriptions of these staff are not available but are likely to include a mixture of management and fisheries development functions.

In the absence of budget breakdowns by function at national or provincial level the following estimates are made for 2012.

- The NFA is focused mainly on commercial offshore fishing. The proportion of staff allocated to inshore management (5%) indicates that the proportion of operational budget available for inshore management and development would likely be less than 5% - less than PGK 4 million.
- Provincial government financing of the 8 PFOs for which there are data averages PGK 300,000 including 12% of NFA MoA funding. Extrapolating for the 14 maritime provinces the financial support for PFOs operations would amount to PGK4.2 million of which PGK490,000 is provided under the MoA.
- Project or development expenditure of K 23 million in 2012 increasing to K82 million in 2013 seems almost exclusively oriented towards fisheries development though a small proportion allocated to institutional and administrative support of PFOs or cooperatives may benefit fisheries management. As the impacts of fisheries

development will likely greatly outweigh that of management this funding is not included in the estimate of inshore fisheries management.

From the above a very rough approximation of the investment in inshore fisheries management may lie between PGK 4-6 million per year depending on the proportion of operations actually dedicated to management.

RELATIVE INSHORE FISHERIES MANAGEMENT INVESTMENT AND REVENUE

The PNG National Government expenditure in 2012 amounted to some PGK 10 billion of which about PGK 6 billion was Service Delivery Expenditure www.treasury.gov.pg. The NFA and provincial recurrent expenditure would amount to some 1.4% of government expenditure though in fact NFA is financed from license fees.

Government estimates of fisheries contribution to Gross Domestic Product (GDP) have suggested that this was 2.7% in 2006. An alternative calculation by Gillett (2009) suggested this may be nearer 3.1% of which 0.9% was derived from coastal fisheries (Table 18). It is important to bear in mind that GDP has more than doubled in last 6 years presumably reducing the value of fisheries as a proportion of GDP.

The Fisheries Department budget in 2012 comprised 3.1% of the estimated total value of the fishery and the estimated investment in inshore fisheries management was 2.7% of the 2006 value of coastal fisheries (Table 18). While the contribution to GDP of inshore fisheries is around 27% of the total fishery contribution in 2006 the proportion allocated to its sustainable management in 2012 is probably considerably less at around 6%.

Table 18: Estimates of the value of PNG fisheries and their contribution to GDP for 2006. Approximate fisheries management expenditure is given for 2012 and compared to the 2006 value of the fishery.

	Value of Fisheries (2006)[1]	Contribution to GDP (2006)[2]	% of GDP[2]	FD budget 2012 (Recalc.)[3]	FD budget 2012 (% 2006 value)[4]
Coastal	185,000,000	146,000,000	0.86%	5,000,000	2.70%
commercial	*80,000,000*	*52,000,000*	*0.31%*		
subsistence	*105,000,000*	*94,000,000*	*0.56%*		
Offshore	2,167,720,990	333,719,900	1.98%		
Freshwater	49,000,000	46,550,000	0.28%		
Aquaculture	2,000,000	1,300,000	0.01%		
Total	2,403,720,990	527,569,900	3.12%	83,700,000	3.48%

1: Government figures for 2006 according to Gillett (2009)
2: Using the alternative calculation of Gillett (2009). The official figures show a value of PGK 456,800,,000 and 2.7% contribution to GDP for the same year, 2006.
3: Recurrent expenditure for 2012. For Coastal this is recalculated in the text.
4: Note comparison is 2012 budget with the value of the fishery in 2006.

Access and licence fees received by NFA on behalf of the State amounted to PGK120 million or over US $54 million in 2012, with considerable potential to increase this in future (NFA data).

PROJECT AND NGO INVESTMENTS IN INSHORE FISHERIES

PNG has been the recipient of many fisheries development projects over the last three decades, with several of these instituted by various aid agencies to develop inshore fisheries in PNG. Such projects included the:

- Coastal Fisheries Development Program's Baimaru and Milne Bay Fisheries Authorities, which was funded by a series of donors, including the International Food and Agricultural Development's Artisanal Fisheries Program;
- MOMASE (Morobe-Madang-Sepik) Coastal Fisheries Development Project, funded by the German Development Corporation; and
- various smaller United Nations Development Program funded fisheries projects.

In the last decade, PNG was also the recipient of two large multi-sectoral programs, these were the:

- European Union funded Rural Coastal Fisheries Development Project (RCFDP); and the
- Asian Development Bank (ADB) loan funded, Coastal Fisheries Management and Development Project (CFMDP).

To achieve its overall aim of 'poverty alleviation' by 'increasing rural family incomes through greater participation in sustainable commercial production and improved marketing of marine products', the RCFDP attempted to develop the deep-water snapper fishery in PNG. This involved several activities including the:

- provision of loans for vessels, equipment and associated training in fish handling, quality control and export marketing to fisher groups; the promotion and facilitation of Private Sector Partners; and the
- provision of training to Provincial Fisheries Officers (PFOs) and fisher groups in resource use and planning, involving the monitoring and assessment of production data.

The CFMDP was also premised on 'poverty reduction' in rural areas by increasing or preventing further decline in incomes of coastal and island communities. This was to be done by promoting improved management of resources (including in those area currently overfished, or threatened with overfishing) and by creating sustainable earning and employment opportunities.

All these previous efforts to stimulate the development of inshore fisheries in most parts met with limited success (Preston, 2005, MIRC, 2006; ADB, 2010) and mostly failed for a variety of reasons, with the possible exception of the CFMDP's Community-based Fisheries Management (CbFM) Program which did galvanise many communities to implement management activities over their inshore fisheries. Barclay and Kinch (in press) note that fisheries development projects as they have been conceived since the 1970s have not effectively facilitated sustainable cash fisheries, in a commercial or environmental sense, and determining how future projects could be shaped by the particular configurations of village-, national-, and transnational-level influences, as well as ecological factors, and considering the kind of capitalism the projects hope to develop, would better facilitate long-term commercial viability while maintaining social cohesion, cultural integrity and resource sustainability.

Inadequate transport and distribution systems have been widely recognized as a major constraint to inshore fisheries development, and influences commercial viability overall. Where such infrastructure problems are overcome, subsistence fishing can be transformed into commercial fishing, often with negative effects on sustainability, nutrition and food security (see Brewer, 2011 for the Solomon Islands).

Table 19: Number of Marine Managed Areas and coverage in PNG compared to other MSG countries (Govan et al, 2009).

	Number of active MMAs	Active MMA coverage (km^2)	~ % of EEZ under management	~ % of Territorial Waters under management
Papua New Guinea	**86**	**59**	**0.002**	**0.02**
Solomon Islands	113	941	0.07	0.7
Vanuatu	20	89	0.01	0.1
Fiji Islands	217	10,880	0.8	9.5
New Caledonia	20	16,188*	0.9	23
Total	456	11969	1.782	33.32

The NGOs have been active primarily in conservation projects with fisheries management aspects largely covered under the promotion of locally Managed Marine Areas (MMAs). There are an estimated 86 active MMAs in PNG as of 2009 (Table 19). Most of these need continued support from NGOs and are small in size. If the policy and legislative environment was laid, it would be expected to see an increase in CbFM and MMAs throughout coastal and island PNG.

ISSUES, THREATS AND OPPORTUNITIES

- Apart from their importance in terms of dietary health and household food security, inshore fisheries in PNG also supports the national economy by fulfilling a valuable import substitution function, and in general cash generation and some export earnings (e.g beche-de-mer and shells).
- Overall, exploitation of inshore fisheries in PNG is thought to occur below localised maximum sustainable yields, although fishing pressure has seen the collapse of some fisheries in some localities, such as poor fish catches around urban centres, such as PNG's national capital, Port Moresby (Lock, 1986). Another example is

the collapse of the sea cucumber fishery (Kinch, 2004; Kinch et al, 2008), which has just had its previous three year moratorium extended for another three years to 2015.

- The extended closure of the sea cucumber fishery in PNG is thought to have some impacts on other fisheries, particularly as fishing for reef fish and deep-water snapper as an artisanal activity has declined; and artisanal shark fishing for fins has increased in significance as an income earning activity for coastal and island fishers.
- Management of inshore fisheries to provide food security, and economic opportunities needs to be strengthened. During the formulation of the Apia Policy in 2008, several areas of assistance was identified by PNG and other MSG Members Of these data collection activities was seen as the most important for NFA, presumably owing to the size of the country and the difficulties of knowing what is happening everywhere. Also of importance was the need for better application of MCS activities and understanding Environmental Impact Assessments (EIA) processes.
- Besides over-fishing, habitat degradation from onshore development is a real concern in PNG in some locations, with siltation from agricultural, logging and mining activities impacting on many coastal environments (Nicholls 2004).
- Population growth will be another exacerbating factor in the years to come as it will invariably lead to increased fishing and decreased yields, as witnessed by declining fish catches already around urban areas.
- Additional pressure on inshore fisheries in PNG will also result from growing international demand for seafood caused by expanding markets and trade liberalisation, particularly as PNG's development strategies as detailed above are premised on expanding export markets.

OPPORTUNITIES

- PNG is probably the better placed of the MSG members in terms of resources for funding the sustainable development and management of inshore fisheries, though the NFA does need technical assistance in some areas. It should also be acknowledged that many of the provinces in PNG are as big (in area and population) as many of its fellow MSG Members and that it would be worthy of considering any interventions for PNG on a province by province basis (i.e. treating a province as if it was a country itself) and subsequently suitable resources and technical advice need to be allocated on a province by province basis as each province does have similarities but also differences.
- There is an important opportunity to enhance productivity or performance of inshore fisheries (as well as suitable and appropriate mariculture activities) to improve local diets, trading capacities and cash earning opportunities, even where formal market opportunities are insufficient to sustain commercial fishing. This could be investigated and implemented through a PFO extension program.
- Despite being PNG's most important fishery sub-sector, information on the true extent of inshore commercial and subsistence fishing in PNG is limited, and the NFA could work with the PFOs to gather more comprehensive information. During the mid-1990s, several provinces in PNG had active data collection programmes, most notably, those in the New Guinea Islands Region. Further study and data collection in relation to inshore fisheries should be (re)initiated. These could be delivered to an annual PNG Provincial Heads of Fisheries Meeting, and thus assist NFA to jointly program and fund such activities through existing MoA arrangements. Standardised survey methodologies are required. The information collected could be used in the development of management 'rules of thumb' for various fisheries to assist NFA, PFOs and fishing communities to manage their inshore fisheries. Rule of thumb measures at least can give some level of exploitation that can be facilitated, and act as a general guide in setting limits of catch. Simple indicators, such as (real or perceived) changes in the density of target species per area of habitat (through the use of stock assessments), body size, catch per unit effort and the relative abundance of different trophic groups should also be considered. SPC's recent efforts on market and creel surveys maybe of interest here, as the last full-scale market and landing surveys were done six years ago under the CFMDP in the New Ireland, Morobe and Milne Bay Provinces. Whatever is done, the information collected should be simple and inexpensive to collect from communities and merchants. The NFA already has had some experience with this in collecting size information from beche-de-mer exporters. Digital technology also has much to offer here.
- Current efforts to redefine appropriate management regimes for the sea cucumber fishery by the NFA should be continued, especially in ensuring that returns to rural producers are maximised. As part of this effort, it is expected that fishing communities will have a greater role in management of stocks at their territorial level.
- A specific Inshore Fisheries Policy is currently lacking within NFA. This should be developed in conjunction with

the Provinces, particularly in light of the significant investments the NFA is making in the Provinces in regards to inshore fisheries development, including the cooperatives, the PDF, the FCF and the IFAD programmes.

- Given the interest by NFA to support inshore fisheries in PNG, it would be advisable along with the development of an Inshore Fisheries Policy, to finally seek gazettal of the draft changes to the Fisheries Management Act (amended in 2012) to allow for CbFM; and to also complete the FAO initiated CbFM Policy. This would also allow for more formal 'fishing rights agreements' between customary owners and fisheries operators.
- Co-management of inshore fisheries resources between NFA, PFOs, NGOs and coastal and island communities should be promoted to develop local fisheries management plans that can be implemented as appropriate. NFA and other government departments, with the assistance of NGOs, can also help communities engage in the alternative livelihoods (such as mariculture activities or the IFAD program) required to reduce fishing pressure to maintain or restore the production of inshore fisheries. Any co-management arrangements should however be aware of the negative incentives that can emerge from community involvement, as well as the 'neo-liberalising' effects that this can have on fishing communities (see Davis and Rudde, 2012).
- Most of the hundreds of thousands of coastal and island fishing communities in PNG (with the exception of those communities that are recipients of conservation NGO projects) have very limited information to assist in developing and managing their inshore fisheries. Of particular importance is the inter-dependence of fishing communities within the range of self-replenishing populations of target species, and the need to understand the reproductive ecology of these same targeted species. Opportunities exist to develop a range of proactive and instructive awareness materials not only for PNG but also the other MSG Members.
- Opportunities to enhance post-harvest activities should also be investigated, this would involve better processing and handling, or just simple methods of increasing preservation or utilising all of the catch by producing something else. An assessment would be need to be done on what is appropriate and where. This could be linked into extension activities of PFOs through the existing MoA arrangements with NFA.
- Because of the limited information (in both space and time) about inshore fisheries in PNG it is currently not possible to formulate plans or make commercial decisions on the basis of sustainable management, and this is why the NFA incorporates the 'Precautionary Approach' in its fisheries management plans. Providing training on Environment Impact Assessments would assist in NFA and PFOs staff in developing and implementing EAFM principals. Also, if the DEC does finalise it's ESEG Policy and gets to develop an Environmental Protection Agency, all fisheries will need to be assessed against this policy background, similar to fisheries in Australia having to prove they are sustainable under the Guidelines for the Ecologically Sustainable Management of Fisheries under Part 13A of the 1999 Environment Protection and Biodiversity Conservation Act.
- It would be beneficial for the NFA to develop a Foreign National Register to track foreign advisors and investors. Foreign financiers and technical advisors are undoubtedly important to the functioning of several of PNG's inshore fisheries (the most notable being the trade in beche-de-mer) as they make the fishery happen by financing PNG citizen exporters or by acting as an intermediary for exporter and importer. Guidelines could also be developed taking into account the interest of both the foreign advisors or investors and the PNG citizens.

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- Medium-Term Strategic Plan (MTDS) 2010-2015
- draft Environmentally Sustainable Economic Growth (ESEG) Policy
- draft Climate Compatible Development Plan (CCDP)
- National Tuna Management Plan
- National Beche-de-mer Management Plan
- Barramundi Fishery Management Plan
- Torres Strait and Western Province Tropical Rock Lobster Management Plan
- Gulf of Papua Prawn Fishery Management Plan
- National Shark Long-line Fishery Management Plan
- National Live Reef Food Fish Fishery Management Plan (drafted, and reviewed in 2009 to incorporate Ecosystem Approaches to Fisheries Management)
- National Marine Aquarium Fishery Management Plan (drafted)
- National Aquaculture Policy
- National Tuna Long-line Policy
- National Fishing Aggregating Device Management Policy
- Trail Fishing Policy
- Fisheries Management Act 1998 (amended 2012)
- Whaling Act (Chapter 225)
- National Seas Act (Chapter 361)
- Fisheries (Torres Strait Protected Zone) Act (Chapter 411)
- Torres Strait Treaty (Articles 22 and 23)
- Fisheries Management Regulation 2000
- Fisheries (Torres Strait Protected Zone) Regulation
- Fisheries Management (Amendment) Bill 2012
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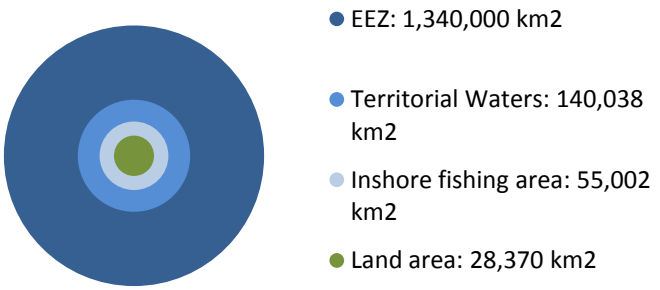
- Prohibition of Fishing Activity (by non-Citizens in the purchasing and selling of sedentary organisms) – G57 (2002)
- Prohibition of Taking Sedentary Resources (by the use of night lights and underwater breathing devices) - G57 (2002)
- Prohibition of Taking Sedentary Resources (size limits restrictions) - G57 (2002)

Solomon Islands



POLICY CONTEXT

The purpose of this section is to provide a snapshot of the high level and sectoral policy context relating to inshore fisheries management, highlighting in particular aspects that are likely to promote or detract from sustainable management.

HIGH LEVEL POLICY

The national development plan and government policy statements propose increasing access of local fishermen to markets and potentially providing resources for local fisheries development. Sustainable options are mentioned and emphasis is made on improving resource management including through decentralized and community based approaches.

Solomon Islands National Development Strategy (NDS) 2011-2020

Development

- Calls for sustainable enhancement of fisheries productivity to address food security, sustainable economic development of inshore fisheries while reducing reliance on coastal capture fisheries.

Resource management

- Calls for effective coordination between national, provincial and community levels to facilitate sustainable development of inshore fisheries and shift from "open access" to "managed" fisheries in partnership with resource owners and fishing communities, to improve food security, sustainable marine resource management and economic productivity.

Ecosystem and integrated management approaches

- In collaboration with the Ministry of Environment seeks a sustainable approach to natural resources management addressing biodiversity, forestry, fisheries and marine resources and waste management, including through community governance regimes, and sensitizing the population on dangers of environmental degradation through awareness campaigns.

The National Coalition for Reform and Advancement (NCRA) Government Policy Statement 2010, updated 2013

Development

- The government will facilitate the building of fishery marketing infrastructures connecting fishermen in the rural areas with Honiara.
- Consider assisting the local fishermen with adequate resources as part of government's efforts to involve the local people in the development of the fishery industry.

Resource management and environment

- Development of in-shore fishery facilities including tuna loining plants and mariculture for subsistence and

commercial development for the benefit of coastal and atoll dwellers while at the same time encourage the conservation of marine resources to ensure sustainable harvesting.

- Ensure environmental issues are integrated into other sectors such as development planning, agriculture, fisheries, mining, tourism, education and health so that adequate understanding about environmental issues of a cross-cutting nature.

SECTOR POLICY

Relevant sector policy is primarily provided in the form of the MFMR's Inshore Fisheries Strategy, Solomon Islands Aquaculture development plan 2009-2014, MFMR Inshore Fisheries Marketing Strategy (Draft). The MFMR Corporate Plan 2012-2014 (draft) is key guidance and there are various specific management plans in draft such as beche-de-mer.

MFMR 2010. Solomon Islands National Strategy for the Management of Inshore Fisheries and Marine Resources 2010-2012

The Inshore Fisheries Strategy is built on Multi-Scale, Multi-Sectoral Governance, Community-Based Resource Management, Leadership and Institutional Strengthening, Markets and Trade and Communication and Information.

- The strategy is very detailed in the legislative and enabling environment that needs to be developed
- Ecosystem approaches and collaboration with the Ministry of Environment are strongly emphasized as well as improved communications
- Implementation of CBRM in at least 50 communities and the appropriate deployment of rural aquaculture in partnership with NGOs, ministries and provinces including strengthening provincial capacity
- Developing small scale producer networks and marketing strategies

Solomon Islands Aquaculture development plan 2009-2014

The plan identifies the coastal and freshwater commodities that can be produced most easily, and profitably, to help meet food and income requirements in Solomon Islands. The plan notes that government policy is that inshore fisheries management should be devolved to communities, which will be assisted to develop their own management plans.

However, MFMR does not intend to apply aquaculture as part of CBRM considering that stock enhancement and sea ranching are not appropriate management interventions at this stage, too large investment is required to produce juveniles in hatcheries for restocking and that there are inadequate resources to embark on restocking programmes.

The coastal fisheries management section of MFMR will strive to ensure that stocks of valuable inshore species do not reach such chronically low levels that restocking needs to be considered. In cases where stocks are already overfished, e.g. several species of sea cucumber, participatory approaches to inshore fisheries management to restore spawning biomass, such as no-take zones, "clam circles" and minimum size limits, will be implemented in collaboration with the SILMMA network.

The MFMR Corporate Plan 2012-2014 (draft)

The plan focuses on the six priorities of the NCRA government: Improve market access for our rural fishers, grow livelihoods through sustainable aquaculture development, improve health of our fisheries and marine resources, grow our economy through sustainable fisheries investments, effective enforcement of our fisheries laws and increase skills and knowledge of partners in fisheries development.

In practical terms the plan places major emphasis on strategies associated with economic development such as fisheries/growth centres, transport and market access.

The plan proposes investment in a National Aquaculture Centre and the promotion of seaweed and coral farming and diversification into inland aquaculture. There is a seeming contradiction of the Aquaculture Development Plan in the proposed restocking of beche-de-mer.

Improved health of marine resources incorporates EAFM principles and is based on CBRM implementation at provincial level. The enabling environment is to be addressed mainly through development of legislation at provincial and national levels as well as increased attention to enforcement. In practice, the detailed work plan has virtually no allocation for actual implementation of CBRM this being limited to "facilitating the discussion of a CBRM unit in MFMR".

MFMR Inshore Fisheries Marketing Strategy (Draft)

One of the principles of the Marketing strategy is "promoting a marketing system well guided by a well-managed fishery to ensure sustainability of inshore fisheries resource". However the strategy makes no further mention of approaches to ensure that it does not undermine management of the fisheries resources.

Relevant policy from other sectors includes:

- Solomon Islands Agriculture & Rural Development Strategy 2007 (ARDS): Calls for improving service delivery, strengthening provincial governments and decentralized approaches and the promotion of successful resource management initiatives involving local communities, and the capacity of local fisheries officers to facilitate them gradually built. In the longer term, continued improvement of governance and institutional reforms in the sector will be needed, as well as stronger involvement in regional cooperation on resource management.
- Solomon Islands National Plan of Action for the Coral Triangle Initiative (NPOA): Provides for a coordinated approach between MFMR and the Ministry of Environment, Conservation, Disasters, Meteorology and Climate Change which sees 50% of rural communities receiving basic CBRM support services by 2020 focusing on livelihoods, sustainable management and ecosystem wide approaches. The approach assumes provincial strengthening as key to service delivery and this is laid out in an implementation plan and provincial strategy produced in 2013.
- Ministry of Environment's (MECDM) Strategic and Corporate Plan 2012-2014: Intends to establish policy, legislation and monitoring for marine conservation areas/LMMAs and mainstream climate change and environmental policies in fisheries strategies and plans including climate proofing of fisheries infrastructure.
- Premiers' [Provincial] Communiqué of 15 September 2011, Gizo: Calls for coordinating mechanisms for delivery of CBRM and CCA through provincial governments in collaboration with national government agencies.

LEGISLATION

FISHERIES ACT 1998

The principal legislation remains the Fisheries Act 1998 and regulations despite a draft Fisheries Bill developed since 2008 and awaiting parliamentary approval since 2010. Future favourable legislative developments may stem from the Solomon Islands Law Reform Commission (2012) review or the land that applies below the high water and low water mark that proposes that land below the higher water mark (i.e. coastal sea) should be recognized as tribal land.

The objective of the Fisheries Act 1998 is to provide a legal framework for the conservation, management, and development of Solomon Islands fisheries to ensure their long-term sustainable use for the benefit of the people of Solomon Islands. The power to administer the Fisheries Act is vested in the nine provinces. Through enactment of Provincial Ordinances, the Provincial Assemblies can perform fisheries management functions including creating management plans, registering customary rights and boundaries, designating temporal or spatial closures and establishment of reserves.

PROVINCIAL ORDINANCES

The Fisheries Act does not include provisions to allow local communities to develop their own community fisheries management plans or fisheries by-laws but this opportunity may be provided through provincial ordinances which are generally supportive of customary tenure and resource management such as:

- The Western Province Resource Management Ordinance 1994
- The Western Province Coastal and Lagoon Shipping Ordinance 1991
- The Guadalcanal Wildlife Management Area Ordinance 1990
- The Isabel Province Wildlife Sanctuary (Amendment) Ordinance 1991
- Isabel Province Resource Management Ordinance
- Temotu Environment Protection Ordinance 1989
- The Makira Preservation of Culture and Wildlife Ordinance
- Choiseul Province Resource Management Ordinance 1997
- Makira Ulawa Province Fisheries Ordinance
- Guadalcanal Fisheries Ordinance 2009
- Choiseul Province Fisheries and Marine Environment Ordinance 2011
- Western Province Fisheries Ordinance 2011

The production of provincial ordinance has recently received much attention resulting in the following (though not all may have received final approval):

- Choiseul Province Resource Management Ordinance;
- Choiseul Province Preservation of Culture Ordinance;
- Guadalcanal Province Wildlife Management Area Ordinance
- Isabel Province Marine and Freshwater Ordinance;
- Isabel Province Conservation Areas Ordinance;
- Isabel Province Wildlife Sanctuary Ordinance;
- Isabel Resource Management and Environmental Protection Ordinance;
- Makira Ulawa Province Preservation of Culture and Wildlife Ordinance;
- Temotu Environmental Protection Ordinance;
- Western Province Resource Management Ordinance;
- Western Province Simbo Megapode Management Area Ordinance.

There is great variation amongst these ordinances, some are in need of review but many provide adequate legal basis for CBRM including the designation of local Honorary or Authorized Fishery Officers.

SNAPSHOT OF POLICY AND LEGISLATION

National and sector policy	Generally supportive of sustainable management, decentralized and community-based approaches. Implementation details show some conflict with development objectives and provision for the implementation of these outweigh by far management actions
Legislation	In need of revision but adequate for first major steps in inshore fisheries management with the help of provincial ordinances
Community rights	Customary fishing rights recognized but clarification needed
Decentralized approaches	Provinces responsible for inshore fisheries. Ordinance can provide basis for CBRM and allow for community Authorized Officers
Jurisdiction	Provinces to 3 nautical miles. Provinces can register community tenure.
Other	Much delayed Fisheries Management Bill (2010 draft) stands to resolve many grey areas. Ecosystem approaches mentioned in policy currently only supported by some provincial ordinance and not the Fisheries Act.

(SLRC 2012, Troniak and Govan in Govan et al. 2009, Healy 2006, Gillett 2011, A. Beeson pers. comm.)

INSTITUTIONAL ARRANGEMENTS

The MFMR has been undergoing a long process of institutional strengthening and reform since its formation as an independent Ministry in 2006. The organizational structure has changed over this time and the latest version proposed in the Corporate Strategy 2012-2014 is not yet reflected in the budget or staffing payrolls. A programmatic approach is outlined with the establishment of the following programmes:

- Inshore Fisheries Management
- Offshore Fisheries Management
- Provincial Fisheries Development
- Aquaculture Development

Other key but smaller sections include Headquarters and administration, Fisheries management policy, Statistics and Information and Markets and Business Development.

The Corporate Strategy assigns support and staffing at the provincial level to the Provincial Fisheries Development Program – in effect all non-Honiara based staff are under the jurisdiction of this program. The program focuses almost entirely on aspects of marketing, transport and the running and support of fisheries centres as well as support for the development of provincial ordinances.

The Inshore Fisheries Programme and its Honiara based staff addresses fisheries development support to the provinces such as marketing, transportation, provision of fishing gear, selected aquaculture promotion, management plans of key commercial species, deployment of FADs, improvement of legislation, enforcement, climate change and a small component of institutional support to CBRM.

HUMAN RESOURCES

The organizational structure and civil lists since 2007 have provision for some 89 staff but a government freeze on hiring has resulted in chronic understaffing. It is suggested that the freeze is to be lifted but currently staff number around 50 with 44% vacancy (Table 20).

Table 20: Positions allocated under the civil list to MFMR 2007 showing current vacancy rate.

	Posts	Posts filled	% vacant
Headquarters and admin.	14	7	50%
Fisheries management policy	2	0	100%
Fisheries Management & Operations	2	1	50%
Statistics and information	6	3	50%
Aquaculture	7	3	57%
Provincial Development & Extension			
PDE HQ	9	5	44%
PDE Provinces	22	16	27%
Inshore fisheries management	7	3	57%
Offshore fisheries management	12	8	33%
Market and business development	2	0	100%
Non Established	6	4	33%
Subtotal (HQ)	***67***	***34***	***49%***
Subtotal (Provinces)	***22***	***16***	***27%***
Total	89	50	44%

One quarter of MFMR established staff are intended to be provincially based under the Provincial Development and Extension programme, but given the 49% vacancy rate at HQ currently 16 (one third) staff are based in the provincial centres.

STAFF RESPONSIBILITIES AND ACTIVITIES

The Terms of Reference of MFMR staff have been undergoing review as part of the ongoing institutional strengthening project (MISIF) and the latest versions were assessed (Table 21).

Table 21: Analysis of sample Terms of Reference (ToR) of staff activities and responsibilities in the two MFMR divisions with inshore management responsibilities: Provincial Fisheries and Inshore Fisheries. ToRs are out for review and approval since mid-2012.

Position	*	Selected tasks, responsibilities and activities
Deputy Director (DDPF) Provincial Fisheries	C	Mainly community fisheries development and extension, the management and maintenance of fisheries centres, improving market access, increasing skills in fisheries development but also health of inshore fisheries resources, support for training of rural fishers in community fisheries management and livelihoods as well as enforcement of laws.
Deputy Director (DDI) Inshore Fisheries	c	Coastal fisheries development and management plans, compliance, statistics, licencing, coastal fisheries and aquaculture industries, marketing, aquaculture, management, research and monitoring,
Chief Fisheries Officer Provincial Fisheries	C/B	See DDPF. Emphasis on provincial extension, project management but also providing provincial fisheries information to the public.
Chief Fisheries Officer Inshore Fisheries (Management and Research)	B	See DDI. Research services for management and development, resource assessments, collaborate on licencing, aquaculture, policy development, impacts to fisheries, EAFM, assist implementation of CBRM of Inshore Strategy, liaise with communities and provinces, network through SILMMA. A PFO, CFO and SFO support this position with similar activities.
Principal Fisheries Officer Provincial Fisheries (Community Fish. Dev)	B/C	See DDPF. Community fisheries development and the management of fisheries centres. Leadership in management of community fisheries, liaise with NGOs and SILMMA on community fisheries management and provide information to the public.
Principal Fisheries Officer Provincial Fisheries (Provincial Fish. Centres)	C	See DDPF. Provincially based. Manage all fisheries centres and assets, assisting provincial government with inshore fisheries development plans and other advice, support increase in livelihoods and food security of communities, promote CBRM
Senior Fisheries Officer	B	See DDPF. Technical and participatory service to support fisheries centres and communities. Training including

Provincial Fisheries (Community Fish. Dev)		on management of fisheries resources.
Senior Fisheries Officer Provincial Fisheries (Extension)	B/C	See DDPF, technical, development and extension service to support Fishery Centres** and communities, training of rural fishers in fish handling, FADs and management of resources as well as liaison with provincial fisheries officers and NGOs
Fisheries Officer Provincial Fisheries (Community Fish. Dev.)	B/C	See DDPF. Support of Fisheries Centres** and communities. Training of rural fishers for sustainable fishing practices.
Fisheries Officer Provincial Fisheries (Ext.)	B/C	See DDPF with specific responsibility for advice on provincial fisheries development issues and service delivery including training to fishing communities.
Provincial staff (direct provincial government employees)	D?	In addition to the PFO a positions for a SFO and/or FO are allocated. In addition Provincial Government may fund 1 or more provincial fisheries officers. Anecdotal reports suggest that most of these staff are occupied with running the fisheries centres.

* A: Mainly management-related tasks (75-100%), B: Predominantly management tasks (50-75%), C: Predominantly development tasks (25-50%), D: Mainly development-related tasks (0-25%). Lower case letters indicate duties are mixed with offshore and/or aquaculture.

** Responsibility for support of Fishery Centres is likely to be a highly engrossing task that to date relates to fisheries development and not management.

Almost all positions reviewed from Provincial Fisheries and Inshore Fisheries Divisions are exclusively dedicated to coastal fisheries, but there is a suggestion that the staff in most regular contact with communities, ie provincially based staff have the least fisheries management-oriented ToR. Interviewees suggested that field staff had little time left after ensuring the functioning of fisheries centres and delivery of ice.

A majority of positions mix management and development activities and in some cases these development activities are likely to significantly encroach on time and resources available for management activities - such as the maintenance of fisheries centres and ice making equipment. However, there is sufficient support in the ToR for the main functions associated with community focused inshore fisheries management should the incumbents have the resources and political direction to do so. The PFO Policy (currently vacant) is tasked with providing information to schools and general public

BUDGETS

The MFMR recurrent budget for 2011 was over SBD 12 million and there is a requested increase for 2013 of some 30% (Table 22). The development budget for 2011 was under SBD 300,000 but requests for 2012 and 2013 are in the range of SBD 10 million (Table 23).

Table 22: Recurrent MFMR expenditure (SIG 2013 Draft recurrent estimates, budget paper)

	2011 Actuals		**2012 Revised budget**	
	Total	Payroll %	Total	Payroll %
Headquarters and admin.	3,619,942	33%	5,413,795	26%
Fisheries management policy	165,250	79%	201,683	56%
Statistics and information	736,620	38%	540,778	46%
Aquaculture	846,014	32%	686,876	38%
Provincial fisheries	2,323,424	55%	2,089,129	60%
Inshore fisheries management	489,899	59%	480,240	57%
Offshore fisheries management	3,616,835	18%	3,383,126	20%
Market and business development	355,224	38%	361,055	37%
Total SBD (USD)	**12,153,208 (1,485,122)**	**35%**	**13,156,682 (1,670,899)**	**33%**

Despite the high allocation to Provincial Fisheries Development it is worth noting that Offshore fisheries management receives some 20% more recurrent budget than provincial fisheries, inshore fisheries and policy combined.

Table 23: MFMR actual and requested development budgets (SIG 2013 Draft recurrent estimates, budget paper)

	2011 Actuals	2012 Revised budget	2013 Budget estimates
Tuna Loin Factories	520	1,500,000	4,500,000
Dolphin Assessments Program	253,508		
Fish Aggregate Device Program		1,000,000	1,000,000
Wantok Project (tuna loining)	32,000	500,000	1,000,000
Provincial Fisheries Housing Project	2,620		
MFMR Seafront Reclamation Proj		700,000	
Provincial Fisheries Housing Proj		1,500,000	1,000,000
Coastal Fisheries Program (Constituency prog.)		5,000,000	
Rehabilitation of Fisheries Centre			1,700,000
Total (USD)	**288,648 (35,273)**	**10,200,000 (1,295,400)**	**9,200,000 (1,242,920)**

ESTIMATION OF ACTUAL SUPPORT TO INSHORE FISHERIES MANAGEMENT

The capital development projects include a constituency fisheries programme that is administered by members of parliament to rural areas and is likely to have mainly development impacts as may the rehabilitation of fisheries centres projected for 2013. Projects on tuna loining, provincial fisheries housing and FADs may have beneficial impacts on the support to inshore fisheries management.

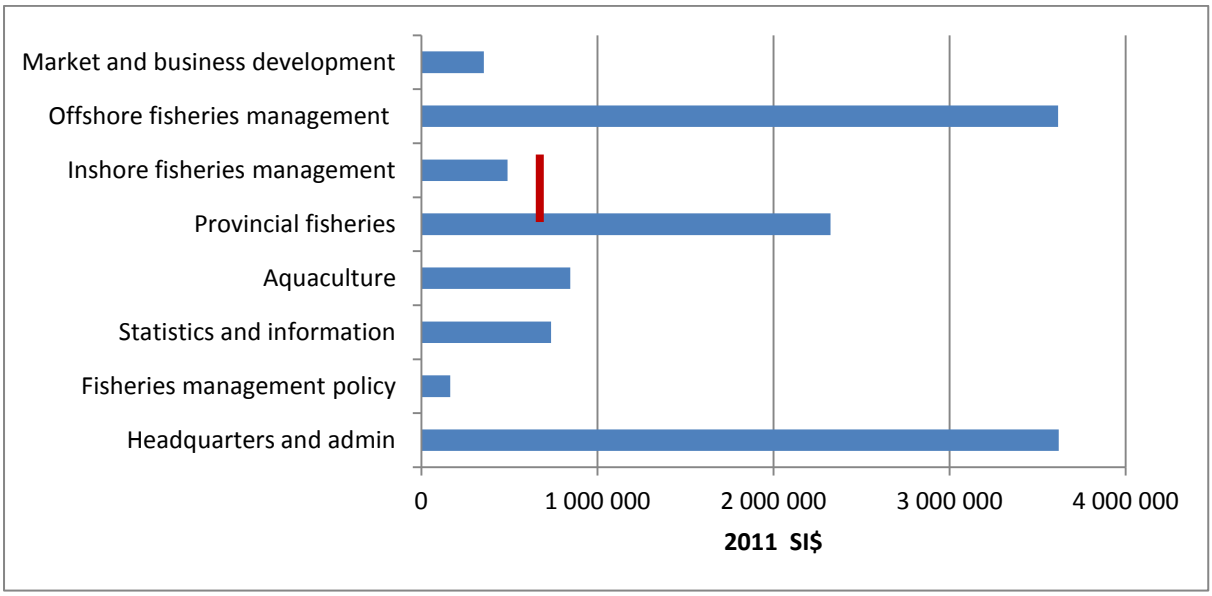
A major NZAID funded projects on institutional strengthening of MFMR is budgeted at SI$18,490,000 / year but other donor support such as aquaculture and NGO activities are not included in this report.

Though the Coral Triangle Initiative National Plan of Action, of which MFMR is a key driver, proposes to support CBRM as the core activity virtually none of this support has achieved the wide spread community impact envisaged by MFMR. Nevertheless, a proportion of Ministry of Environment activities can be seen to support some aspects of CBRM such as awareness and coordination.

The Provincial Fisheries Program deploys staff at provincial level but their duties are mainly dedicated to attempting to maintain fisheries centres at present. According to the Corporate Strategy the Provincial Fisheries Program focuses almost entirely on aspects of marketing, transport and the running and support of fisheries centres as well as support for the development of provincial ordinances. In the absence of further evidence for a major focus on management the Provincial Fisheries Programme is not considered as a major contribution to inshore fisheries management despite a couple of exceptions in the form of local officers commitment to CBRM. With the caveat that the Inshore Fisheries Programme covers aspects of development including marketing and promotion of fishing technology an approximation to the inshore fisheries management investment by MFMR of SI$725,000 is made by assuming proportions of the various budgets as follows:

- 10% of Provincial
- 50% of inshore
- 50% of management policy
- Average 30% admin fee

Figure 2: Solomon Islands Ministry of Fisheries and Marine Resources budget breakdown by activity for 2011 in SI Dollars. The red line indicates an approximation of the financial resources that may currently be available for inshore fisheries management for food security.



The continued and increasing emphasis on provincial fisheries centers / ice machines accounts for a considerable proportion of recurrent and projected development budgets as well as a considerable drain on resources. These centers are plagued by a variety of upkeep and maintenance problems.

Provincial staff accommodation is major infrastructural problem and though development funds have been allocated these may well fall short. The presence of staff closer to rural communities is a vital step towards providing better services.

The Constituency Fisheries Programme is also likely to represent a poor investment if not actually hasten over-exploitation of stocks and is an example of political pressure that works against sustainable management.

The staffing and allocation for CBRM is small and in several years the allocation for CBRM activities has not even been disbursed.

RELATIVE INSHORE FISHERIES MANAGEMENT INVESTMENT AND REVENUE

The SI National Government Budget actual recurrent expenditure in 2011 was SI$ 1,694,300,000 of which the MFMR recurrent allocation of SI$ 12,153,208 comprises 0.7%, this compared to a similar contribution to Culture and Tourism, 1.6% for Agriculture and Livestock or 7.3% for Law and Order.

Estimates of fisheries contribution to Gross Domestic Product suggest 6% in 2007, 2.3% was derived from coastal fisheries, mainly subsistence. The MFMR budget comprised 0.8% of the estimated value of the fishery and the estimated investment in inshore fisheries management was 0.7% of the value of coastal fisheries (Table 24).

Table 24: Estimates of the value of Solomon Island Fisheries, their contribution to GDP compared to the Fisheries Ministry budget, allocations recalculated as part of this study (thousands of SI Dollars).

	Value of Fisheries[1]	Contribution to GDP[2]	% GDP[2]	MFMR budget 2010 (Recalc.)	MFMR budget 2010 (% value)
Coastal	109,300	92,325	2.3%	727[3]	0.7%
commercial	*25,300*	*16,725*	0.4%		
subsistence	*84,000*	*75,600*	1.9%		
Offshore	1,424,514	133,601	3.4%	3,617[3]	0.3%
Freshwater	11,200	10,304	0.3%		
Aquaculture	311	218	0.0%	846[3]	272.0%
Total	**1,545,325**	**236,448**	**6.0%**	**12,153**	**0.8%**

1: Government figures for 2007according to Gillett (2009)
2: Using the alternative calculation of Gillett (2009) within 12% of official values
3: Includes 30% General Administration and is the estimated proportion that can be employed for management

In 2011 MFMR collected SBD 135,571,615 from overseas fisheries licence fees and receipts from the Forum Fisheries Agency (SIG 2013 Draft recurrent estimates, budget paper) and for 2012 and 2013 this amount is estimated to continue to exceed SBD 100 million or around ten times the recurrent MFMR expenditure.

The Fisheries Act 1998 makes provision for a "Fisheries Management and Development Fund" to which 50% of revenue should be paid to be used for the management and development of fisheries in Solomon Islands. No funds have been paid into this account (Lilomo 2012) and there is provision for the same fund under the Fisheries Bill 2010 though with an unspecified percentage of revenue.

PROVINCIAL GOVERNMENT AND NGO INVESTMENTS IN INSHORE FISHERIES MANAGEMENT

PROVINCIAL

The provincial governments receive 2 – 3 seconded Fisheries Officers from MFMR though in most provinces half the positions are vacant. In addition provinces directly employ fisheries staff, these may number 2-6 per province but again many positions are vacant and in most cases their duties are specifically the operation of fisheries centres where they are usually based. Budgetary provision may be made by Provincial Government for fisheries. For example Guadalcanal Province had a Fisheries and Marine Resources budget of SBD169,501 for 2010 and estimates of SB260,000 and SBD490,000 for 2011 and 2012 respectively - mainly for repair and operation of fisheries centres. Central Islands Province had a Fisheries budget of SBD 132,000 in 2010 and estimates of SBD100,000 and SBD217,000 in 2011 and 2012 respectively covering mainly staffing and operations of fishery centres (Govan 2012).

CIVIL SOCIETY, NETWORKS AND NGOS

Solomon Islands communities historically practiced traditional resource management - to date no inventory has been conducted but random visits to villages suggest that many may still be practicing forms of traditional management, such as tabus, in addition to the restricted access that customary tenure involves. Though there are widespread anecdotal reports that traditional approaches are being lost there are also reports of villages or local leaders (including church leaders) reinstating or starting local management. NGOs experienced a slow learning curve starting from conservation and protected areas approaches in the 1990s of which the Arnavons Marine Conservation Area is perhaps the only surviving example. Early conservation approaches in Solomon Islands seem to have failed to find constructive ground for collaboration between government and civil society with failures attributed to both government and NGO-only approaches. From 2003 NGOs adopted a modified approach based on community involvement and meeting community aspirations and this combined with the growing local capacity to work in a participatory fashion. Anthropological and community development work dating back to the 1990's in the Roviana Lagoon also showed early results with a network of village closed areas emerging in 2001.

The last 8 years has shown much greater collaboration between government and non-government stakeholders as suggested by MoUs and joint government/NGO field teams. The partnership approach is embodied in national policy and the "principles for CBRM" developed through an MFMR/SILMMA initiative in 2007 (Alexander et al. 2010). There are currently more than one hundred NGO-supported community based resource management sites, preponderantly in Western Province. Government does not directly support any of these and despite the numbers involved the proportion of marine area covered is relatively insignificant, around 1000 km^2 or 2-3% of the inshore fishing area, only a third of this is fishing reserve or tabu.

There is a very wide variation in the approaches followed, their effectiveness and the costs involved. The objectives too of the projects vary widely, a great number still have roots in biodiversity conservation while an increasing number are livelihoods or explicitly fisheries oriented. Active NGOs include WorldFish, SIDT, WWF, TNC, Tetepare Descendants Association and FSPI. These organizations and also Fisheries and Environment departments are members of a national network active since 2003, SILMMA, and there are an increasing number of subnational or local area network approaches such as in Marovo Lagoon, Central Islands Province (the GERUSA Network) and Choiseul.

ISSUES, THREATS AND OPPORTUNITIES

- There is increasing evidence that inshore fisheries are under pressure and where market access is feasible resources are likely to be significantly depeleted (Brewer et al 2009, 2011, Pinca et al. 2009, Green et al. 2004).
- MFMR and MECDM have made good use of partnerships with NGOs to address lack of resources, capacity and provincial presence in piloting resource management approaches.
- Government has utilized sound approaches to try and ensure that the NGO partnership works in the best interests of Solomon Islands policy through the joint establishment of guiding principles and policy and two coordinating mechanisms, the SILMMA network (with its sub-national networks) and the National Coordinating Committee of the Coral Triangle Initiative.
- The NGO models vary greatly in objectives, outcomes and costs and have not been objectively evaluated to ensure government can chart the best course to achieve policy objectives. Such an evaluation would be important especially if it is able to contrast the situation and management strategies of villages that are not receiving CBRM support.
- Despite the existence of adequate policy there is still no defined strategy at MFMR for delivering CBRM support services to the population other than the piecemeal contribution made by the partnership of NGOs.
- Informants suggest that a majority of communities lack adequate information relating to resource depletion and management or knowledge of the Fisheries laws.
- MFMR has found it challenging to implement some of the potential centralized functions that could support inshore fisheries such as preventing the import of illegal fishing gear and trading and export of illegal produce.

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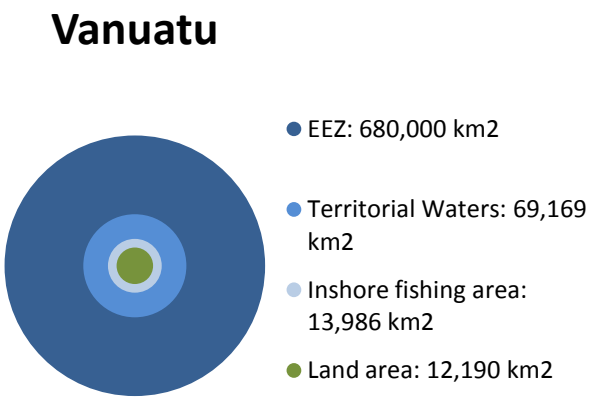


POLICY CONTEXT

The purpose of this section is to provide an overview of the high level and sectoral policy context relating to inshore fisheries management highlighting in particular aspects that are likely to promote or detract from sustainable management.

HIGH LEVEL POLICY

Vanuatu's long term development plan is the Priorities and Action Agenda 2006 - 2015 (PAA). The Vanuatu 4 year development plan - the Planning Long, Acting Short matrix (PLAS) has been incorporated into the review of the PAA in 2012. This strategic framework is supported by sector strategies.

Priorities and Action Agenda 2006 - 2015 (PAA)

Suggests that greater emphasis should be placed on the "management of coastal fisheries on which the majority of the rural population rely to some extent and which can make a greater contribution to rural incomes, nutrition and self-reliance than the commercial fishing sector".

States that co-management with local communities through fishery wardens and the like is essential for the sustainable management and conservation of the resources and the maintenance of biodiversity, particularly for over exploited and endangered species.

Calls for capacity building for education, awareness building, monitoring and reporting to allow them to meet their obligations. NGOs should be encouraged to take over some of the responsibilities for promoting the conservation and sustainable exploitation of the resources and to build capacity in the custodial communities.

Aims to achieve improved fisheries management through, amongst others: Preparing a sector strategy, revision of fisheries legislation, institutional capacity building within the Fisheries Department, strengthening Provincial capacity for coastal fishery management.

Sustainable coastal and reef management will be achieved through mobilising communities to manage their coastal and reef fishery resources, facilitating the marketing of reef fish, improving stakeholder involvement in the sector and mobilising local communities to arrange their own fish aggregating devices.

The 2012 update however emphasizes improving marketing of primary sector produce.

SECTOR POLICY

Relevant sector policy is provided by the Overarching Productive Sector Policy 2012-2017 (OPSP), the Corporate plan of the Ministry of Agriculture Quarantine Fisheries and Forests 2011-2015 and the Fisheries Department 20/20 Strategic Plan, January 2013. There are plans for Tuna Management, Aquaculture Development and Marine Aquarium Trade Management.

Overarching Productive Sector Policy 2012-2017 (OPSP)

Suggests that sustainable resource management will bring benefits to farmers and fishers (through improved incomes), and to consumers (through healthier food choices) and to ecosystems (by increasing resilience).

Inshore fisheries, whilst important for food security in rural areas, have little potential for increased production, with some export commodities already overfished. Increasing fish supplies, particularly to urban areas, is likely to rely on increased landings of tuna and the development of aquaculture. The main focus of reef fisheries should be on consolidation and protection of current benefits. A key objective is: To Better Manage Marine Resources.

Corporate plan of the Ministry of Agriculture Quarantine Fisheries and Forests 2011-2015

Objectives relevant to inshore fisheries management include: Facilitate marketing of fish through exports and markets in urban and rural areas, freshwater aquaculture and mariculture of hatchery produced trochus, improved boat design, deployment of FADs, local tuna fleet, production of resource management plans and increased compliance of residents with coastal regulations. Restructuring and strengthening of the Fisheries Department is also envisaged.

Fisheries Department 20/20 Strategic Plan, January 2013

The Fisheries Department mission is to support and enable the people of Vanuatu to achieve sustainable utilization of the fisheries resources and the highest levels of social and economic benefits for the present and future generations. Some of the key services intended include raising awareness about relevant management issues, assisting coastal communities in developing community based resources management regimes, providing advice on appropriate fisheries sector development frameworks including the incorporation of the principles of ecosystem based fisheries management, improving fisheries services to provinces and rural communities, technical assistance to rural coastal communities for establishing marine protected areas as well as a number of services in support of associations, transport, access to markets and improved technology.

Other institutions with relevant mandates and policies include the Department of Environment and Conservation of the Ministry of Lands and Natural Resources which implements the Environmental Management and Conservation Act, 2002 including provision for Community Conservation Areas and the National Advisory Board on Climate Change and Disaster Risk Reduction of the Vanuatu Meteorological and Geohazards Department which has produced a National Integrated Coastal Management Framework and Implementation Strategy For Vanuatu.

LEGISLATION

THE FISHERIES ACT NO. 55 OF 2005

The Fisheries Act No. 55 of 2005 is the main fisheries law of Vanuatu and deals with fisheries management, development and conservation. The provisions relevant to inshore fisheries include fisheries management plans, designated fisheries, local fishing licences, designation of marine reserves, establishment or the Vanuatu Whale Sanctuary, prohibition of fishing with explosives or poisons, appointment of authorized officers (including community members).

From time to time Fisheries Regulations are produced, Order No. 28 of 2009 though not the most recent is the most comprehensive and covers many aspects to enable the implementation of the Fisheries Act including conservation measures for certain fisheries and provision for Minister to declare an inshore coastal area closed for the purposes of management and conservation.

Management of subsistence fisheries is vested in the traditional owners of the sea area, the ownership of which is recognized in the Constitution as including land under water extending to the seaward side of any offshore reef but no further. The Fisheries Department recognizes this right and generally works to support community fishery management within the framework of quota and size and other restrictions provided by the Regulations (Raubani 2006, Gillett 2011).

A possible vulnerability to this system is the lack of mechanisms to ensure that communities do not dangerously overexploit their resources through internal conflict or lack of information

A revision of the Fisheries Act and provisions relating to Tuna management is currently underway with the support of the Forum Fisheries Agency.

PROVINCIAL JURISDICTION

The Decentralization and Local Government Regions Act (1994 and 1997) provides for the provinces to make by-laws on rules and regulations governing fishing and conditions relating to the issuing of fishing licences within six nautical miles. Local fishing vessel licences are issued by the Fisheries Department subject to the payment of an access fee to the Provincial Government.

SNAPSHOT OF POLICY AND LEGISLATION

National and sector policy	Strongly promotes sustainable coastal resource management and community-based approaches. Recognizes the limits to increased inshore fisheries production and seeks diversification. Implementation details include improving markets and access in appropriate ways and the use of aquaculture for restocking.
Legislation	Fisheries Act provides for conservation measures including closed areas as does the Environment Act and provincial legislation.
Community rights	Customary marine tenure is recognized under the constitution
Decentralized approaches	Provinces may exercise management in provincial waters through by-laws.
Jurisdiction	Customary marine tenure to "seaward side of any offshore reef". Provinces to 6 nautical miles. Provinces can regulate and licence fisheries in their waters.
Other	Fisheries Act under revision

INSTITUTIONAL ARRANGEMENTS

Administration, development and management of the fisheries sector is the responsibility of the Fisheries Department within the Ministry of Agriculture, Quarantine, Forestry and Fisheries. The Fisheries Department headquarters are in Port Vila with a regional office in Luganville, and smaller provincial centres in each of Vanuatu's six provinces. (Amos 2007)

The Fisheries Department is headed by a Director and activities are delivered through 6 programs (Fisheries Department 20/20 Strategic Plan):

Program 1 – Fisheries Compliance

Program 2 – Fisheries Management and Policy

Program 3 – Fisheries Development and Capture

Program 4 – Fisheries Research and Aquaculture

Program 5 – Seafood Verification

Program 6 – Fisheries Administration

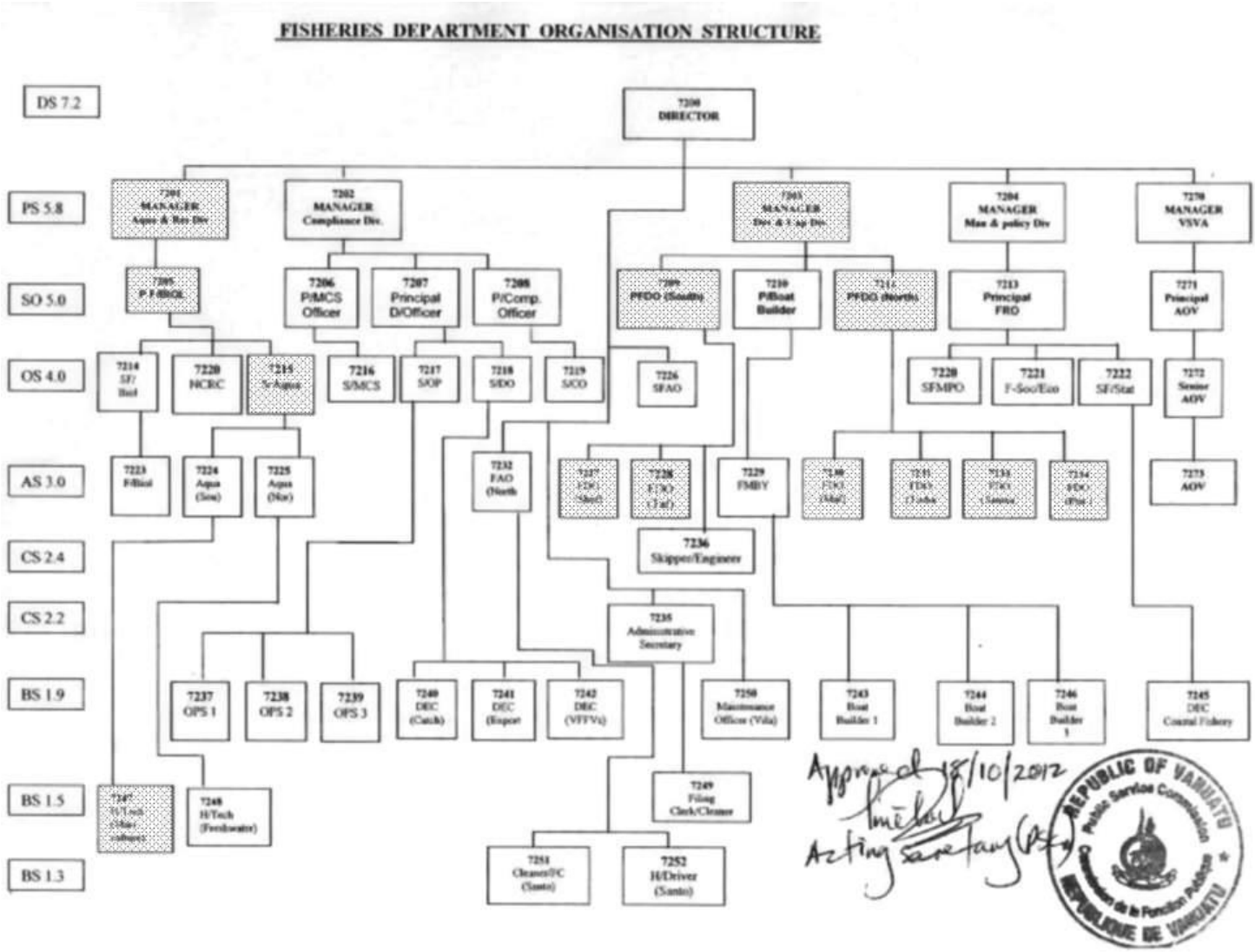
Inshore fisheries management activities are mainly carried out under 3 programs;

- Fisheries Management and Policy: has a direct mandate for management activities including fishery management plans and assisting coastal communities in CBRM.
- Fisheries Development and Capture Program: has implementing offices in the provinces and a mandate to ensure greater returns from the sustainable use of fisheries resources. In practice most of the activities involve development of enterprises, technologies, improving fish trade and service provision.

- Fisheries Research and Aquaculture program: mandate for stock assessment and restocking with hatchery produced. Supports the development of regulations, management plans and assessment of community management initiatives.

The structure and staffing is shown in Figure 3.

Figure 3: Approved structure of the Vanuatu Fisheries Department 2012. Positions with responsibilities relating to inshore fisheries management are shaded grey.



HUMAN RESOURCES

The FD has about 54 approved positions but staff have been relocated to the new Seafood Verification Program and along with other movements result in approximately 10% being vacant (Table 25).

Table 25: Positions approved in the Vanuatu Fisheries Department 2012. Around 10% of posts on average are vacant.

	Approved 2012
Program 1 – Fisheries Compliance	11
Program 2 – Fisheries Management and Policy	6
Program 3 – Fisheries Development and Capture	15
Program 4 – Fisheries Research and Aquaculture	10
Program 5 – Seafood Verification	4
Program 6 – Fisheries Administration	8
Total	**54**

Ninety percent of staff are based in the capital. Each province has a single Fisheries Development Officer (FDO) under the Fisheries Development and Capture Program, usually based at the provincial office and tasked with operating a fisheries center. These FDOs report to either the Principal Fisheries Development Officer North or PFDO South depending on their province.

The Fisheries Management and Policy Program is assigned tasks specifically related to community management regimes and awareness raising as well as management plans for major commercial species but has no field presence. The Research and Aquaculture Division focuses on conducting stock assessments, rehabilitation programs, assessing community managed areas and aquaculture pilot farms and all staff are stationed in Port Vila.

STAFF RESPONSIBILITIES AND ACTIVITIES

A limited sampling of FD Terms of Reference suggests that staff have a variety of tasks that span inshore management and other areas including in some cases offshore management, aquaculture or development (Table 26).

Table 26: Analysis of sample Terms of Reference (ToR) of staff activities and responsibilities in the two VFD programs with inshore management responsibilities: Management and Policy (MP) and Development and Capture (DC).

Position	*	Selected tasks, responsibilities and activities
Manager, Management and Policy (MP)	b/c (1)	Advise on policy relating to conservation and sustainable utilization of fisheries resources, fisheries management plans, regulations, foreign and local investment and development, advise on licensing applications, secretariat of the Tuna Management Advisory Committee
Manager, Development and Capture (DC)	(1)	NA
Principal Fisheries Research Officer (MP)	c (1)	Management and development plans and policies for the overall domestic fisheries sector, foreign and local investment proposals, production of fisheries related awareness materials, domestic fisheries sector development, management regulations, plans and policies.
Principal Fisheries Development Officer, South (DC)	C (2)	Coordinate, develop and monitor fisheries activities in the Southern parts of Vanuatu, cooperatives, supervise income generating programs including ice machine program** and FADs. Promote sustainable fisheries development and conservation initiatives. Data collection, research, community aquaculture, training and enforcement.
Senior Fisheries Officer (MP)	(3)	Statistician, data entry clerk
Fisheries Development Officer (SHEFA Province) (DC)	B/C (6)	Technical advice and fisheries awareness to promote sustainable rural fisheries development. Establish cooperatives, service delivery through partners, assist with fisheries proposals, rural fishing training, data collection, rural enforcement, collaborate on research and aquaculture.

* A: Mainly management-related tasks (75-100%), B: Predominantly management tasks (50-75%), C: Predominantly development tasks (25-50%), D: Mainly development-related tasks (0-25%). Lower case letters indicate duties are mixed with offshore and/or aquaculture.

** Responsibility for support of Fishery Centres is likely to be a highly engrossing task that to date relates to fisheries development and not management.

Almost all positions reviewed are exclusively dedicated to coastal fisheries, but there is a suggestion that the staff in most regular contact with communities, i.e. provincially based staff ironically have the least CBRM-oriented ToR.

Interviewees suggested that field staff had little time left for community awareness of CBRM support after ensuring the functioning of fisheries centres and delivery of ice. There are around 9 ice making machine and cold storage facilities in existence in various locations (MAQFF Annual Report 2011)

A majority of positions mix management and development activities and in some cases these development activities are likely to significantly encroach on time and resources available for management activities such as the maintenance of fisheries centres and ice making equipment. However, there is sufficient support in the ToR for the main functions associated with community focused inshore fisheries management should the incumbents have the resources and political direction to do so.

BUDGETS

The VFD recurrent budget for 2012 was under Vatu 100 million as is the request for 2013 (Table 27). Capital and development budgets were not provided and may not exist. Donor funded projects cover activities such as aquaculture research and field activities by NGOs provide operations costs for some Fisheries activities. The budget exhibits a remarkably small component for operations with most utilities and running expenses covered under Admin.

Table 27: VFD recurrent budget for 2012 and estimated recurrent budget for 2013 in thousands of Vatu. Note the change in structure after 2012 with a more disaggregated budget (source VFD)

	2012				Estimated 2013			
	Total	Payroll	Operations	Payroll%	Total	Payroll	Operations	Payroll%
Admin.	27,962	8,779	19,182	31%	23,637	8,835	14,803	37%
Research					12,858	10,783	2,075	84%
Compliance					16,628	16,328	300	98%
Dev. & Prodn.					19,323	14,316	5,007	74%
Boatyard					6,372	5,174	1,198	81%
Management					7,558	7,158	400	95%
Seafood					6,092	6,092	0	100%
Dev. & Res.	42,320	30,863	11,457	73%				
Managt. & Lic.	24,447	23,216	1,231	95%				
Total Vatu (USD)	**94,729 (1,041)**	**62,859 (691)**	**31,870 (350)**	**66%**	**92,469 (1016)**	**68,686 (755)**	**23,783 (261)**	**74%**

ESTIMATION OF ACTUAL SUPPORT TO INSHORE FISHERIES MANAGEMENT

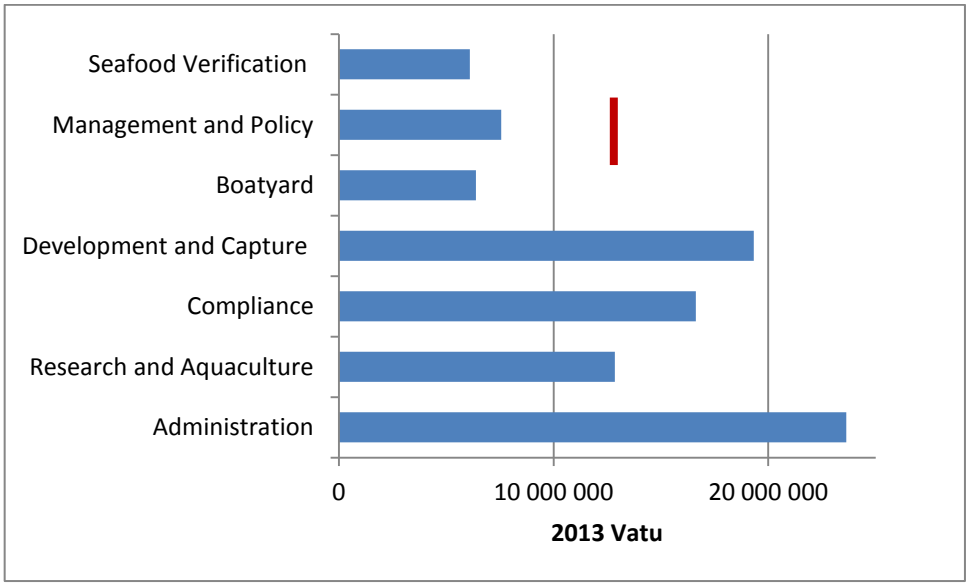
Development and Capture Program has 6 staff at provincial level but their activities are mainly development oriented and budget is limited to 5 million Vatu for operations across 6 provinces. Management and Policy has a direct mandate for management activities but no field staff and a total operational budget of 400,000 Vatu . The Research and Aquaculture program also carries out work related to inshore fisheries management and it supports the development of regulations, management plans and assessment of community management initiatives.

An approximation to the actual inshore fisheries management investment is made by assuming the following amounts are available for inshore management activities:

- 33% of the Development and Capture budget
- 50% of Management Policy
- 50%of the Research and Aquaculture program

Including an average 27% admin fee the amount potentially invested in inshore fisheries management is around 21 million Vatu. A caveat has to be made owing to the exceptionally low operational budget which must greatly limits field work. Comparison of these estimates to internal quarterly reports suggest they may be an upper limit.

Figure 4: Vanuatu Fisheries Department budget breakdown by activity for 2013 in Vatu. The total budget for 2012 was a similar amount but does not allow disaggregation. The red line indicates an approximation of the financial resources that may currently be available for inshore fisheries management for food security.



The lack of a clear strategy for support of inshore fisheries management complicates assessment but inclusion of relatively expensive operation of the hatchery as well as duties relating to ice machines probably reduces the amount of other support communities receive.

RELATIVE INSHORE FISHERIES MANAGEMENT INVESTMENT AND REVENUE

GoV government spending in 2009-2011 was around 18,000 million Vatu and expenditure on the Vanuatu Fisheries Department amounts to some 0.5%. Overall expenditure on the MAQFF as a whole which includes the Fisheries Department ran at 4% over 2003-2005 compared to 1% for the Ministry of Youth and Sports and 3% for the Ministry of Lands, Geology, Mines, Water Resources in the same period (Ecorys 2006. Vanuatu Public Expenditure and Financial Accountability).

Estimates of fisheries contribution to Gross Domestic Product have suggested that this was 1.3% in 2007 all derived from coastal fisheries, mainly subsistence. The Fisheries Department budget comprised 2.61% of the estimated value of the fishery and the estimated investment in inshore fisheries management was 2.56% of the value of coastal fisheries (Table 28).

Table 28: Estimates of the value of Vanuatu Fisheries, their contribution to GDP compared to the Fisheries Department budget, allocations recalculated as part of this study (thousands of Vatu).

	Value of Fisheries[1]	Contribution to GDP[2]	% GDP[2]	FD budget 2010 (Recalc.)	FD budget 2010 (% value)
Coastal	823,400	665,930	1.28%	21,062[3]	2.56%
commercial	*226,400*	*158,480*	*0.3%*		
subsistence	*597,000*	*507,450*	*1.0%*		
Offshore	2,704,380	0	0.0%		
Freshwater	18,000	16,200	0.0%		
Aquaculture	31,600	14,220	0.0%		
Total	**3,577,380**	**696,350**	**1.34%**	**92,469**	**2.61%**

1: Government figures for 2007according to Gillett (2009)

2: Using the alternative calculation of Gillett (2009) which is around 60% higher than official values and GoV GDP figures for 2007 = Vt 51,979,579,000

3: This is the estimated proportion that can be employed for inshore management and includes 27% General Administration

Revenue

In 2011 the Department managed to collect VT 173,572,832 that is, 87% of its target revenue (MAQFF 2011, Annual Report) compared to an expenditure of around 100 million in each of the last 3 years. These funds go to treasury.

PROVINCIAL GOVERNMENT AND NGO INVESTMENTS IN INSHORE FISHERIES MANAGEMENT

PROVINCIAL

The provincial governments have fisheries liaison officers who are usually members of a fishermen's association and may function in a voluntary capacity. They may be capable of performing fisheries management awareness functions but it is doubtful that they do and they do not appear to have a provincial government budget allocation.

CIVIL SOCIETY, NETWORKS AND NGOS

Traditional management by villages in Vanuatu is thought to be widespread with more than 20 sampled communities employing a variety of rules and restrictions including closed areas or tabus (Johannes 1998, Johannes and Hickey 2004). The Fisheries Department strategically boosted community management in the 1990s by providing trochus for reseeding to communities that proved their motivation, organization or absence of major disputes and undertook to preserve the reseeded trochus in a tabu area (Amos 1993).

The NGO Wan Smol Bag (WSB) has been active in raising community awareness including on one of their flagship issues, turtle conservation from which a wider approach to marine resource management has evolved. WSB coordinates as much as possible with the Fisheries Department and constitutes by far the country's major concerted program of awareness raising and promotion of community based management. WSB supports the Vanuatai network of some 521 village agents or "turtle monitors" covering maybe 300 of Vanuatu's 720 villages. Though up to half may be inactive the results are impressive and suggest that establishing voluntary resource wardens at the village level is a feasible way forward. Resource monitors raise awareness on the rules of the Fisheries Act and find that around 90% of communities are not aware of these. In recognition of this work the Fisheries Department and WSB plan to select turtle monitors for accreditation with a Fisheries ID in 2013.

The logistics and transaction costs of running a national network has led to WSB/Vanuatai developing subnational networks such as Tasi Vanua in N. Efate and similar arrangements in N. Pentecost, Epi, Torres and W. Ambrym.

Areas near urban centres and especially North Efate are showing clear signs of erosion of traditional management and this erosion is reported to be becoming widespread in rural areas too driven by increasing commercialization and other factors associated with modernization.

A number of NGOs have provided support especially in key areas such as N. Efate and Aneityum with varying degrees of collaboration with the Fisheries or Environment Departments. Recognizing the limitations faced by government departments in terms of operational costs the regional NGO FSPI and its national affiliate FSP has provided support since 2003 focusing on facilitating the joint work of Fisheries and the NGOs (FSPV and WB). The FSP and other non-government activities have centred on supporting relatively few villages (10-20) in developing management plans and Locally Managed Marine Areas, MPAs or tabus. Site selection tends to focus on N. Efate or places where ongoing support is envisaged by partners including the Fisheries Department. Though some of the areas have recorded slight increases in livelihood benefits through eco-tourism or marginally increased catches (Pascal 2011) the relatively expensive model has yet to demonstrate its widescale applicability or sustainability.

ISSUES, THREATS AND OPPORTUNITIES

- Traditional management is reportedly widespread but also under pressure and a national assessment of how it is performing and how it could be better supported is overdue.
- The important initiative of WSB in raising awareness forms the basis of national fisheries awareness approaches in collaboration with the Fisheries Department but reports suggest that fisheries rules are generally unknown in rural areas and increased access to information is needed.
- The Vanuatai network forms the most comprehensive national support network for CBRM at present and consideration could be given to how it can be supported and coverage increased, including through sub-national networks.
- Provincial offices are extremely constrained financially and there is generally very little operational budget for fisheries management
- Fisheries revenue exceeds expenditure and could easily accommodate an increased fisheries management budget
- Coastal development in Efate is cause of conflicts and concern

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- Corporate plan of the Ministry of Agriculture Quarantine Fisheries and Forests 2011-2015
- Fisheries Department 20/20 Strategic Plan, January 2013
- Tuna Management Plan
- Aquaculture Development Plan
- Marine Aquarium Trade Management Plan