

# STRATEGIC REVIEW OF INSHORE FISHERIES POLICIES AND STRATEGIES IN MELANESIA:

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

## PART I: GENERAL OVERVIEW

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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 MSG countries (Fiji, New Caledonia, Papua New Guinea, Solomon Islands, and Vanuatu) needed to take this process forward.

This 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.

- Part I constitutes a General overview as the main input to the Roadmap.
- Part II annexes the data and information gleaned from in-country reviews performed in Fiji, New Caledonia, Papua New Guinea, Solomon Islands, and Vanuatu.

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## ACRONYMS

ADB	Asian Development Bank
AUD	Australian Dollars
CbFM	Community-based Fisheries Management
CBRM	Community Based Resource Management
CCDP	Climate Compatible Development Plan
CFDA	Coastal Fisheries Development Agency
CFMDP	Coastal Fisheries Management and Development Project
CFP	French Pacific Franc
DEC	Department of Environment and Conservation
DFMR	Department of Fisheries and Marine Resources
DSP	Development Strategic Plan
EAFM	Eco-system Approaches to Fisheries Management
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ESEG	Environmentally Sustainable Economic Growth
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organisation
FCF	Fisheries Credit Facility
FJD	Fiji Dollars
FLMMA	Fiji Locally Managed Marine Area network
GDP	Gross Domestic Product
IFAD	Inshore Fish Aggregating Device
IFWG	Inshore Fisheries Working Group
IUU	Illegal, Unreported and Unregulated
LLG	Local Level Government
LMMA	Locally Managed Marine Area / network
MDG	Millennium Development Goal
MEA	Multilateral Environmental Agreements
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
MCS	Monitoring, Surveillance and Control
MMA	Marine Managed Area
MSG	Melanesian Spearhead Group
MTDS	Medium-Term Strategic Plan
MVFS	Morobe Village Fisheries Scheme
NDMO	National Disaster Management Office
NEC	National Executive Council
NFA	National Fisheries Authority
NFC	National Fisheries College
NGO	Non-government Organisation
PDF	Project Development Fund
PFO	Provincial Fisheries Officer
PGK	PNG Kina
PICTs	Pacific Island Countries and Territories
PNG	Papua New Guinea
RCFDP	Rural Coastal Fisheries Development Project
SBD	Solomon Islands Dollars
SILMMA	Solomon Islands Locally Managed Marine Area network
SPC	Secretariat of the Pacific Community
UBA	Underwater Breathing Apparatus
UN	United Nations
UPNG	University of Papua New Guinea
USP	University of the South Pacific
VAT	Vatu

## EXECUTIVE SUMMARY

The rapidly growing coastal population in most of Melanesia combined with the impacts of economic development suggests that achieving the sustainable management of coastal fisheries is becoming an urgent priority for food security. The economic value of the coastal fisheries sector is high though partially hidden by its subsistence nature and its value will become brutally apparent should rural populations need to seek alternative supplies of protein.

Regional and national policy guidance is supportive of greatly enhanced inshore fisheries management taking into account ecosystem approaches and building on one of the major assets of Melanesia, strong traditional rights over, and knowledge of, coastal resources which can form the backbone of community based co-management regimes.

National high level policy is generally supportive of increased investment in sustainable inshore fisheries management though sector policy and specific legislation is less so. The lack of resources, manpower and weaknesses in legislative support for inshore fisheries management found by this review were unsurprising and this review provides strong evidence that these areas bear considerably more attention and support from governments and donors.

However, these perennial issues are common across all sectors and are likely to be only slowly addressed in the context of other development and political priorities. Accordingly the review concentrates on identifying opportunities for “**building on existing strengths**”. Two such strengths are:

- **Communities:** The major strength, long identified, is that of Melanesian rural communities whose strong local governance and deep and complex knowledge systems counterbalance the weaknesses of central government in the same areas.
- **Staff:** Existing staff, usually working in challenging situations of lack of finance, understaffing and logistical constraints show remarkable insight and resourcefulness that if unleashed would go a long way to providing improved services for rural populations.

Recommendations discussed in this review and that could be considered in the development of an MSG roadmap for inshore fisheries include:

- Governments should prioritize development of national inshore fisheries strategies and workplans which build on existing staff and resources, lessons learned and partnerships but that focus on effective performance of assigned staff duties.
- Fisheries departments should adopt a “service delivery” approach to providing the most effective and widespread support to all fishers across the country, focusing on information provision and strategic support in the first instance.
- Increase cost-effectiveness and improve integrated coastal management/ecosystem approaches by collaborating with other sectors such as environment, climate change and disaster risk reduction.
- Employ cost-benefit or strategic analysis of proposed options before pursuing costly and generally ineffective standard approaches, particularly involving monitoring, stock assessments, MPAs and mariculture.
- Provide the legislative framework to support and empower communities to monitor, develop and enforce regulations at the community level as well as strengthening national monitoring and enforcement for marine export commodities, such as beche-de-mer, trochus and aquarium products.
- Financing of inshore fisheries management would be greatly improved by increasing cost-effectiveness of strategies but there is scope for supporting budgets through fisheries revenue from access fees, licencing and fines.
- Explore more appropriate training opportunities for Melanesia, possibly “on the job” and focusing on specific challenges that fisheries departments are facing in the context of service delivery and support.



## MELANESIA: PEOPLE AND THE SEA IN TROUBLE?

The importance of the sea and coastal areas to Melanesian peoples would seem beyond doubt but given the neglect that their management has experienced in terms of both policy and practice it is appropriate to lay out the basic facts and trends relating to coastal marine areas and the people that inhabit them.

### A RAPIDLY GROWING POPULATION CONCENTRATED MAINLY ON THE COASTS

Melanesia comprises 98% of the land mass of the Pacific Islands and is inhabited by 87% of its people (8.8 million). All the inhabitants of the smaller countries live relatively near the coast, PNG has seven times the land mass of the other Melanesian countries combined but nevertheless 61% of the population live within 100km of the coast. Crucially, Solomon Islands, Papua New Guinea and Vanuatu, along with Timor Leste, have the highest birth rates in Asia and the Pacific and amongst the highest birth and growth rates in the world (Table 1).

**Table 1. Population, land area, coastline and respective population densities and growth rates of Melanesian Countries. (sources SPC and Reefbase).**

	Population (2011 est.)	Land area (km <sup>2</sup> )	Population density (/ km <sup>2</sup> )	Crude birth rate [CBR] (‰)	Annual growth rate (%)	Coast line (km)	Coastal people/km coast
<b>MELANESIA</b>	<b>8,797,410</b>	<b>540,248</b>	<b>16.3</b>	<b>30</b>	<b>2.0</b>	<b>39,496</b>	<b>155.1</b>
Papua New Guinea	6,888,297	462,840	14.9	31	2.1	20,197	208.7
Fiji Islands	851,745	18,272	46.6	21	0.5	4,637	183.5
Solomon Islands	553,254	28,370	19.5	34	2.7	9,880	56.0
New Caledonia	252,331	18,576	13.6	15	1.3	2,254	111.9
Vanuatu	251,784	12,190	20.7	31	2.6	2,528	99.6

Population and land area data Secretariat of the Pacific Community ([www.spc.int/sdp](http://www.spc.int/sdp)), EEZ and coastline data from Pacific Islands Applied Geoscience Division of the SPC ([www.sopac.org](http://www.sopac.org)), Population within 100km of the coastline- Reefbase ([www.reefbase.org](http://www.reefbase.org)).

Despite the large extent of the countries' Exclusive Economic Zones the inhabitants have to rely on a relatively small area of land and coastal sea for the majority of their day to day activities (Table 2, Figure 1) and this vital area is almost entirely owned by the local tribes under systems of customary land and marine tenure.

**Table 2. Marine domain of Melanesian Countries and Territories and graphic comparison of areas of each. (SPC, WRI, and other sources listed).**

	EEZ Area <sup>a</sup>	Territorial waters <sup>b</sup>	Continental shelf area <sup>c</sup>	Inshore Fishing Areas <sup>d</sup>	Coral reef area (km <sup>2</sup> ) <sup>e</sup>
<b>Papua New Guinea</b>	<b>3,120,000</b>	<b>355,699</b>	<b>132,401</b>	<b>170,596</b>	<b>14,535</b>
<b>Fiji Islands</b>	<b>1,290,000</b>	<b>114,464</b>	<b>19,497</b>	<b>49,424</b>	<b>6,704</b>
<b>Solomon Islands</b>	<b>1,340,000</b>	<b>140,038</b>	<b>25,922</b>	<b>55,002</b>	<b>6,743</b>
<b>New Caledonia</b>	<b>1,740,000</b>	<b>68,665</b>	<b>46,257</b>	<b>28,666</b>	<b>7,450</b>
<b>Vanuatu</b>	<b>680,000</b>	<b>69,169</b>	<b>13,582</b>	<b>13,986</b>	<b>4,110</b>

Notes: a SPC statistics, b SPC PROCFish project, c WRI, d Seas Around Us project though in Fiji the I qoliqoli (traditional fishing grounds) are estimated at 25,588 km<sup>2</sup>, e Burke et al 2011 except for Spalding et al. 2001 in the case of Vanuatu.

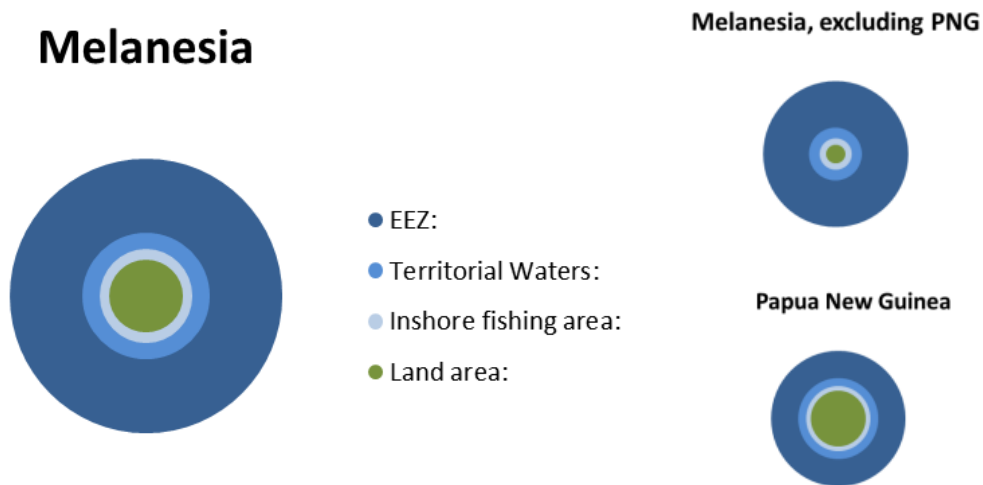


Figure 1: Graphic representation of the relative areas covered by the Exclusive Economic Zone and the territorial seas and inshore waters compared to the land mass in Melanesia (Data from Table 2).

## POPULATION GROWTH AND THE INCREASING NEED FOR FOOD

Given the relatively small land areas of these countries (except for PNG) it is not surprising that the inhabitants rely on the sea for a large part of their nutritional requirements, particularly the relatively small inshore fishing areas. Recent studies illustrate just how important the reliance - the populations of Solomon Islands and Vanuatu in particular obtain most of their animal protein from subsistence fishing (Table 3).

Table 3. Annual per capita fish consumption (kg), percentage of annual per capita fish consumption derived from subsistence fishing in Melanesia and the percentage of all animal protein contributed by fish (calculated from Household Income and Expenditure Surveys (HIES) or socio-economic surveys (SES) Bell et al 2009, \* World Bank 2000).

	National (HIES)	% from sub-sistence	Coastal (SES)	% all animal protein
<b>Papua New Guinea</b>	13	NA	53.3	
<b>Fiji</b>	20.7	35%	113	28%*
<b>Solomon Islands</b>	33	64%	118.3	92%
<b>New Caledonia'</b>	25.6	78%	43.2	
<b>Vanuatu</b>	20.3	51%	29.9	56%

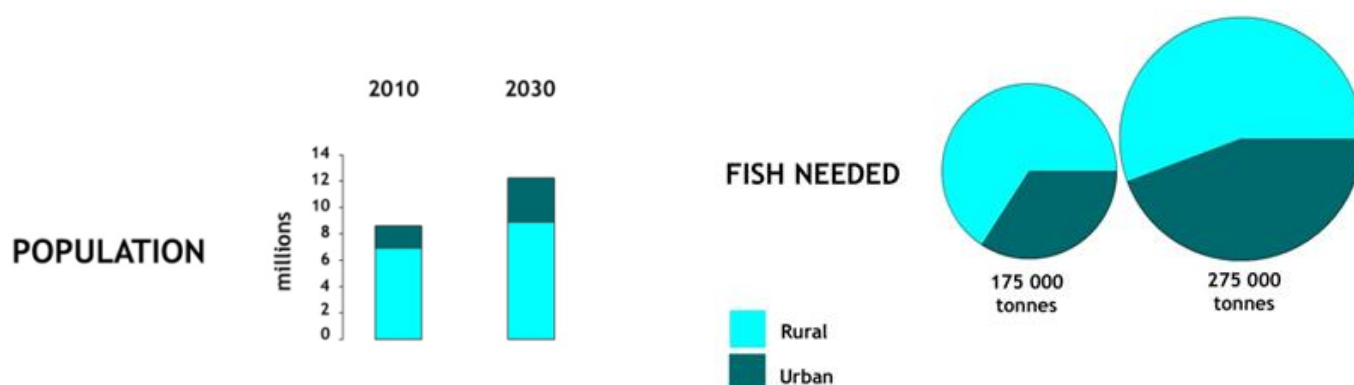


Figure 2: Projected population growth in rural and urban areas of Melanesia to 2030, and the fish needed for future food security (Secretariat for the Pacific Community and Bell 2007).

The data on the rapidly increasing population in Melanesia and the reliance on fish for food discussed above suggest that huge pressures will be exerted on the coastal fisheries in order to feed the population from the traditionally used food sources, calculations suggest that by 2030 an additional 60% of fish would be required compared to 2010 (Figure 2).

## COASTAL AREAS WILL BE UNDER PRESSURE AND NOT ABLE TO MEET THE DEMAND FOR FISH

The state of all the coastal fisheries in Melanesia are not accurately known but are widely assumed to be at or near maximum capacity. Bell et al. (2009), using information on estimates of coral reef production and current estimated catches, clearly suggest that demand will greatly exceed the capacity of coastal systems to produce - where it has not done so already (Table 4).

**Table 4: Estimated production in tonnes of the entire national coastal fishery resources in Melanesia compared to current and projected demand (Bell et al. 2009)**

	Production based on coral reef area	Production based on catches	Demand in 2010	Demand in 2030
<b>PNG</b>	66,600	25,500	108,400	178,900
<b>Fiji</b>	30,000	23,250	30,000	37,500
<b>Solomon Is</b>	13,800	11,150	18,000	29,900
<b>New Caledonia</b>	66,500	12,600	9,500	12,300
<b>Vanuatu</b>	3,750	2,500	8,200	13,600

Recognizing the impending crisis, planners and researchers are exploring alternatives such as freshwater aquaculture and Fish Aggregating Devices. But the highest priority remains improving the management of the inshore fisheries so that they at least continue producing at current levels and are not driven to collapse (Bell et al. 2011)

## THE (HIDDEN) ECONOMIC VALUE OF COASTAL FISHERIES

Because the bulk of coastal fisheries in Melanesia goes to subsistence use, or at least is consumed locally, the value of these fisheries are often not considered in national development planning and accounting. Estimates of coastal and subsistence fisheries catches are quite hard to derive but Gillett (2009) provides some indicative figures that highlight the value of coastal subsistence compared to coastal commercial fisheries (Table 5). The higher value of offshore fisheries is dominated by tuna catches; this value while impressive and potentially distracting does not necessarily stay in country. Gillett (2009) suggests that in the Pacific Islands as a whole, coastal fisheries contribute nearly 50% of GDP (two thirds of which is from subsistence fishing), has by far the largest contribution to employment and provides most of the fish for national nutrition.

**Table 5. Estimations of annual production value in US dollars of Melanesian fisheries in 2007 (Gillett 2009).**

	Coastal commercial	Coastal subsistence	Offshore locally based	Offshore foreign-based
<b>PNG</b>	26,176,800	34,357,050	335,092,369	374,207,616
<b>Fiji</b>	32,384,880	32,444,852	28,108,876	506,164
<b>Solomon Islands</b>	3,314,300	11,004,000	32,732,300	153,878,998
<b>New Caledonia</b>	8,043,840	14,598,080	7,926,800	0
<b>Vanuatu</b>	2,055,712	5,420,760	0	24,555,773
<b>Total (USD)</b>	<b>71,975,532</b>	<b>97,824,742</b>	<b>403,860,346</b>	<b>553,148,551</b>

## COASTAL FISHERIES IN TROUBLE, MELANESIA IN TROUBLE

In addition to the increased pressure on the limited coastal resources exerted by a rapidly growing population, fishing pressure is being exacerbated by access to improved or destructive fishing technology and the increasing need for cash from marketing fish. To these pressures others are being added in the form of increasing pollution, coastal development and the impacts of watershed activities such as mining and logging (Apia Policy 2008).

In summary, the potential consequences of a collapse in inshore fisheries are devastating:

- Coastal fisheries make important contributions to GDP, have by far the largest contribution to employment of all fisheries activities and provide most of the fish for national nutrition.
- A reduction in fisheries productivity will be felt hardest by those who rely on the fish for subsistence and have relatively little access to the cash economy and little options to purchase alternative sources of protein.
- Reductions in the health of coastal fisheries resources will also have major impacts on the health and culture of coastal communities. Alternative store bought food and reduction in fresh fish protein is likely to be associated with a rise in non-communicable diseases (Preston 2005).
- Relatively healthy inshore fishery resources have been observed to provide an emergency supply of food when natural disaster such as cyclones or tsunamis disrupt normal rural livelihoods.
- Overexploitation of coastal resources will also cause potentially irreversible changes to biodiversity and have major impacts on the culture of people so intimately linked to these resources.

*In recognition of all the above the Pacific Islands Heads of Fisheries called for:*

***Urgent action on the management of fisheries and coastal ecosystems***

*(Apia Policy 2008)*

## EVOLUTION OF INSHORE FISHERIES MANAGEMENT IN MELANESIA

Traditional tenure and governance have historically been the management regime of inshore and coastal resources in the Pacific (Johannes 2002). Despite the erosion suffered during the colonial and more recent periods it is fair to say that customary tenure and community governance continue to provide the core of inshore resource management in Melanesia today. The importance of this asset has long been recognized but responses to calls for the strengthening of community approaches have been a long time in coming (e.g. calls by Johannes 1978, Munro and Williams 1985, Ruddle 1988, Ledua 1995, Diake 1995, Jimmy 1995, World Bank 1999).

### WORKING WITH WHAT WE HAVE

Inshore fisheries management in the years after independence played a minor role compared to the high priority accorded fisheries development approaches. When management was addressed it tended to use foreign models of command and control that were difficult, if not impossible, to implement given the constraints imposed by lack of finances and the extended island geographies.

The first national approach to inshore fisheries management building specifically on Melanesian strengths was pioneered in Vanuatu in the early 1990s. The Fisheries Department strategically boosted community management through awareness-raising and the setting of simple criteria for engagement and support strategies. Services such as the provision of trochus for reseedling were provided subject to the criteria and with the explicit aim of supporting community management (Amos 1993, Johannes and Hickey 2004).

Around about the same time the Fiji Fisheries Department commenced some isolated interventions in coastal villages which effectively strengthened community management and the local establishment of fishing rules. By the end of the 1990s Fiji and Solomon Islands had accumulated a number of experiences in community based management, often with the help of local and international NGOs. Elsewhere in the region, Samoa had made significant progress with a major Australian funded project resulting in a restructured Fisheries Department and a Community Fisheries Unit supporting community based fisheries management (Govan et al. 2009a).

From 2000 to the present day there has been an unprecedented expansion of over 400 documented community-based management sites in Melanesia driven largely by conservation-donor funded NGOs and universities in partnership with Fisheries and Environment Departments. Regional governments were supported by the Coastal Fisheries Program of the SPC while the NGO community initiatives were supported by a network of the regional and national NGOs, community and government representatives and the regional university, USP, – the Locally Managed Marine Area (LMMA) Network.

The terminology relating to these approaches is varied; LMMA, VBRMA, CBRM, CBFM, VFMP, CBAM, LMA, CEAFM<sup>1</sup>, to name a few. In addition, the names for management tools used by communities such as MPAs (Marine Protected Areas) and MMAs (Marine Managed Areas) are often interchanged. For simplicity this report adopts the generic Community Based Resource/Fisheries Management or CBRM/CBFM to cover all the approaches, CBRM or even CEAFM (Community-based Ecosystem Approach to Fisheries Management) may be preferred to emphasize the need to consider the entire ecosystem. A large body of experience has been accumulated in Fiji, Solomon Islands, PNG and Vanuatu which is dealt with in the country annexes (Part II) but some of the key lessons learned can be summarized (World Bank 1999, King and Lambeth 2000, Johannes and Hickey 2004, Govan et al 2009ab, Boso et al. 2010, Vierros et al. 2010):

- CBRM approaches are locally popular and may be sustained
- CBRM usually results in closed areas and sometimes in management of the wider customary owned area
- The closed areas usually follow the traditional model of tabus or temporary closures
- Closed areas often see an increase in stocks (until they are opened)
- There is some evidence for fisheries benefits of CBRM
- There may be conservation benefits but these are harder to detect
- Networks of peers have proven to be important tools at all scales: regional, national, provincial and sub-provincial

<sup>1</sup> Locally Managed Marine Areas, Village Based Resource Management Areas, Community Based Resource Management, Community Based Fisheries Management, Village Fisheries Management Plans, Community Based Adaptive Management, Locally Managed Areas, Community-based Ecosystem Approach to Fisheries Management

- Governments have adopted a policy of collaboration or partnership with NGOs through the networks
- The networks have proven a useful tool to inform and consult in policy development
- Government departments can and do play a lead role in some of these networks
- CBRM can and probably should form the basis for integrated approaches such as Ecosystem Approaches, Integrated Coastal Management and Climate Change Adaptation with strong potential links to Disaster Risk Reduction and other services relating to livelihoods.

Some of the emerging issues identified that have yet to be comprehensively addressed for CBRM to realize its full potential include:

- Determining the appropriate role of science and monitoring compared to other management functions
- Development of approaches better suited to the constraints of the governments that are expected to adopt them as long term strategies – particularly in terms of cost-effectiveness and meeting priority policy goals
- Defining the appropriate or optimum long term role and activities for government and other partners
- Emphasizing management of the whole customary owned area and not just the small closed areas or tabus which alone are not likely to achieve fisheries management objectives.
- Design and application of adequate supportive legislation in some countries

#### THE REGIONAL POLICY RESPONSE - THE APIA POLICY

In 2002 the Pacific Islands Regional Ocean Policy and Integrated Strategic Action Framework, endorsed by Pacific Island leaders, contained sections applicable to coastal fisheries and acknowledged the role of coastal communities. The Pacific Islands Forum Leaders subsequently amended the Pacific Plan for Strengthening Regional Cooperation and Integration (Pacific Plan) at their meeting in Tonga in 2007. The Vava'u Declaration on Pacific Fisheries Resources, from that same meeting placed high priority on 'the development and management of coastal/inshore fisheries and aquaculture to support food security, sustainable livelihoods and economic growth for current and future generations of Pacific people'.

The Apia Policy (2008) is the first regional mechanism developed to harmonise national policies and activities that address the long-term sustainability of coastal fisheries resources and maintenance of healthy marine ecosystems. It provides guiding principles for strategic action at national and regional levels to address the problems and challenges encountered by PICTs in managing their coastal fisheries. The vision, goal and 6 principles are:

##### **The Pacific Islands Regional Coastal Fisheries Management Policy (Apia Policy)**

**The Vision:** Healthy marine ecosystems and sustainable coastal fisheries that provide seafood security and continuing livelihoods for current and future generations of Pacific people.

**The Goal:** To ensure the optimal and sustainable use of coastal fisheries and their ecosystems by Pacific Island communities'.

Six guiding principles:

1. *Improving our understanding* of important fisheries species and of the ecosystems on which they depend.
2. *Sustainably managing coastal fisheries*, reducing their adverse impacts on coastal ecosystems, and optimizing production to meet local nutritional needs and contribute to economic development.
3. *Creating community partnerships* to support the customary and traditional management of nearby ecosystems and fish stocks.
4. *Creating stakeholder collaborations to manage ecosystems* and reduce the negative environmental impacts of non-fisheries activities, including those that result in high loads of silt and nutrients in coastal waters.
5. Promoting the *participation of women and youth* in all fisheries-related activities.
6. Enhancing *regional exchange and sharing of information* on common areas of interest relating to the management of ecosystems and fisheries.

The Apia Policy outlined a number of strategic actions for countries and supporting agencies particularly the SPC. One of the key features of the policy is that for the first time customary and traditional management is explicitly supported; in effect CBRM. The policy also promotes the partnership approach to ecosystem management and the role of women and youth. The Apia Policy provides a strong basis for CBRM and Ecosystem Approaches to Fisheries Management

(EAFM) for guidance to legislators or donors should this be required. A more comprehensive overview of the policy and its implementation is provided in Appendix 4: Overview of the Apia Policy and its Implementation.

## COMMUNITY BASED RESOURCE MANAGEMENT AND ITS IMPLICATIONS

Identifying community based approaches as a key principle and strategy places the Melanesian countries at the cutting edge of internationally agreed best practice. The prevailing customary marine tenure system combined with the frequent use of tabus or marine reserves equates to the recently evolving consensus in the scientific world that inshore fisheries management may be best addressed through Territorial Use Rights in Fisheries (TURFs) combined with reserves (e.g. Costello et al 2012, Bell et al. 2011).

The major implication of this is perhaps that Melanesia may not necessarily expect appropriate advice from outside the region as there are few if any countries in the world to look to for guidance and expertise in implementing CBRM at national scale and certainly not within the special context of limited financial resources and customary tenure prevalent in Melanesia.

*Implementation of community based resource management approaches to managing national inshore fisheries is at the cutting edge international best practice and Melanesia will need to break new ground to achieve appropriate and sustainable systems*

Community Based Resource Management as envisaged under the Apia Policy acknowledges that the involvement of fishing communities and the promotion of traditional systems that allocate fishing rights to a limited number of users may represent the only chance for subsistence fisheries to be exploited on a sustainable basis. A definition derived from the Apia Policy and used in the context of this review, is as follows:

### Apia Policy: **Definition of Community Based Fisheries Management**

**Encouraging and motivating communities to manage their own marine resources**

#### **Basis:**

- If communities are encouraged to set their own conservation rules, as many have done in the past, they are more likely to be respected.
- In addition, under community ownership, management measures are enforced by the communities themselves.

CBRM/CBFM builds on the repositories of valuable traditional knowledge of fish stocks and high level of awareness of the marine environment that fishing communities often have. The other important factor is that many communities have some degree of control, either legal or traditionally assumed, over adjacent waters (Apia Policy 2008).

In identifying that the “responsible management of fisheries resources will only be achieved when fishing communities themselves see it as their responsibility rather than that of the government” the Apia Policy also states clearly that:

### Apia Policy: **On rights**

To enable [communities] to manage adjacent coastal waters, fishing communities require some degree of control, either legal or traditionally assumed, of these waters. Where fishing communities have no control over people fishing in adjacent waters, marine usage rights may have to be allocated to fishing communities.

Strategic actions involve fisheries agencies actively encouraging fishing communities to take responsibility for their adjacent coasts and fisheries.

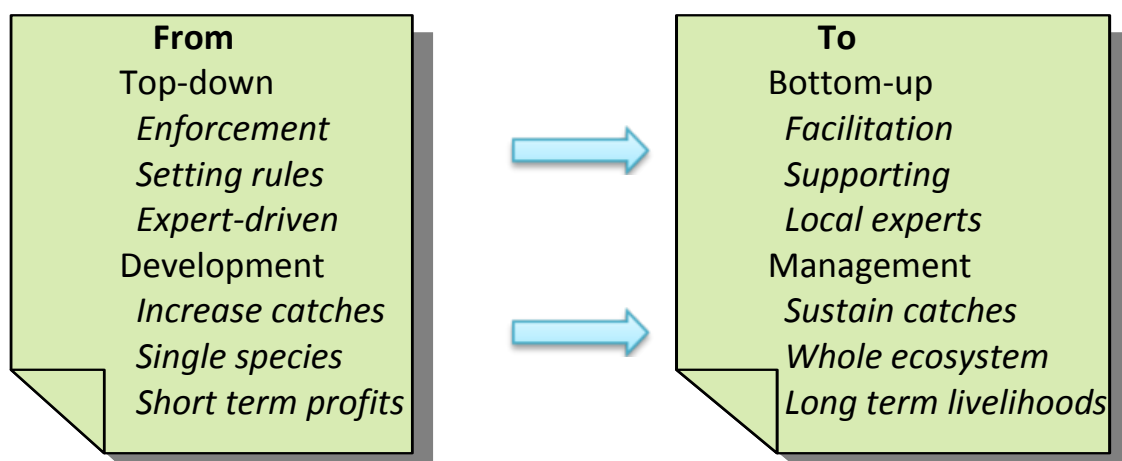
### Apia Policy: **Strategic actions of Principle 3**

- (a) To support and strengthen the involvement of fishing communities in fisheries management and monitoring.
- (b) To develop legal frameworks that allow for the development of community fisheries by-laws.
- (c) To develop, re-establish or strengthen property-use rights.

These definitions and statements are important in the context of this review as they provide the key framework against which to review inshore policies and strategies in Solomon Islands, Fiji, PNG, New Caledonia and Vanuatu.

## THE MAJOR IMPLICATIONS OF RECENT POLICY SHIFTS FOR IMPLEMENTERS

The major shifts in approaches to inshore fisheries management embodied in the Apia Policy as in much of the national high level policy requires major changes in thinking and the way things are done by fisheries institutions:



The two key areas likely to require major review in order to accommodate the shifts from top-down to bottom-up approaches to fisheries management are:

- Enabling legislation for CBRM
- Role and functions of the Fishery Departments

The features of enabling legislation and the roles and functions of Fishery Departments for CBRM have not been explicitly identified for Melanesia. As a first step this review consulted the international and regional literature and regional experts to develop and outline basic characteristics.

*A key finding of this study is that the implications of the policy shifts that are contained in the Apia Policy have not yet been fully appreciated or incorporated by most Fisheries staff and institutions*

## KEY FEATURES OF SUPPORTIVE LEGISLATION FOR CBFM IN MELANESIA

Based on the Apia Policy and consultation with regional fisheries officers and experts it is proposed that at least the following issues should be addressed in fisheries legislation to provide an adequate enabling environment for CBFM (Table 6).

**Table 6: Features to be considered in order to provide a minimum enabling environment for CBFM in Melanesia (source: interviewees).**

An enabling legal environment for CBFM:	
<b>Must:</b>	Clarify and, if necessary, allocate fishing rights to the fishing communities
<b>Should:</b>	Define a procedure for acquiring regulated access for subsistence fishing by those who may need it
<b>Should:</b>	Provide a simple and easy procedure for the primary rights holders to register management rules that they may develop and so be eligible for legal enforcement or state services
<b>Should:</b>	Provide a mechanism for delegating monitoring and enforcement authority to local individuals
<b>May:</b>	Outline the hierarchy of national, subnational and community rules and plans to ensure clarity and coherence

## PRIORITY FUNCTIONS OF GOVERNMENT AGENCIES TO SUPPORT CBFM IN MELANESIA

In order to provide support for CBRM the government role needs to be much more that of facilitator and support service provider while communities take on the bulk of tasks traditionally carried out by fisheries institutions: problem identification, rule setting based on their own needs and enforcement activities (Table 7).

**Table 7: Priority co-management activities and roles of government and communities in a community-based fisheries management system for Melanesia. The activities are listed in numerical order of priority and essential activities are marked bold\*.**

Activity	Government / province	Community / local
Information provision	<ol style="list-style-type: none"> <li><b>1. Provide scientific/best practice information and advice (including laws) to all communities*</b></li> <li>2. Develop and maintain systems to ensure information feedback and recording between communities and government agencies</li> <li>3. Maintain centralized and accessible records on licenses, exports, prices, markets landings</li> <li>4. A few specific surveys, stock assessments or studies.</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Community maintains, uses and develops local and traditional knowledge, tenure and rights systems and governance institutions*.</b></li> <li><b>2. Community performs local observations and issue identification</b></li> <li>3. Community information collection and recording (simple as possible)</li> </ol>
Management (Formulation, dissemination and implementation of management policy and rules)	<ol style="list-style-type: none"> <li><b>1. Secure and maintain political and public support for inshore fisheries management and the importance to this of traditional knowledge, tenure systems and governance institutions*</b></li> <li><b>2. Develop national and sub-national policy, enabling legislation and institutions, based on experience*</b></li> <li>3. Support community implementation of management measures in priority cases (chosen strategically and implemented cost-effectively)</li> <li>4. Provide liaison support closer to communities (e.g. provincial/subnational staff, networks, community agents)</li> <li>5. Coordinate across sectors and levels to ensure ecosystem approach</li> <li>6. Address specific priority fisheries problems or provide supplementary projects (e.g. FADs or ice) dependent on functioning community management</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Detect emerging resource issues*</b></li> <li><b>2. Implement, track and modify simple community rules if needed to address priority community issues or objectives*</b></li> <li>3. Sharing of experience and issues to promote improved practice between communities and inform national and sub-national policy.</li> </ol>
Monitoring and enforcement	<ol style="list-style-type: none"> <li><b>1. Monitor and enforce centrally - targeting marketing of illegal fish, import and sale of illegal fishing gear, export quotas, activities and practices of middle-men, size restrictions and licence conditions*</b></li> <li><b>2. Training and support of local wardens or honorary officers and local Fisheries and Police staff*</b></li> <li>3. Liaise with police and courts to build well informed and proactive enforcement networks or partnership</li> <li>4. Enforcement or conflict management support for issues beyond community capacity or jurisdiction</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Monitor and enforce restrictions to access of community fishing areas*</b></li> <li><b>2. Enforce any local rules that may apply* and promote compliance with national/sub-national rules*</b></li> <li><b>3. Assess, record and communicate management outcomes and major issues to government or designated liaison*</b></li> <li><b>4. Review fisheries management measures and institutions against objectives periodically*</b></li> </ol>

An annotated and expanded list of proposed government and community roles and functions is provided in *Appendix 3: Proposed co-management roles of government and communities for CBFM in Melanesia*. In interpreting this list the functions marked as priorities are those considered to be the minimum required to achieve CBFM and these are further

prioritized in numerical order. Thus for instance, communities need to be informed enough to detect important issues but if these are not critical then they may not need to proceed with improved management. Another example is that if government has not provided information to communities essential for problem detection and first response then it would not be appropriate to embark on surveys or stock assessments.

#### THE ROLE OF INFORMATION – WHO NEEDS WHAT?

One of the most striking differences between CBRM approaches and centralized or top-down fisheries management relates to that most important and potentially costly resource – information.

CBRM is considered ideally suited to the tropical coastal systems of Melanesia. These ecosystems are some of the most diverse and complex in the world and it is generally considered that conventional stock assessments will not provide cost-effective information for the appropriate decision-makers in these cases (Wilson 2007).

The widely acknowledged solution to information needs resides in the key decision-makers themselves. The main day to day actors in CBRM are the communities and in Melanesia these are the repository of a wealth of traditional and local knowledge that is one of the main justifications for adopting CBRM approaches. Communities should be supported in using their knowledge and available information to make sustainable resource management decisions (Johannes 1998).

This is supported by numerous studies in Melanesia. One such study found that out of 97 management rules in 31 sites there was not a single case where the rules could not have been adopted without quantitative stock assessment (World Bank 1999). Similarly observations were made in Vanuatu (Johannes and Hickey 2004) and in the majority of Locally Managed Marine Areas in Fiji and Solomon Islands in which quantitative data were generally not used by communities for decision-making even where they were available (Rowe 2007, Govan et al. 2009a).

Government information related activities can be more usefully dedicated to providing useful scientific or empirical information to community managers and to obtaining information that may be relatively easy and cheap to collect while providing adequate indicators of stock health or performance of national CBRM strategies (e.g. market and export data).

*In CBRM, communities are supported and encouraged to use locally available information in the first instance, supplemented by basic scientific information and management experiences from elsewhere. As mentioned by one interviewee: “time spent by experts with “their heads underwater” [surveying or monitoring] instead of talking to community fishermen may well be wasted!”*

There may be cases where quantitative stock assessments are unavoidable for example in deciding to lift or maintain a national moratorium of a valuable commercial species in the face of political pressure. But given the costs and the potential alternative uses of the funds the decision should be taken strategically.

The provision of information or “awareness-raising” has long been on the agenda and it is surprising that in three countries surveyed a number of independent observers estimated that around 90% of communities do not know the fisheries rules let alone the biological rationale behind them. This may seem surprising given the often sterling awareness-raising efforts of NGOs and sometimes of Fishery or Environment Departments but may be explained by the extremely varied content and quality of the information used and the lack of explicit coverage targets (e.g. 90% of fishers).

It is important to specify criteria for information used, not only for the content but also for its form in order to enable problem detection, encourage action and improve community decisions on resource management, food security and resilience to climate change. In most cases the information will reach communities with little other immediate support so the information should be as useful and action oriented as possible.

An example from Solomon Islands is as follows:

#### Criteria for action-oriented public information products relating to CBRM/CEAFM (Govan 2012)

- **Specific:** Address specific problems that people or communities are facing, if necessary it should help communities detect or identify emerging problems (e.g. if you are having to travel further to catch fish...)
- **Targeted:** Clearly designed for specific recipients and their needs – community members may benefit from specific consideration to the way the information is presented

- **Practical:** Information should assist targets in identifying issues BUT ALSO provide tested examples of possible practical actions and solutions people can try
- **Linking.** Provide an entry point for seeking further information or support either through others working on this (pilot communities) or various service providers (e.g. names and addresses of provincial offices or local communities that can provide more info).

Frequently, lack of appropriate budgets are cited as an impediment to achieving wide dissemination of existing information to communities and the extent to which this is supported by the findings of this study will be discussed in the next section. However, provincial fisheries officers are likely to be able to identify a number of cost-effective means of achieving wide information coverage as the following example, again from Solomon Islands shows.

Cost-effective strategies for informing communities as proposed by Ministry of Fisheries staff in Central Islands and Guadalcanal Provinces in Solomon Islands (Govan 2012).

- Support and use associations and other groups (eg cooperatives, councils of chiefs)
- Hold events and present information at multi-village gatherings (church, markets etc)
- Make use of youth groups and activities (church outreach, music etc)
- Pool transport or combine trips and activities between sectors (education, health, NDMO)
- Use SIBC and FM radio for key information and to provide contacts for further info
- Ensure representatives from other communities attend community workshops or training
- Locate demonstration sites where other communities visit (eg clinics, markets, schools)
- Set up local teams, part time promoters or honorary fish wardens
- Networks of villages or stakeholders including exchange visits
- Train, brief or provide info to other field staff to include in their activities or plans (Ward Development, NDMOs, other NGOs, church leaders)
- Billboards in provincial centres, churches, schools and clinics
- Engage with and involve schools and teachers, “adopt an MPA”, curriculum etc.

Countries have used or continue to occasionally use public radio to improve community awareness though, despite apparent enthusiasm, this does not seem to receive consistent support. Other examples of strategic approaches to information dissemination and collection exist in Fiji and Vanuatu.

### **Cost effective tracking of CBRM in Fiji**

Various approaches to community based monitoring were trialed in Fiji and found that communities can indeed collect quantitative data. However the costs in terms of training and support ultimately outweighed the utility of the data generated either for coordinating organizations or the communities and so a more strategic approach has been adopted in which the bulk of the 200+ FLMMMA sites collect and report against basic qualitative indicators in the form of a guided questionnaire. This provides key indicators of progress and allows early detection of emerging problems in a cost effective manner. A few sites do perform more rigorous quantitative monitoring which allows the system to be checked along with more in-depth assessment of management and resource trends (FLMMMA 2010).

In Vanuatu the NGO Wan Smol Bag works in close collaboration with the Fisheries Department and are a mainstay in community awareness programs. Originally working mainly with community theatre they have used many different approaches and now run an effective network of community agents or “turtle monitors” that are based in hundreds of villages across the country. This network is a conduit for information to communities on the fisheries laws.

## RECENT PROGRESS IN INSHORE FISHERIES MANAGEMENT IN MELANESIA

The following section presents the results of the in-country survey into the policy, legislation, institutional budgets, structure and actions for inshore fisheries management taking into account the implications discussed above. The assumption is that it will take some time for countries to adapt to the policy shift towards sustainable management of inshore fisheries and CBRM approaches – the question is how far have they progressed and what are the main achievements and challenges. The detailed country reports are presented in Part II.

### POLITICAL WILL: PROMISING SIGNS BUT STILL A LONG WAY TO GO

The prime ministers of Fiji, Vanuatu and Solomon Islands represented their countries along with very high level colleagues from these and the remaining Melanesian countries at the Special Melanesian Spearhead Group Summit in March 2012. One of the unexpected outcomes of this meeting was the strong interest in the health of inshore fisheries and the agreement to develop a roadmap for the protection of these fisheries. This is perhaps one of the strongest statements of political will to date for the sustainable management of inshore fisheries.

However, respondents in all countries except perhaps New Caledonia reported numerous instances of lower level political pressure against the best interests of sustainable management. This pressure ranged from intense lobbying to lift moratoria despite biological evidence to the contrary, the reallocation of funds from management to constituency fisheries development projects, locally exempting unsustainable fishing practices (such as UBA) from bans and exerting intense pressure to build more fishery centres regardless of the capacity of local fisheries stocks to handle the expected increased market pressure.

*Possible solutions suggested to mitigate local political pressure working against the interests of sustainable management include political responses at the highest level, the leaders; ensuring evidence-based decision-making and making more use of the high level policy which is largely supportive of sustainable management.*

### HIGH LEVEL POLICY GENERALLY SUPPORTS SUSTAINABLE MANAGEMENT AND FOOD SECURITY

High level policy, national development plans or the equivalent, is extremely supportive of sustainable resource management, protection of the environment and food security with the exception of PNG where the balance is tipped towards economic development. In the other 4 countries the policy accurately identifies appropriate priority strategies to improve sustainable inshore management such as legal and institutional reform, strengthening of Fisheries Departments, partnerships with communities for community management, community capacity building and integrated or even ecosystem approaches (SI) to management.

Policy at the level of governing political party emphasizes the importance of sustainable management but also makes provision for support of local fishermen or improved access to markets that could potentially undermine management. However, some of the development, such as mariculture and onshore tuna processing, are clearly intended to divert reliance from inshore fisheries (SI and PNG).

### SECTOR POLICY PROVIDING MIXED MESSAGES

Sector policy promotes sustainable management, particularly at the higher level, but inshore fisheries management actions such as community management plans and awareness-raising generally form a relatively small part of the combined work program of Fisheries Departments except perhaps for Vanuatu. Work programs also include mariculture and freshwater aquaculture, inshore and offshore commercial, compliance, licencing amongst others. Only one country has an Inshore Fisheries Management Strategy (SI). In all cases there are many proposed activities that, unless far better integrated and controlled, stand to undermine sustainable management, particularly those relating to improving market access and marketing infrastructure, transport and in particular ice-making and fisheries centres. The emphasis on relatively expensive interventions such as hatcheries for mariculture and fisheries centres also has the potential to divert resources from management activities – whether this is the case or not is explored below.

No countries have a clearly defined strategy or approach to supporting inshore fisheries management that specifies what the specific objectives and targets are, who should implement what specifically and by when. The closest to this is the Solomon Islands Inshore Fisheries Strategy but it still does not provide adequate detail for implementation.

Three countries mention partnerships with NGOs as a strategy for sustainable resource management (SI, FJ, Van) and in two cases the NGOs (Van.) or umbrella network (SI) are identified. This appears to be a wise strategy as the NGOs are better funded, extremely active in the field and in these countries the Fisheries Agency is strategically placed to monitor and influence their activities in line with national policy objectives. The NGO networks working on inshore fisheries management and conservation are now coordinated from the Fisheries Departments in Fiji and Solomon Islands.

The NGOs have taken a variety of approaches to CBRM, some of which are expensive or not specifically directed at inshore fisheries management, and it seems that Fisheries Departments have yet to evaluate approaches that would best meet national interests or suit the context of national institutions.

The environment sector, unsurprisingly, supports sustainable resource management and importantly all countries propose ecosystem approaches including working closely with the Fisheries Departments.

*Sector policy needs to provide better guidance for the implementation of inshore fisheries management and CBRM. Such guidance should integrate the other Fisheries Department inshore activities to ensure they do not undermine management and potentially provide a framework for all interventions.*

#### LEGISLATION: STILL A WORK IN PROGRESS BUT SO FAR NOT A BARRIER

Developing or reviewing legislation has been a great challenge, procedures are lengthy, and delays are not always transparently justified. Vanuatu has potentially the most supportive enabling environment for CBRM by dint of the clear allocation of fishing rights to customary owners as does potentially PNG. The lack of clarity on community fishing rights in the other countries has not prevented the rapid spread of CBRM or even its policy support. In the case of Fiji in particular, given the prevalence of CBRM over more than half the coastal area there is increasing potential for conflict and even disillusionment by communities unless the issue of fishing rights and obligations is addressed. An overview of country legislation based on the features listed in Table 6 is provided below (Table 8).

**Table 8: Overview of legal environment in Melanesia and its potential for enabling CBRM.**

	Fiji Islands	New Caledonia	Papua New Guinea	Solomon Islands	Vanuatu
<b>Community fishing rights</b>	Rights exist but not adequately defined	Not recognized	Customary rights recognized in the constitution	Under review but possibly adequate	Adequate. Customary marine tenure recognized
<b>Access for subsistence</b>	Fishing for subsistence is allowed but may undermine local rules.	Recreational and subsistence fishing is allowed. Commercial requires a licence	Dealt with locally	Dealt with locally	Dealt with locally under CMT
<b>Formalizing local management rules</b>	No practical provision. Fishing for subsistence has precedence over local rights. MPAs may be gazetted but not a practicable or popular approach.	Not formally but there are some practical experiences in the local management of beche de mer	Possible under provincial and local level government provisions	Possible under provincial ordinance and by-laws though so far not utilized	CMT provided potentially adequate basis. MPAs under fisheries and environmental law. Provinces could make by-laws.
<b>Delegated authority</b>	Community fish wardens	No provision	Not in practice but the minister may have powers to delegate authority	Provincial ordinance may make provision for local authorized officers. No uptake yet	Provision for authorized officers

It is important to note that in four countries the legislation has been reviewed after substantial national experience has been generated in the application of CBRM. Despite hitches in final promulgation of some of this legislation it appears

to be a good if possibly unintended strategy as it allows experiences to be incorporated into a well informed and supportive legislation.

The example of Fiji suggests that, as national systems of CBRM advance, sooner or later the limitations of outdated laws will be met. Fiji and Solomon Islands are both advanced in the development of new legislation. In Fiji the third draft of an Inshore Fisheries Decree has been put on hold for at least the next year, in Solomon Islands the Fisheries Bill of 2010 is still awaiting parliamentary hearing and in PNG 2012 amendments to the 1998 Fisheries Act are still on hold. The final shape of these important instruments is hard to predict but may resolve some of the issues above.

*Though legislation may be in need of review, particularly in Fiji, the weaknesses in the existing legislation should not prevent Fisheries Departments, communities and other stakeholders carrying out priority CBRM support activities.*

#### GOVERNMENT EXPENDITURE ON INSHORE FISHERIES MANAGEMENT IS LOW

Respondents during the course of this study repeatedly suggested that there is not enough money and that government budgets do not prioritize fisheries at all let alone inshore fisheries management. To provide some sort of comparison fisheries department budgets were compared to the value of the fisheries, to the calculated contribution of fisheries to Gross Domestic Product and to total government expenditure. Given the difficulties in obtaining standard comparable data for the same year as well as other data limitations (see Part II) the figures are for indicative purposes only (Table 9).

**Table 9: Indicative value in US dollars of fisheries compared to Fishery Department recurrent budgets and Gross Domestic Product (GDP). The value of the fisheries and contribution to GDP are based on the figures recalculated by Gillett (2009) for 2007. The Fiji and New Caledonia Fisheries Department budgets include capital/development expenditure. See Gillett (2009) for methods used for calculating the value of subsistence fisheries.**

('000s USD)	Fiji	New Caledonia	PNG	Solomon Islands	Vanuatu	Year and source
<b>A. Value of Fisheries</b>	<b>103,550</b>	<b>48,046</b>	<b>843,974</b>	<b>202,438</b>	<b>33,091</b>	<b>2007<sup>a</sup></b>
% contribution to GDP	1.70%	0.30%	3.12%	6.00%	1.34%	2007 <sup>b</sup>
<b>B. Value of Coastal Fisheries</b>	<b>67,647</b>	<b>23,663</b>	<b>64,956</b>	<b>14,318</b>	<b>7,616</b>	<b>2007<sup>a</sup></b>
% contribution to GDP	1.40%	0.21%	0.86%	2.30%	1.28%	2007 <sup>b</sup>
<b>C. FD total recurrent budget</b>	<b>2,914<sup>c,d</sup></b>	<b>6,727<sup>c</sup></b>	<b>43,265</b>	<b>1,464<sup>e</sup></b>	<b>887</b>	<b>2012<sup>f</sup></b>
FD total budget / value fisheries (C/A %)	3.50% <sup>c,d</sup>	14.00% <sup>c</sup>	5.13%	0.80% <sup>e</sup>	2.61%	2007
FD total budget / govt. spending (%)	0.34% <sup>c,d</sup>	NA	1.40% <sup>g</sup>	0.70% <sup>e</sup>	0.50%	2010
<b>D. FD coastal fisheries management budget (Estimated)</b>	<b>735<sup>*</sup></b>	<b>1,825</b>	<b>2,585</b>	<b>88</b>	<b>202</b>	<b>f</b>
FD coastal fisheries management budget / value of coastal fishery (D/B %)	1.40% <sup>*</sup>	7.71%	3.98%	0.70%	2.56%	f
FD coastal fisheries management / FD total budget (D/C%)	25.23% <sup>*</sup>	27.13%	5.97%	5.98%	22.78%	f

a. Gillett (2009), b. recalculated by Gillett (2009), c. Recurrent and development/capital budget, d. 2010, e. 2011, f. this study, g. 2012,

The following are the major points relating to the overall value of the fisheries and total Fisheries Department budgets that emerge:

- **Important contribution of coastal fisheries:** Despite the high value of offshore fisheries the contribution to GDP of coastal fisheries is comparatively high especially in the SI, Vanuatu and Fiji. Gillett (2009) points out that his figures are likely an underestimate and that the value of subsistence fisheries varies between 60% (FJ) to 80% (SI) of the total of coastal fisheries.
- **The Fisheries Department budgets are less than 3.5% of the value of the fisheries in 3 countries:** This proportion is higher in PNG with a much more valuable offshore fishery and in the much wealthier New Caledonia.
- **The governments allocate between 0.3 – 1.4% of government spending to Fisheries Departments.** This is considerably less than the contribution of fisheries to the GDP except in the case of PNG with major mining and land-based sectors.

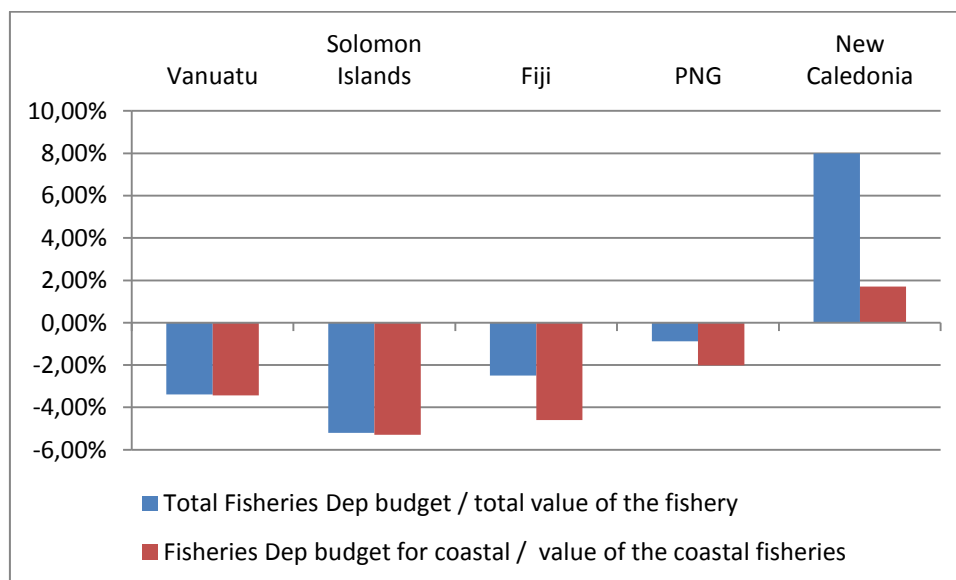
The Fisheries Department budgets do not usually distinguish between coastal and offshore activities nor those that are related to management as opposed to development. Estimates were made of the proportion of each budget that was likely to be available for inshore fisheries management (see Part II) and these were compared to the total Fisheries Department budget and the value of the coastal fishery (Table 9). The conclusions are:

- **Coastal fisheries management receives less potential support than offshore fisheries on a value basis.** The Fishery Department budgets available to coastal fisheries management range from 0.7% (SI) to 3.9% (PNG) of the value of the coastal fishery.
- **The allocations to coastal fisheries management are disproportionately low.** The Fishery Departments allocate between 6% (SI, PNG) and 25% (FJ, NC, Van) of their budgets to coastal fisheries management despite coastal fisheries contributing 40% and 80% of the overall fisheries contribution to GDP (except in PNG).

From the above exploratory analysis it would seem Fishery Department budgets are low and inshore fisheries management seems particularly under-invested. However, the literature does not provide much guidance as to the relative investments countries might normally be expected to make in fisheries management and few data are available on country expenditures. The only data located for this study relates to the fishery budgets of OECD i.e. “developed” countries in 1999 (Wallis and Flaaten 2001) and, more comparable and relevant, the current budget for Cook Islands’ Fisheries Department (courtesy of Ben Ponia). The following comparisons can be made:

Great variation in the investment in fisheries management made by OECD countries in 1999. However on average this represented 6% of the landed value of the fisheries. New Zealand invested 8% and Australia 11%. Three Melanesian countries invest between 0.7-3.5% overall, PNG 5.1% while NC invests 14%, and all far less in coastal fisheries management (0.7% - 7.7%).

The Cook Islands Fishery Department’s recurrent budget is around 6.6% of the value of the fishery, nearer 9% if the project/capital budget is included. With a Fisheries recurrent budget of around USD 1.25 million, the FD invests approximately 30% of its budget in inshore fisheries management or around 14% of the value of the coastal fishery. All these figures are considerably higher than those of the three Melanesian countries.



**Figure 3: Graphic representation of the relative Fishery Department expenditure related to the estimated value of fisheries in Melanesia. The indicative baseline is 6%: the average OECD expenditure and that estimated for Cook Islands. (Data from Table 9).**

*Fisheries Department budgets, in particular the proportions allocated to inshore fisheries management, appear very low compared to other countries. This strongly suggests that budgetary support should be increased commensurate with the policy importance accorded to food security.*

The two countries with lowest Fishery Department budgets and allocations raise more revenue than their budgets. Vanuatu Fishery revenue exceeded expenditure by 75% yet all these funds go direct to treasury. In Solomon Islands

revenue exceeds Fishery Department expenditure by a factor of ten but these funds go direct to national coffers. PNG NFA raises about 50% more revenue than expenditure. Fiji does not reportedly raise as much revenue as its expenditure and some revenue does go towards the departmental budget. However, respondents suggested that fees for licencing and fines should be reviewed and this may provide an opportunity for raising more revenue.

*Revenue raised by Fisheries Departments in Solomon Islands, PNG, Vanuatu and possibly Fiji could easily fund increased budgets for inshore fisheries management and thereby contribute to food security.*

#### STAFFING: UNDER-STAFFED BUT TASKING COULD BE IMPROVED

The Fisheries Departments have a variety of structures. Solomon Islands distinguishes Inshore and Provincial Programs which carry out the bulk of coastal fisheries work. Fiji carries out the coastal fisheries work mainly under the Extension and Research and Resource Assessment programs while Vanuatu addresses coastal fisheries under three programs covered by Management and Policy, Development and Capture and Research and Aquaculture. PNG devolves fisheries management powers to provincial level where the majority of staff are located. The total number of official staff posts range from 54 in Vanuatu to 182 in Fiji and around 270 in PNG (Table 10).

**Table 10: Total Fisheries Department posts, posts related to coastal fisheries and estimate of actual time available for coastal fisheries management activities in Full Time Equivalents (FTE).**

Fisheries department staff	Fiji <sup>1</sup>	New Cal.	PNG <sup>2</sup>	Solomon Islands	Vanuatu
Total official staff posts (provincial)	182	64	170 (>100)	89	54
Potentially involved with coastal fisheries (provincial)	59	24	9 (<100)	39	31
Official staff posts vacant (%)	19%	NA	NA	44%	10%
Estimate of actual FTE available for management <sup>3</sup>	20.8	9	<100	3.6	13
Official posts based in capital (%)	45%	NA	~10%	75%	89%

1. Includes established and support staff

2. PNG provincial staff in brackets

3. Estimates of Full Time Equivalent staff based on analysis of ToR and activities deducting currently unfilled posts (see Part II)

Between one third and half of official staff posts have roles relevant to coastal fisheries but a series of factors reduce the effective staff engagement with coastal fisheries management:

- Staff vacancies range between 10% and 44%.
- Assessment of individual staff Terms of Reference (ToR) or Job Descriptions (JD) showed that virtually all these staff have duties that include coastal fisheries management and also development. Development aspects may easily dominate other duties, this is particularly the case where staff are responsible for fisheries centres or ice manufacture.
- A number of staff, particularly in Fiji, have duties that also include offshore fisheries or aquaculture.
- Taking account of these factors a relatively small amount of staff effort is likely to be available to inshore fisheries management tasks – 4% of official posts in SI, 11% in Fiji and 24% in Vanuatu.
- Assuming that services to communities may be affected by staff location, especially proximity to rural areas, the figures might be further modified by taking into account the relatively low proportions of staff permanently located at provincial level – 11% in Vanuatu to 55% in Fiji. In the case of PNG these may be located equally distant from communities – ie in Provincial capitals.

The human resources actually available to promote inshore fisheries management appear to be very limited under these calculations. However, the figures could be substantially reversed by ensuring that staff closest to communities e.g. at fisheries centres and in the provinces, prioritize management activities - probably information and management advisory services as these may be most compatible with other duties. In the longer term, provision should be made for strengthening provincial and field based operations because viable strategies for management, especially of high value species such as beche-de-mer, will likely require more decentralized oversight.

*Despite reasonably high numbers of staff in theory, the human resources available to fulfill inshore management activities are lower and in one case clearly inadequate (SI). While unfilled vacancies afflict all the Fishery Departments an immediate improvement in inshore fishery management services could be achieved by increasing the priority given management activities amongst staff and particularly those based in the field.*

Where staff are carrying out activities relevant to support of CBRM (as outlined in Table 7) quite often they are not priority tasks. A considerable amount of time is taken up in monitoring and stock surveys or aquacultural reseedling when a reportedly very high proportion of communities have not had access to basic information on fisheries threats, possible actions to take and the fisheries laws.

The budgetary constraints discussed above are particularly acute in the provinces; many field-based staff barely have any operational budget at all. However, many of these staff have already developed cost-effective mechanisms to operate including sharing transport with other ministries, using existing institutions and networks such as schools and churches. The resourcefulness of these staff shows that short term lack of funding need not be a complete obstacle to delivering advice and information to communities provided they are encouraged by their line managers.

Communities frequently suggest that even if Fisheries staff do not have funds to travel there are highly useful support activities that could be performed from the capital, including:

- Enforcing the ban on import and distribution of illegal gear
- Monitoring markets and enforcing size limits in sales and exports
- Liaising with, and if necessary monitoring, traders.

Fisheries offices could also improve management and availability of data to include up to date geographical and biological information pertaining to licences and permits which could help guide strategy and help target research or other investments from university and NGO partners. Fiji has recently increased training of community fish wardens and Vanuatu is about to authorize community members of the network Vanuatai as honorary fisheries officers. Training and support of such community based volunteer fishery officers should continue to be developed as a priority strategy to boost CBRM and compensate for lack of government support.

*Low operations budgets for staff based in the field are endemic and should be increased. In the meantime strategic use of opportunities and existing facilities could improve delivery of priority services in support of inshore fisheries management.*

## EFFECTIVE PARTNERSHIPS WITH NGOS: MAXIMIZING THE BENEFITS

Three countries have made extensive use of partnerships with civil society and NGOs to achieve sometimes impressive results despite government budgetary and resource constraints. In Fiji more than half the customary fishing grounds are under some degree of CBRM thanks to support from USP and a number of NGOs who work with the national administrative system and local protocols through a multi-function support network that links communities and government (FLMMA Network). In Vanuatu the support network Vanuatai, set up by the NGO Wan Smol Bag, provides the most comprehensive means of raising awareness and disseminating information to possibly as many as 20-30% of rural communities. In Solomon Islands NGOs are responsible for establishing some 100 examples of CBRM and have formed a national network coordinated out of the Ministry of Fisheries (SILMMA Network).

Not only have the partnerships with NGOs provided a means for some key services to reach communities but they have also generated a substantial body of experience and scientific research. Governments, as lead members in these networks, have had the opportunity to guide the research agendas to some extent. Research and learning is ongoing relating to optimum processes for encouraging CBRM, optimizing tools for fisheries management under CBRM, how to encourage spread of CBRM, integrated or ecosystem management aspects, the performance of CBRM for livelihoods or conservation outcomes to name a few. The FLMMA network in Fiji has coordinated a national list of priority research needs and ensures that incoming researchers consider these - government can and does contribute to this list.

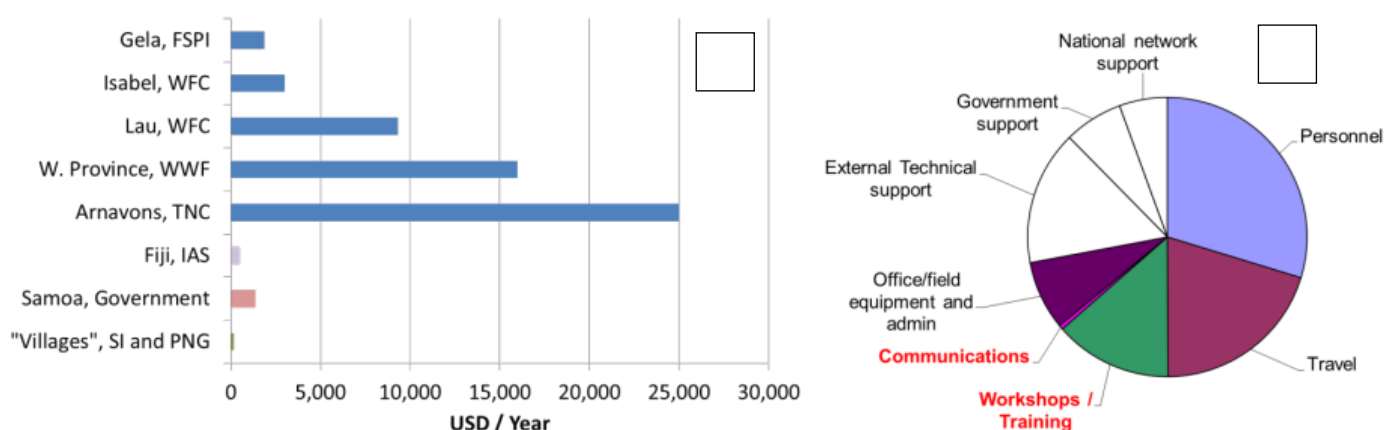
Many of the lessons learned in these national networks are guiding current implementation but there are areas in which the networks may not be able to serve all the national interests. National policy objectives focus more on livelihood and

sustainable resource management and though NGOs have attempted to address this, the fact remains that the majority are primarily equipped to deal with biodiversity conservation.

It has been suggested that governments should keep up pressure on NGOs towards more fisheries/livelihoods centered management (Gillett and Cartwright 2010). In many cases such a re-evaluation is desirable but the NGOs are frequently best suited to testing site based or district models and pilots. As such, governments can propose and encourage the testing of more relevant models that suit the needs and particularly the resource constraints of cash-strapped developing countries.

#### GOVERNMENT SERVICE DELIVERY AND NGO PIONEERING: GETTING A BALANCE

Fishery Departments, as part of government, remain solely responsible and accountable for fair and even delivery of at least a minimum level of service to all citizens. The costs of site-based approaches to date are extremely high and subject to the increasing costs of transport (Figure 4).



**Figure 4: Costs associated with site-based CBRM approaches. A: Annual costs of a variety of sites in Solomon Islands, the cheapest site in Fiji and Samoa compared to the minimal cost of self-initiated village CBRM. B: Breakdown of costs of supporting the Gela (FSPI) site, transport and salaries constitute more than half (Govan et al. 2009a, Govan et al. 2011, Govan 2012).**

Government budgets would not be able to stretch to financing more than a handful of sites at the cost of pilots to date considering that Melanesian countries consist of 1000s of coastal communities (Table 11). More strategic thinking is needed to enable limited government resources to provide the most appropriate support to bolster CBRM nation-wide.

**Table 11: Rough estimates of the number of coastal villages and settlements in 4 Melanesian countries.**

Country	Number of coastal villages and settlements	Notes and sources
Fiji	850	USP - IAS, coastal criteria unclear
PNG	3,600 - 4,300	2011 census data, coastal criteria unclear
Solomon Islands	4,000	1999 census data, 1km from coast
Vanuatu	550 – 1,400	Johannes and Hickey 2004, 1999 census

Networks can be asked to help determine what essential services could be and how government could deliver them but NGOs and donors are clear that in the long term it is expected that government assume appropriate roles. Cost-effective province-wide approaches are being developed in Fiji such as the Yaubula Management Support Teams (YMST) and in Solomon Islands with various district level or provincial networks such as the GERUSA network of Central Islands Province (Govan 2011). Where these approaches meet government or policy needs and criteria they could be rapidly supported and integrated into Fisheries Department workplans.

Governance and service delivery by network has presented challenges to governments. The civil society partners in such networks are ultimately accountable to many stakeholders and often boards or donors overseas. This is the very nature of non-government organizations and as such it is not possible to manage such networks by top-down command and control. The strategy adopted by Melanesian governments has been to seek agreement on principles and minimum criteria or standards in exchange for which the network members have relatively free hand in choosing the approach they take. The FLMMA network in Fiji has a constitution and operations manual that set out these agreements (FLMMA 2010) and the Solomon Islands Ministry of Fisheries took the lead in developing agreed CBRM principles in 2007

(Alexander et al. 2011). The interpretation, monitoring and enforcement of these agreements in a constructive way that ensures maximum support to national policy objectives is a continuous challenge.

*The emergence of NGO partnerships and networks and the successful engagement and support of these by governments has been one of the salient features of the last decade. Government could improve its engagement with these and explore ways to maximize the contributions of these networks to meeting national policy objectives. Government would benefit from taking a more “service-delivery” perspective and rely on NGOs for the research and piloting of novel approaches.*

## ENGAGEMENT OF OTHER SECTORS: VERY PROMISING APPROACHES

All sectors face similar challenges in delivering services to rural communities, the costs of transport are high and human resources are limited. The potential for joint operations to reduce costs has been identified, particularly by field operatives. Precedents for collaborating on trips have been set in all countries although have yet to become standard procedure.

Environment Departments share many of the sustainable resource management concerns of Fisheries Departments and in all countries a high level of potential collaboration exists. This commitment has even entered national policy in Solomon Islands with an agreement between the Environment Department and Fisheries to deliver CBRM using the relatively more extended network of Fisheries Officers to deliver joint fisheries and environmental management messages (MECM/MFMR 2010). This National Plan of Action also proposes using the partnership to deliver disaster risk reduction and climate change adaptation services although this has yet to be implemented.

One of the responsibilities of the Environment Departments relates to the obligations under the Convention on Biodiversity (CBD) to meet national targets for Protected Area coverage. Protected Areas can be very costly and represent a challenge to developing nations. CBRM is perceived by the Fiji, Solomon Islands and Vanuatu governments as the most effective and sustainable way to achieve these targets in coastal areas while also serving policy priorities such as food security and fisheries management. Research in Fiji suggests that widespread CBRM can indeed achieve most of the Protected Area targets for inshore areas at least (Mills et al. 2011). In Fiji the Protected Areas Committee includes FLMMA and Fisheries as partners and represents a cost-effective and practical collaboration.

Where the responsible department is constrained by lack of resources it may be possible for other sectors to contribute. In Fiji the Ministry for I Taukei Affairs is trialing the deployment of provincial environment officers who, amongst other duties, will provide support for provincial CBRM networks and communities.

*Collaboration with Environment Departments and other sectors has the potential to improve cost-effectiveness, increasing efficiencies across various sectors and reducing the government costs associated with achieving policy targets while meeting international obligations.*

## BUILDING ON OUR STRENGTHS TO IMPROVE INSHORE FISHERIES MANAGEMENT IN MELANESIA

This final section looks at some of the threats facing inshore fisheries management for food security in Melanesia, the challenges emerging from the review and examines potential response strategies.

### THREATS TO INSHORE FISHERIES FOR FOOD SECURITY

#### POPULATION GROWTH AND DEVELOPMENT

The major threat to inshore fisheries resources and indeed most other natural resources for PNG, Vanuatu and Solomon Islands was identified in the introduction; some of the highest population growth rates in the world are the primary driver for an increasingly unsustainable pressure on coastal resources. Population growth and the increasing

drive for economic development (which in Fiji is not associated with population growth) are the drivers of direct threats affecting coastal resources and form a problem particularly characteristic of Melanesia.

#### OVER-FISHING, LAND RUN-OFF AND COASTAL DEVELOPMENT

The Apia Policy presented the results of a survey of fisheries staff which is indicative of the emerging consensus on the priority threats facing inshore fisheries (Table 12).

**Table 12: Environmental impacts identified by fisheries managers in Melanesia compared to the remaining Pacific Island Countries and Territories (PICTs)**

	Average score (all 21 PICTs)	Average score (5 MSG countries)	Score (SI)	Score (Fiji)	Score (Vanuatu)	Score (PNG)	Score (New Caledonia)
Over-fishing of inshore marine species	3.9	4	5	4	4	4	3
Sewage, nutrients entering coastal waters	3.6	2.8	4	3	4	1	2
Garbage dumps at the edge of the sea	3.2	2	3	2	2	1	2
Silt entering coastal waters/lagoons	3.0	3.2	3	4	4	3	2
Excessive coastal development; hotels, etc	2.9	2.8	3	3	5	1	2
Loss of beaches through sand mining	2.9	1.4	1	1	2	1	2
Pollutants, including oil, from boats	2.6	2.6	4	2	2	2	3
Loss of corals - people on reef (gleaning etc)	2.5	1.8	3	2	1	2	1
Pollutants, oil, entering the sea from industry	2.4	2.6	3	2	1	2	5
Destructive fishing methods (dynamite etc)	2.4	2.8	3	3	3	3	2
Pollutants, fertilizers, from agriculture	2.4	2	3	2	2	1	2
Loss of corals through coral bleaching	2.3	1.2	1	2	2	0	1
Reclamation of land; loss of marine habitats	2.3	1.6	2	2	2	1	1
Presence of alien and invasive species	2.2	1.8	2	2	3	1	1
Loss of corals - cement, buildings etc	1.7	1.6	1	3	2	1	1

The major threat highlighted by all Pacific Island Countries and Territories was inshore over-fishing, and this was ranked higher still in most Melanesian countries. Land based impacts are a major concern to Melanesian countries with more concern over coastal development and siltation than the Polynesian and Micronesian PICTs which emphasize solid waste management. While Melanesian representatives were less concerned about beach mining they were more concerned about destructive fishing than their colleagues. These concerns are supported by the regional literature and also the feedback of interviewees in the present study who also added concerns that the planned increase in mining activities in Fiji and Solomon Islands will greatly increase the land-based threats in future.

#### EROSION OF TRADITIONAL GOVERNANCE

The low capacity of governments to manage inshore resources has been, to some extent, mitigated by traditional management systems not least of which is the respect for community or chiefly decisions and the restriction of access to community rights holders. A major concern raised during this review related to the signs that respect for traditional management was being undermined and lost in line with the increasing pressures of development and the desire for cash. A vital asset may well be in danger.

#### MEETING THE CHALLENGES FOR INSHORE FISHERIES MANAGEMENT

The challenges identified in the preceding sections include: lack of resourcing for management, the imbalance between fisheries development and management, poor inshore management strategies, lack of skills and land-based impacts.

#### INADEQUATE RESOURCES: INCREASE FUNDING AND COST-EFFECTIVENESS

Low levels of funding and shortage of human resources are a challenge for the operation of the Fishery Departments and are of particular concern given the importance for food security and rural development of ensuring sustainable coastal fisheries. Two broad strategies can be deployed: securing more resources and, independently of the success of this, use existing resources more strategically.

#### STRATEGIES FOR INCREASING FUNDING

The following potential sources are being explored by at least one or several of the Fisheries Departments but may be more successfully accessed with support of the MSG leaders.

**Government budgets:** The arguments presented relating to the value of inshore fisheries, their contribution to GDP, their importance to rural livelihoods and to other national priorities such as reducing urban drift or healthy nutrition provide compelling arguments for increasing budgetary allocations - at least in proportion to their value or relative priority for government spending.

**Fisheries revenue:** Fisheries revenue in most cases far exceeds expenditure and strong justification can be made for a greater proportion of this revenue to be allocated to inshore fisheries management. Where revenue is inadequate there is considerable scope to increase such revenue from license fees, export duties or increased fines. These reforms may be explored in the context of possible moves towards the establishment of Fishery Authorities being considered in some countries.

**Integrated approaches:** Many of the activities required to improve and support inshore fisheries management are similar to those needed to support other local interventions in terms of transport and information such as environmental management, disaster risk reduction and climate change adaptation. There is much potential to improve service delivery, reduce duplication, achieve integration and reduce overall expenditure if portions of budgets across some of these sectors were pooled and approaches integrated or shared where appropriate.

**Donor support:** Departments fear that donor support for fisheries may be in decline. Donors may be more attracted to support the development of more coherent and strategic approaches to developing long-term management systems aimed at poverty reduction and food security. Donors will recognize that large initial investments are required to establish suitable co-management regimes which in the long run prove extremely cost-effective (as in the example of Samoa).

**Climate change funding:** Funding for climate change adaptation in Melanesia is proceeding without regard for the fact that inshore fisheries do not currently have any management system to speak of. Ensuring the resilience of coastal fisheries to the long term impacts of climate change will require that appropriate short and medium term management systems are put in place first. This should clearly be a priority for climate change funding.

#### IMPROVING THE COST-EFFECTIVE USE OF EXISTING RESOURCES

This review found that service delivery for inshore fisheries management could be improved through more cost-effective use of existing human and financial resources. Ideally the improvements in cost effectiveness would take part under an improved inshore fisheries management strategy but even if this is lacking the following would increase the support to sustainable inshore fisheries management and reduce waste.

**Drastically reduce the expenditure on surveys and resource inventories:** Expensive site based surveys are not a required feature of CBRM, on the contrary the rationale behind CBRM is to encourage communities to commence adaptive management based on the deep knowledge they already have of their coastal resources. Costs and benefits of site surveys need to be justified compared to the costs and benefits of other potential support activities such as awareness and information provision, training of honorary fishery officers or providing provincial officers with sufficient operating costs to respond to community requests. One example from this review showed expenditure on 20-30 surveys exceeding the basic and unmet costs of maintaining an entire national system of CBRM (Govan et al. 2009c).

**Ensure communities have access to action-oriented information on coastal resources:** Site-based interventions are costly and demanding of available human resources. This review found that staff are aware that the majority of coastal fishers do not know the fisheries rules or rationale for these. The use of mass media, such as radio, in combination with printed materials and other strategies (see Table 7 and following) to ensure that basic information is available to all coastal fishers is a priority "no regrets" use of funds.

**Clarify and reduce the role of aquaculture:** Independent studies have repeatedly advised against the use of hatchery reared animals in CBRM given the high costs and lack of evidence that it is a generally applicable strategy (Hambrey et al. 2011). In the words of the Solomon Islands' Aquaculture development plan 2009-2014:

*"MFMR does not intend to apply aquaculture as part of CBRM considering that stock enhancement are not appropriate management interventions, 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 ... participatory approaches to inshore fisheries management to restore spawning biomass ... will be implemented"*

Critical and joint evaluation by MSG Fisheries staff of the experiences discussed above in terms of cost effectiveness and demonstrable contributions to policy goals is essential.

## THE NEED FOR PRACTICAL AND OVERARCHING INSHORE FISHERIES STRATEGIES

Fisheries departments suggested that an inshore fisheries management strategy was urgently required, even where one existed it did not sit well with existing departmental structures and functions. For the moment, the policy shift from development to management is not reflected in structures or operations. Given the high level policy mandate for sustainable inshore management and the findings of this review it is suggested that countries should urgently detail a strategy and workplan for inshore fisheries management:

An inshore fisheries management strategy should be the overarching framework for all Fisheries Department interventions in the inshore area. The goal of this framework would relate to achieving sustainable management and secure livelihoods. This would aim to ensure that all development interventions are deployed in the context of a managed fishery. Rather than undermining sustainability they could be contingent or an incentive for improved management, for instance access to government services such as ice or FADs could be contingent on evidence that the fisher comes from an area with minimum standards of sustainable management or CBRM. Such mechanisms will help ensure that communities have attempted to implement sustainable management and tried to help themselves before becoming eligible for government assistance.

Ideally such a strategy would be guided by appropriate legislation. Solomon Islands and Fiji are both awaiting draft legislation to be developed or approved. However, if this legislation is not forthcoming its absence does not impede many of the potential actions outlined here or indeed the development of an inshore fisheries management strategy.

## DEVELOPING APPROPRIATE SKILLS

Fisheries department staff feel that formal training and much capacity building does not adequately prepare staff for the contexts in which they are to operate. There was a general sentiment that the MSG provides a more appropriate context for relevant training than regional or international ones – this is reflected in the differing priority areas for assistance identified by Melanesian participants in the Apia Policy (see Appendix 2: Threats and priority areas for assistance identified in the Apia Policy). Some of the particular skills mentioned include listening and talking with fishermen, facilitation, conflict management, aspects of traditional governance and customary tenure, strategy formulation and evaluation.

Some managers also felt that too many staff spent too much time attending international training events that did not address the skills needed on the ground. In some cases a policy of reducing all such training was being contemplated.

The MSG countries combine sufficiently similar attributes and yet a sufficient diversity of challenges to provide an ideal forum for assessing the capacity needs of fishery officers on the ground, developing nationally appropriate curricula and implementing these at any or all of the venues available in countries such as the National Fisheries College in PNG, the Vanuatu Maritime College, SI College of Higher Education, or any of several institutions in Fiji including USP.

Such curricula could be integrated as modules into existing graduate programs or, more feasibly, form a standalone sandwich course following the model of the Pacific Islands Community Conservation Course at USP. This course requires relatively short absences from their employment and much of the learning is carried out by peers sharing experiences. A relevant project is carried out at the workplace and mentoring and ongoing network support are employed. A number of fisheries staff have attended and endorse the approach.

Staff capacity building though is usually costly, both in terms of the actual training and in terms of the absence of vital staff from their workplace. In deciding to build the capacity of staff it is suggested that the ultimate deciding factor should be the improvement of quantity and quality of services to the public.

Initiatives in which staff from other agencies or community members are trained together such as training of community fish wardens and police to improve enforcement bear much merit and should be encouraged.

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#### LAND-BASED AND DEVELOPMENT IMPACTS

Given the shared characteristics and high priority that MSG countries and interviewees have given to land-based impacts it seems that there is much to be gained from collaboration for addressing Integrated Coastal Management or Ecosystem approaches. Fiji has made considerable progress in developing appropriate models of Integrated Management stemming from experiences in CBRM as have both Vanuatu and Solomon Islands. Collaboration under the auspices of the MSG should be encouraged in terms of training, research and testing of appropriate approaches.

#### OTHER RELEVANT MSG PROCESSES AND OPPORTUNITIES

There are a number of MSG initiatives that relate to the proposed inshore fisheries road map:

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#### MOU ON COASTAL FISHERY AND AQUACULTURE DEVELOPMENT

The MSG has undertaken to collaborate on the topic of beche-de-mer (BdM) and aquaculture. BdM are the subject of a parallel study for the MSG. Preliminary findings suggest that improved management of the BdM fishery in Melanesia could potentially double the value of this fishery, the second most lucrative after tuna. But this will not happen unless considerable improvements are made in the way the fishery is managed and there is even some risk, given the more efficient methods available and the economic incentives, that the fishery could be irretrievably damaged if management actions are not taken. A number of management options are available but these will all require the support of effective CBRM. The inshore fisheries roadmap and the MoU on Coastal Fisheries will need to be closely coordinated, if not merged.

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#### MSG LEADERS DECLARATION ON ENVIRONMENT AND CLIMATE CHANGE AND FRAMEWORK FOR GREEN GROWTH

This declaration contains commitments to terrestrial and mangrove management based on community management and livelihoods. There should be close links to the ecosystem approaches and coastal management considerations that the inshore fisheries roadmap may address. This declaration also endorsed the “Framework for Green Growth”.

## CONCLUSIONS

The lack of resources, manpower and weak legislative support for inshore fisheries management found by this review were unsurprising. The review provides strong evidence that these areas bear considerably more attention and support from governments and donors.

However, these are perennial issues that are common across all sectors and are likely to be only slowly addressed in the context of other development and political priorities. Accordingly the review paid special attention to opportunities for “building on existing strengths”. Two such strengths are:

- **Communities:** The major strength, long identified, is that of Melanesian rural communities whose strong local governance and deep and complex knowledge systems counterbalance the weaknesses of central government in the same areas.
- **Staff:** Existing staff, usually working in challenging situations of lack of finance, understaffing and logistical constraints show remarkable insight and resourcefulness that if unleashed would go a long way to providing improved services for rural populations.

Recommendations discussed in this review and that could be considered in the development of an MSG roadmap for inshore fisheries include:

- Governments should prioritize development of national inshore fisheries strategies and workplans which build on existing staff and resources, lessons learned and partnerships but that focus on effective performance of assigned staff duties.
- Fisheries departments should adopt a “service delivery” approach to providing the most effective and widespread support to all fishers across the country, focusing on information provision and strategic support in the first instance.
- Increase cost-effectiveness and improve integrated coastal management/ecosystem approaches by collaborating with other sectors such as environment, climate change and disaster risk reduction.
- Employ cost-benefit or strategic analysis of proposed options before pursuing costly and generally ineffective standard approaches, particularly involving monitoring, stock assessments, MPAs and mariculture.
- Provide the legislative framework to support and empower communities to monitor, develop and enforce regulations at the community level as well as strengthening national monitoring and enforcement for marine export commodities, such as beche-de-mer, trochus and aquarium products.
- Financing of inshore fisheries management would be greatly improved by increasing cost-effectiveness of strategies but there is scope for supporting budgets through fisheries revenue from access fees, licencing and fines.
- Explore more appropriate training opportunities for Melanesia, possibly “on the job” and focusing on specific challenges that fisheries departments are facing in the context of service delivery and support.

## REFERENCES

- Abdullah, NMR, K. Kuperan, and R. S. Pomeroy. 1998. Transaction costs and fisheries co-management. *Marine resource economics* 13: 103-114.
- Alexander, T., Manele, B., Schwarz, A., Topo, S., Liliqeto, W. (2011) Principles for Best Practice for Community-Based Resource Management (CBRM) in Solomon Islands. Coral Triangle Support Partnership.
- Amos, M.J., 1993. Traditionally based marine management systems in Vanuatu. *SPC Trad. Mar. Res. Managem. Knowl. Inf. Bull.* 2, 14–17.
- Anderson, J. A. and C. C. Mees, 1999. The performance of customary marine tenure in the management of community fishery resources in Melanesia. Final Technical Report to the UK Department for International Development, MRAG Ltd., London.
- Apia Policy 2008. Pacific Islands Regional Coastal Fisheries Management Policy and Strategic Actions (Apia Policy) (2008-2013) / developed and endorsed by Heads of Fisheries in the Pacific Region during the special session conducted from 11 to 13 February, 2008, Apia, Samoa.
- Arnason, R., Hannesson, R., & Schrank, W. E. 2000. Costs of fisheries management: the cases of Iceland, Norway and Newfoundland. *Marine Policy*, 24(3), 233-243.
- Bell, J. 2007. Fish – A Cornerstone of Future Food Security for The Pacific. *SPC Women in Fisheries Information Bulletin* #17, 33-34. [http://www.spc.int/coastfish/News/WIF/WIF17/WIF17\\_33\\_Bell.pdf](http://www.spc.int/coastfish/News/WIF/WIF17/WIF17_33_Bell.pdf)
- Bell, J. D., Johnson, J. E., & Hobday, A. J. 2011. Vulnerability of tropical Pacific fisheries and aquaculture to climate change. *SPC FAME Digital Library*.
- Bell, J. D., Kronen, M., Vunisea, A., Nash, W. J., Keeble, G., Demmke, A., ... & Andréfouët, S. 2009. Planning the use of fish for food security in the Pacific. *Marine Policy*, 33(1), 64-76.
- Berkes, F., Mahon, R., & McConney, P. 2001. Managing small-scale fisheries: alternative directions and methods. *International Development Research*.
- Boso, D. et al. 2010. Lessons learned in Community based Adaptive Marine resource management. WorldFish Center, Honiara, Solomon Islands. 2010. [http://www.sprep.org/att/irc/ecopies/countries/solomon\\_islands/68.pdf](http://www.sprep.org/att/irc/ecopies/countries/solomon_islands/68.pdf) or <http://bit.ly/9Ga9Xs>
- Brown, D., Staples, D., & Funge-Smith, S. 2005. Mainstreaming fisheries co-management in the Asia-Pacific. *RAP PUBLICATION*, 24.
- Costello, C., Ovando, D., Hilborn, R., Gaines, S. D., Deschenes, O., & Lester, S. E. 2012. Status and Solutions for the World's Unassessed Fisheries. *Science*, 338(6106), 517-520.
- Diake, S. 1995. Solomon Islands. In: *Country Views on Community Involvement and Traditional Management Systems* (<http://www.tellusconsultants.com/fishexmp.html>)
- FLMMA 2010. The way we work together: FLMMA Operations Guide (Govan, H. and S. Meo eds). FLMMA Network, Suva, Fiji.
- Gillett, R. 2009. Fisheries in the economies of the Pacific island countries and territories. Mandaluyong City, Philippines: Asian Development Bank. [www.adb.org/documents/studies/pacific-fisheries/pacific-fisheries.pdf](http://www.adb.org/documents/studies/pacific-fisheries/pacific-fisheries.pdf)
- Gillett, R. and I. Cartwright. 2010. The Future of Pacific Fisheries. SPC, Noumea. <http://www.spc.int/en/component/content/article/609-pacific-fisheries-face-collapse-without-strategic-action.html>
- Govan, H. 2011. Good coastal management practices in the Pacific: experiences from the field. – Apia, Samoa : ICRI/SPREP, 2011. 42 p ISBN: 978-982-04-0427-4 (print) 978-982-04-0428-1 (online). <http://bit.ly/pmXXtU>
- Govan, H. 2011. Good coastal management practices in the Pacific: experiences from the field. – Apia, Samoa : ICRI/SPREP, 2011. 42 p ISBN: 978-982-04-0427-4 (print) 978-982-04-0428-1 (online). [http://icriforum.org/sites/default/files/ICRI\\_Best\\_Practice\\_in\\_Coastal\\_Management\\_-\\_Govan\\_2011\\_0.pdf](http://icriforum.org/sites/default/files/ICRI_Best_Practice_in_Coastal_Management_-_Govan_2011_0.pdf) or <http://bit.ly/pmXXtU>
- Govan, H. 2012. Strategy for Provincial Government implementation of the NPOA: Progressively building capacity for Community Based Resource Management+: Strengthening the role of provincial level governments in Community Based Resource Management Part 2: Strategy. National Coordinating Committee of the CTI, Honiara, Solomon Islands.
- Govan, H. Alifereti Tawake, Kesaia Tabunakawai, Aaron Jenkins, Antoine Lasgorceix, Anne-Maree Schwarz, Bill Aalbersberg, Bruno Manele, Caroline Vieux, Delvene Notere, Daniel Afzal, Erika Techera, Eroni Tulala, Helen Sykes, Hugh Walton, Hugo Tafea, Isoa Korovulavula, James Comley, Jeff Kinch, Jess Feehelly, Julie Petit, Louise Heaps, Paul Anderson, Pip Cohen, Pulea Ifopo, Ron Vave, Roy Hills, Seini Tawakelevu, Semese Alefaio, Semisi Meo, Shauna Troniak, Siola'a Malimali, Suzie Kukuian, Sylvia George, Talavou Tauaefa, Tevi Obed. 2009a. Status and potential of locally-managed marine areas in the South Pacific: meeting nature conservation and sustainable livelihood targets through wide-spread implementation of LMMAs. SPREP/WWF/WorldFish-Reefbase/CRISP. 95pp + 5 annexes. - [http://www.sprep.org/att/publication/000646\\_LMMA\\_report.pdf](http://www.sprep.org/att/publication/000646_LMMA_report.pdf) or <http://bit.ly/95EBh3> (or <http://bit.ly/H7o3Fq>) . 2nd edition (minor edits) <http://bit.ly/IQrqf> ISBN: 978-982-04-0402-1 (print) 978-982-04-0403-8 (online)
- Govan, H., A. Schwarz and D. Boso. 2011. Towards Integrated Islands Management: Lessons from Lau, Malaita, Solomon Islands, for the implementation of national approaches to resource management. Report for WorldFish Centre and SPREP 62pp. [http://www.sprep.org/att/irc/ecopies/countries/solomon\\_islands/81.pdf](http://www.sprep.org/att/irc/ecopies/countries/solomon_islands/81.pdf)

- Govan, H., A. Tawake, I. Korovolavula and S. Tawakelevu. 2009c. Summary analysis of site support costs for Fiji Locally Managed Marine Area (FLMMA) - Institute of Applied Sciences (USP) sites. IAS Technical Report 2009/02. June 2009. University of the South Pacific, Suva, Fiji. <http://www.sprep.org/att/irc/ecopies/countries/fiji/93.pdf>
- Govan, H., Alifereti Tawake, Kesaia Tabunakawai, Aaron Jenkins, Antoine Lasgorceix, Erika Techera, Hugo Tafea, Jeff Kinch, Jess Feehelly, Pulea Ifopo, Roy Hills, Semese Alefaio, Semisi Meo, Shauna Troniak, Siola'a Malimali, Sylvia George, Talavou Tauaefa, Tevi Obed. 2009b. Community Conserved Areas: A review of status & needs in Melanesia and Polynesia. ICCA regional review for CENESTA /TILCEPA /TGER/IUCN/ GEF-SGP. [http://www.sprep.org/att/IRC/eCOPIES/Pacific\\_Region/422.pdf](http://www.sprep.org/att/IRC/eCOPIES/Pacific_Region/422.pdf)
- Govan, H., S. Jupiter and J. Comley. 2012. Recognition and Support of ICCAs in Fiji. In: Kothari, A. with Corrigan, C., Jonas, H., Neumann, A., and Shrumm, H. (eds). *Recognising and Supporting Territories and Areas Conserved By Indigenous Peoples And Local Communities: Global Overview and National Case Studies*. Secretariat of the Convention on Biological Diversity, ICCA Consortium, Kalpavriksh, and Natural Justice, Montreal, Canada. Technical Series no. 64. <http://www.cbd.int/pa/doc/ts64-case-studies/fiji-en.pdf> / <http://bit.ly/10CUdRa>
- Hambrey, J.H., H. Govan and C. Carleton. 2012. Opportunities for the development of the Pacific islands' mariculture sector. Report to the Secretariat of the Pacific Community by Hambrey Consulting. Noumea. ISBN: 978-982-00-0529-7. <http://bit.ly/wn6MTK>
- Jimmy, R. 1995. Vanuatu. In: *Country Views on Community Involvement and Traditional Management Systems* (<http://www.tellusconsultants.com/fishexmp.html>)
- Johannes, R.E. 1978. Traditional marine conservation methods in Oceania and their demise. *Ann. Rev. Ecol. Syst.* 9, 349-364.
- Johannes, R. E. 1998. The case for data-less marine resource management: examples from tropical nearshore finfisheries, *Trends in Ecology & Evolution*, Volume 13, Issue 6, 1 June 1998, Pages 243-246, ISSN 0169-5347, DOI: 10.1016/S0169-5347(98)01384-6. [http://www.marinenz.org.nz/documents/Johannes\\_1998.pdf](http://www.marinenz.org.nz/documents/Johannes_1998.pdf)
- Johannes, R. E. 2002. The Renaissance of Community-Based Marine Resource Management in Oceania. *Annu. Rev. Ecol. Syst.* 33:317-40 [http://www.bren.ucsb.edu/academics/courses/595PB/Readings/Johannes\\_2002.pdf](http://www.bren.ucsb.edu/academics/courses/595PB/Readings/Johannes_2002.pdf)
- Johannes R. E. and F. R. Hickey. 2004. Evolution of village-based marine resource management in Vanuatu between 1993 and 2001. *Coastal region and small island papers 15*, UNESCO, Paris, 48 pp. <http://www.unesco.org/csi/pub/papers3/vanu.htm>
- King, M. and L. Lambeth. 2000. *Fisheries Management by Communities: A Manual on Promoting the Management of Subsistence Fisheries by Pacific Island Communities*. Noumea, New Caledonia: Secretariat of the Pacific Community, 2000. 87pp <http://bit.ly/TY8VBx>
- Kuemplangan, B. 2004. Creating legal space for community-based fisheries and customary marine tenure in the Pacific: issues and opportunities. *FishCode Review*. No. 7 (En). Rome, FAO. 2004. 65p. <http://www.fao.org/docrep/007/ad937e/ad937e00.htm>
- Kuperan, K., Abdullah, N. M. R., Pomeroy, R. S., Genio, E. L., & Salamanca, A. M. 2008. Measuring transaction costs of fisheries co-management. *Coastal Management*, 36(3), 225-240.
- Ledua, E. 1995. Fiji. In: *Country Views on Community Involvement and Traditional Management Systems* (<http://www.tellusconsultants.com/fishexmp.html>)
- MECM/MFMR 2009. Solomon Islands National Plan of Action for the Coral Triangle Initiative. Solomon Islands Government.
- Mills, M., Jupiter, S.D., Pressey, R.L., Ban, N.C., Comley, J. 2011a. Incorporating effectiveness of community-based management strategies in a national marine gap analysis for Fiji. *Conservation Biology*, 25, pp. 1155-1164.
- Munro, J.L., and Williams, D.McB. (1985). Assessment and management of coral reef fisheries: Biological, environmental and socio-economic aspects. *Proc. Fifth Int. Coral Reef Congr.* 4, 545-581.
- Pomeroy, R. S., & Andrew, N. (2011). *Small-scale fisheries management: frameworks and approaches for the developing world*. CABI Publishing.
- Pomeroy, R. S., & Rivera-Guieb, R. 2006. *Fishery co-management: a practical handbook*. CABI.
- Preston G.L. 2005. Review of fisheries management issues and regimes in the Pacific Islands Region IWP-Pacific Technical Report (International Waters Project) no. 17. SPREP, Apia. Samoa.
- Rowe, A. 2007. Review of the LMMA Network. LMMA Network. [http://www.sprep.org/att/irc/ecopies/pacific\\_region/704.pdf](http://www.sprep.org/att/irc/ecopies/pacific_region/704.pdf)
- Ruddle, K. 1988. Social principles underlying traditional inshore fishery management systems in the Pacific Basin. *Mar. Res. Econ.* 5, 351-363.
- Spalding MD, Ravilious C, Green EP (2001) *World Atlas of Coral Reefs*. University of California Press, Berkeley, USA.
- SPC 2011. Guide and information sheets for fishing communities. Secretariat of the Pacific Community, Noumea. <http://bit.ly/nq6SLv>
- Vierros, M, Tawake, A., Hickey, F., Tiraa, A. and Noa, R. (2010). *Traditional Marine Management Areas of the Pacific in the Context of National and International Law and Policy*. Darwin, Australia: United Nations University
- Vukikomoala, K., S. Jupiter, E. Erasito, and K. Chand. 2012. An analysis of international law, national legislation, judgements, and institutions as they interrelate with territories and areas conserved by indigenous peoples and local communities. Report No. 19. Fiji. <http://naturaljustice.org/wp-content/uploads/pdf/ICCALegalReviewFIJI.pdf>
- Wallis, P., & Flaaten, O. 2001. *Fisheries management costs: concepts and studies*. OECD.

- Wilson, J. 2007. Scale and Costs of Fishery Conservation. *International Journal of the Commons*. Vol 1, no 1 October 2007, pp. 29-41
- World Bank 2000. *Cities, Seas, and Storms: Managing Change in Pacific Island Economies*. Volume 3 - Managing the Use of the Oceans, Papua New Guinea and Pacific Islands Country Unit, The World Bank. <http://go.worldbank.org/IGWRDY16T0>
- World Bank. 1999. *Voices from the Village: A comparative Study of Coastal Resource Management in the Pacific Islands*. Discussion Paper No. 9, Papua New Guinea and Pacific Islands Country Management Unit, East Asia and Pacific Region The World Bank, Washington, D.C. <http://bit.ly/zLw85K>

## APPENDICES

### APPENDIX 1: INTERVIEWEES AND CORRESPONDENTS

#### **Fiji**

Suresh Chand  
George Madden  
Aisake Batibasaga  
Sunia Waqainabete  
Pretika Prasad

#### **USP**

James Comley  
William Aalbersberg

#### **NGOs**

Stacy Jupiter  
Etika Rupeni  
Fei Tevi  
Neil Andrews

#### **Solomon Islands**

Christain Ramofafia (PS)  
James Teri  
Rosalie Masu  
Michael Laumani  
Jacob Wale  
Anne Schwarz

#### **SPC**

Robert Jimmy  
Kalo Pakoa  
Lindsay Chapman

#### **Papua New Guinea**

John Kasu

#### **Vanuatu**

Moses Amos  
Jason raubani  
Kalna Arthur  
Sompert Rena  
Marc Leopold  
Netty Naviti

Mandela Kalfapon  
Abel Namuri

George Petro (Wan Smol Bag)  
Francis Hickey (consultant)  
Tevi Obed (World Bank)

#### **MSG**

Peter Forau  
Laisiana Tugaga  
Peni Sikivou  
David T. Hopa

#### **New Caledonia**

Frédéric Guillard  
Mikael QUIMBERT  
Thomas Réquillart  
Bernard Fao  
Emmanuel Coutures  
Claire Marty  
Loïc Bourguine  
Henri Humuni

#### **Others**

Graham Baines (consultant, Solomon Islands)

## APPENDIX 2: THREATS AND PRIORITY AREAS FOR ASSISTANCE IDENTIFIED IN THE APIA POLICY

Table A1: Threats identified by PICT fisheries managers as part of the Apia Policy process

	Average score (all 21 PICTs)	Average score (MSG)	Score (3 MSG)	Score (SI)	Score (Fiji)	Score (Vanuatu)	Score (PNG)	Score (New Caledonia)
Over-fishing of inshore marine species	3.9	4	4.3	5	4	4	4	3
Sewage, nutrients entering coastal waters	3.6	2.8	3.7	4	3	4	1	2
Garbage dumps at the edge of the sea	3.2	2	2.3	3	2	2	1	2
Silt entering coastal waters/lagoons	3.0	3.2	3.7	3	4	4	3	2
Excessive coastal development; hotels, etc	2.9	2.8	3.7	3	3	5	1	2
Loss of beaches through sand mining	2.9	1.4	1.3	1	1	2	1	2
Pollutants, including oil, from boats	2.6	2.6	2.7	4	2	2	2	3
Loss of corals - people on reef (gleaning etc)	2.5	1.8	2.0	3	2	1	2	1
Pollutants, oil, entering the sea from industry	2.4	2.6	2.0	3	2	1	2	5
Destructive fishing methods (dynamite etc)	2.4	2.8	3.0	3	3	3	3	2
Pollutants, fertilizers, from agriculture	2.4	2	2.3	3	2	2	1	2
Loss of corals through coral bleaching	2.3	1.2	1.7	1	2	2	0	1
Reclamation of land; loss of marine habitats	2.3	1.6	2.0	2	2	2	1	1
Presence of alien and invasive species	2.2	1.8	2.3	2	2	3	1	1
Loss of corals - cement, buildings etc	1.7	1.6	2.0	1	3	2	1	1

Table A2. Priority areas for assistance as identified by PICT fisheries managers as part of the Apia Policy process (1 = no priority; 5 = very high priority). The information is based on questionnaires completed by Heads of Fisheries agencies.

	Average score (all 21 PICTs)	Average score (MSG)	Average score (SI, Van, Fiji)	Score (SI)	Score (Fiji)	Score (Vanuatu)	Score (PNG)	Score (New Caledonia)
Collection of data from subsistence fisheries	4.3	4.4	4.7	5	5	4	5	3
Short courses - basic data to assess fish stocks	4.2	4	4.0	5	3	4	4	4
Assistance with fisheries policy planning, etc.	4.1	3.4	4.0	4	4	4	4	1
Reviewing legislation relating to coastal fisheries	4.1	4	4.3	5	4	4	3	4
Preparation of public awareness material	4.0	3.2	3.7	4	4	3	3	2
Socio-economic surveys on benefits of MPAs	3.8	3.6	3.7	4	3	4	4	3
W/shop - application/enforcement of fish. regs.	3.7	3.6	3.3	3	3	4	4	4
Attachment to SPC programmes	3.6	3.8	3.7	3	4	4	4	4
Community-based fisheries management	3.6	3.8	3.7	4	3	4	3	5
Socio-econ. assessments of subsist. fisheries	3.4	3	3.0	4	2	3	4	2
Short courses - prep. of project proposals, etc.	3.4	3.4	3.7	4	5	2	4	2
Advice on size limits for important species	3.3	2.8	2.7	3	1	4	3	3
Developing community by-laws	3.3	4.2	5.0	5	5	5	3	3
Short courses - fisheries management plans	3.2	3.6	4.3	4	5	4	2	3
MPA site selection; monitoring	3.2	3.4	4.0	4	4	4	4	1
Implementation of ecosystems approach	3.2	3.4	3.7	3	4	4	4	2
Short courses - practical fisheries management	3.1	3.6	4.0	4	4	4	2	4
Training in EIA techniques	3.1	2.4	2.3	3	3	1	4	1
Organisational structure; HRD plan	2.9	2.8	3.7	4	3	4	0	3
Formation of fisheries advisory committees	2.8	3.8	3.3	4	3	3	4	5

### APPENDIX 3: PROPOSED CO-MANAGEMENT ROLES OF GOVERNMENT AND COMMUNITIES FOR CBFM IN MELANESIA

Priority co-management activities and roles of government and communities in a community-based fisheries management system for Melanesia. The activities are listed in numerical order of priority and minimum essential activities are marked by \*

Activity <sup>1</sup>	Government / province	Community / local	Notes
<b>Information provision</b>	<ol style="list-style-type: none"> <li><b>1. Ensure scientific/best practice information and advice is available to all fishing communities. This includes understanding of national/sub-national rules and their rationale*</b></li> <li>2. Develop and maintain systems to ensure information flow and feedback between communities and government agencies as well as within communities (this will likely involve use of decentralized subnational/provincial approaches and community agents)</li> <li>3. Record and prioritize feedback on emerging issues, community management activities and salient results or experiences</li> <li>4. Maintain centralized and accessible records on licenses, exports, prices, markets landings and other useful information for management decisions</li> <li>5. Specific surveys, stock assessments and support to community monitoring where these are vital to the success of community management or national policy priorities.</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Community maintains, uses and develops (where necessary) local and traditional knowledge, tenure systems and governance institutions*.</b></li> <li><b>2. Community performs local observations and issue identification</b></li> <li>3. Community information collection and recording,(or more systematic monitoring in the rare cases where this is appropriate)</li> </ol>	<ol style="list-style-type: none"> <li>a. Government and partners need to determine the most useful advice and information to be provided to communities based on best available information, experience and national policy. This information should reach all coastal communities and cost effective strategies to achieve this will need to be developed suitable to the local context.</li> <li>b. Cost intensive research and surveys should kept to a minimum and only carried out where essential to address a stock crisis or a particular emerging issue. Such research should be robustly designed with outside advice as appropriate and the results shared with the communities in a prompt and clear fashion.</li> <li>c. The feedback systems allow early detection of emerging issues and form the basis for prioritization of remaining departmental budgets to address specific fisheries issues. Feedback also allows assessment of the extent that communities are attempting to address issues, the severity of these and on that basis whether the communities warrant further potential interventions such as increased market access, FADs or seaweed farming.</li> </ol>
<b>Management (Formulation, dissemination and implementation of management policy and rules)</b>	<ol style="list-style-type: none"> <li><b>1. Secure and maintain political and public support for inshore fisheries management and the importance to this of traditional knowledge, tenure systems and governance institutions*</b></li> <li><b>2. Provide / develop national and sub-national policy frameworks with clear objectives and in longer term, enabling legislation and institutions, based on experiences and feedback from community and other stakeholders*</b></li> <li>3. Promote, advise on or support community implementation of management measures (eg temporary closures, or fishing rules where communities have not set up their own) based on prioritized requests and community need and commitment</li> <li>4. Support decentralized positions including provincial/subnational staff and networks, community agents/ wardens/ authorized officers to</li> </ol>	<ol style="list-style-type: none"> <li><b>1. Discuss and gauge state of resources over time and highlight any emerging negative trends in the light of traditional knowledge and outside advice and experience*</b></li> <li><b>2. Implement, track and modify simple community rules as and if appropriate to address priority identified problems and community objectives/purposes*</b></li> <li>3. Representation of issues, objectives and progress to other communities, levels of government or stakeholders to promote improved practice between communities</li> </ol>	

<b>Monitoring and enforcement</b>	fulfill key roles 5. Coordination and liaison between local and other levels and across sectors to ensure ecosystem approach 6. Address specific priority fisheries problems including potential access to higher cost Fisheries projects such as FADs or increased access to markets which depend on functioning community management	and inform national and sub-national policy.	
	1. <b>Monitor and enforce at central locations including marketing of illegal fish, import and sale of illegal fishing gear, export quotas, activities and practices of middle-men, size restrictions and licence conditions*</b> 2. <b>Training and support of local wardens or honorary officers as well as their nearest liaisons in Fisheries and Police departments*</b> 3. Liaise with police and courts to build well informed and proactive enforcement networks or partnership 4. Enforcement or conflict management support where possible for issues that exceed community capacity such as poaching from foreign vessels or use of dynamite	1. <b>Monitor and enforce restrictions to access of community fishing areas*</b> 2. <b>Enforce any local rules that may apply*</b> 3. <b>Promote compliance with national/sub-national rules*</b> 4. <b>Assess, record and communicate management outcomes and major enforcement issues with designated government or network liaison*</b> 5. <b>Review fisheries management measures against objectives periodically*</b> 6. Review and revise or strengthen management institutions as appropriate to ensure traditional systems are adapted to modern context if need be.	a. The licensing of inshore fisheries will need to be addressed but for the moment national context and issues may require a country by country approach. b. Communities may wish to assess the status of their management using approaches ranging from simple observation to more complex monitoring approaches. The selection of approaches will depend on need, sustainability and available support.

1. Main groups of standard fisheries management activities based on Arnason et al. 2000

References and sources: G. Baines, S. Jupiter, J. Comley, E. Rupeni, C. Carleton, M. Leopold, SI MFMR staff, Vanuatu FD staff, Fiji FD staff, Pomeroy and Rivera-Guieb 2006, Pomeroy and Andrew 2011, Abdullah et al 1998, Brown et al 2005, World Bank 1999, Anderson and Mees 1999, Arnason et al 2000, Kuperan et al 2008, Apia Policy, Govan et al. 2011

# APPENDIX 4: OVERVIEW OF THE APIA POLICY AND ITS IMPLEMENTATION

Principle	Strategic action	Comments (SI, Van, Fj)
1. Improving our understanding of important fisheries species and the ecosystems on which they depend.	<p>(a) To broaden our knowledge of important species and their ecosystems.</p> <p>(b) To identify species that are particularly vulnerable and take appropriate management measures.</p>	<p>SPC info sheets received and highly regarded by all</p> <p>Politicians should be targeted for “awareness” SI Research and SPC assistance with BdM - all</p>
2. Sustainably managing coastal fisheries, reducing their adverse impacts on coastal ecosystems, and optimising production to meet local nutritional needs and contribute to economic development.	<p>(a) To enhance the capacity of fisheries agency staff to carry out effective biological, social and economic stock assessments and manage sustainable fisheries.</p> <p>(b) To manage fisheries using precautionary (‘safe’) levels of exploitation, even in the absence of formal stock assessments.</p> <p>(c) To identify and control, reduce or ban damaging fishing practices.</p> <p>(d) To develop comprehensive national coastal fisheries policies and subsequent fisheries management plans that incorporate the essential elements of effective management regimes, including maximising economic yield from all income-producing fisheries.</p> <p>(e) To facilitate the attendance of Pacific Island regional representatives at relevant international forums.</p> <p>(f) To assess costs and benefits associated with recreational fisheries and apply appropriate management measures.</p> <p>(g) To employ near-shore FADs and, where suitable, artificial reefs, to divert fishing effort from more sensitive coral reef ecosystems.</p> <p>(h) To support appropriate aquaculture and stock enhancement activities that divert fishing effort from more sensitive coral reef ecosystems.</p>	<p>a. Training by SPC and NGOs (SI), IRD (Van), SPC and NGOs (Fj)</p> <p>b. Moratorium on BDM (SI, Van)</p> <p>c. Suggest provincial approach most promising (SI)</p> <p>d. BdM (Van, Fj, SI), Inshore (SI), Aquarium (Van)</p> <p>e. Yes, several</p> <p>f. no indication</p> <p>g. FAD program SPC, JICA (SI, Van, Fj)</p> <p>h. Seaweed (SI, Fj), GClams (FJ, Van), Trochus (Van)</p>
3. Creating community partnerships to support the customary and traditional management of nearby ecosystems and fish stocks.	<p>(a) To support and strengthen the involvement of fishing communities in fisheries management and monitoring.</p> <p>(b) To develop legal frameworks that allow for the development of community fisheries by-laws.</p> <p>(c) To develop, re-establish or strengthen property-use rights.</p>	<p>a. yes (Van, Fj)</p> <p>b. Provincial ordinances (SI)</p> <p>c. Law Reform Commission review (SI)</p>

<p>4. Creating stakeholder collaborations to manage ecosystems and reduce the negative environmental impacts of non-fisheries activities, including those resulting in high loads of silt and nutrients in coastal waters.</p>	<p>(a) To engage relevant government agencies and other stakeholders in ecosystem management.</p> <p>(b) To identify, prioritise and address issues that are impacting coastal ecosystems.</p> <p>(c) To establish a programme of monitoring physical, chemical, biological, social and economic parameters of coastal waters and formulate appropriate standards.</p> <p>(d) To protect and preserve portions of marine ecosystems and fish stocks.</p> <p>(e) To raise public awareness of the need for fisheries and ecosystem conservation.</p>	<p>a. CTI NCC, WFC Malaita (SI), GEF project, SPC-GIZ (FJ), Crab Bay (Van)</p> <p>b. ?</p> <p>c. ?</p> <p>d. NGO MPAs (all)</p> <p>e. NGOs</p>
<p>5. Promoting participation of women and youth in all fisheries-related activities.</p>	<p>a) To enhance the availability of young well-trained recruits for fisheries agencies by providing university scholarships.</p> <p>b) To encourage regional training institutions to develop fisheries courses that address the needs of PICTs.</p> <p>c) To provide youth training for in maritime, fishing and seafood safety skills, with practical work including attachments to operations run by experienced local fishers.</p> <p>d) To promote gender equity in national fisheries agencies and provide equitable promotion opportunities for female staff.</p> <p>e) To provide opportunities for women and youth to participate in all fisheries training courses and regional meetings, gain employment in fisheries agencies, and receive formal scholarships.</p> <p>f) To provide specific training for women in fisheries businesses and enterprises.</p> <p>g) To provide short- and long-term technical assistance to fisheries agencies with a lack of qualified staff.</p>	<p>** Little if any mention of this in any country</p> <p>WFC project in MFMR SI on gender</p>
<p>6. Enhancing regional exchange and sharing of information on areas of common interest relating to the management of ecosystems and fisheries</p>	<p>(a) To promote the exchange of fisheries and marine ecosystem information through regional meetings and workshops.</p> <p>(b) To promote the exchange of fisheries and marine ecosystem information through websites, special interest group newsletters, leaflets, digital libraries and other media.</p> <p>(c) To share knowledge and skills through the establishment of a knowledge-exchange system, including a regional network of experienced people with particular skills.</p>	<p>CTI/SPC</p> <p>PIMRIS?</p>