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Trends in Global Marine Governance Models and
the Prospects for Small-Scale Fisheries:
A Case Study of Fiji's Inshore Fisheries

Author: 3521273

Supervisor: Daw, T.

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Summary

Global fisheries are becoming increasingly exploited leading to subsistence and livelihood uncertainty for those communities living in fishery-dependant coastlines of developing countries. Small Scale fisheries (SSF) are arguably the world's best option for sustainable use of marine resources; employing the most people and accounting for a major fraction of global catch, yet they are disadvantaged because of their typical remoteness, lack of infrastructure and marginal political power. Further, these SSF are poor when competing for fisheries resources and market access against heavily subsidised large-scale fisheries and additional trade barriers from sustainable fisheries initiatives such as eco-labelling.

Global fisheries governance has seen a shift from traditional customary management and ownership to state-control regulation of territorial waters, under the 1982 UN Convention on the Law of the Sea (UNCLOS). State-imposed legislation to regulate fishing activities, however, has so far failed to manage the crisis for large and small-scale fisheries. Most recently governance has seen a renaissance of the traditional models of community-based governance; partnerships between governments and communities for co-management and multilevel governance, market incentives and a move towards voluntary regulation models. These trends in global marine governance models are discussed initially with reference to their suitability to avert the current fisheries crisis.

After a review of the available literature on the concepts and evolution of global governance models for sustaining marine resources, the experiences of Fiji's small-scale inshore fisheries, and especially the Holothurian Fishery, is assessed. The likely prospect for this fishery and therefore the usefulness of these global governance models in effectively managing and sustaining worldwide small-scale fisheries is concluded.

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Chapter 1: Introduction

1.1 The State of the World's Fisheries: Ineffective Governance & SSF

The production of global marine resources are rising to a record high; preliminary estimates for 2005 by the Food and Agricultural Organisation (FAO) indicate the total world fishery production to have reached almost 142million tonnes. Technological intervention and increasing global demand for fish, however, means global catches are becoming increasingly over-exploited beyond their levels of sustainability (FAO, 2006). The FAO also predicted that in 2005 approximately one quarter of the stocks monitored were under or moderately exploited, 52% were fully exploited and the final quarter were overexploited or recovering from depletion. Reporting also during the same year approximately 31.1 million people made a living from fish production and capture, the vast majority of which are fishermen in Asia. This global fisheries crisis, therefore, not only affects the fish themselves; fishing is an important livelihood and subsistence source for many and the lack of effective management of fisheries resources leads to unemployment, poverty and environmental and resource degradation (Allison, 2001). The crisis of fisheries is also a crisis in governability; ineffective governance of fisheries is said to be one of the major causes of overexploitation of stocks as it leads to overcapacity, overfishing and illegal, unreported, under reported & unregulated fishing practices (IUU) (Satia & Gardiner, 2004, Grafton et. al, 2006, Dubbink & van Vilet, 1996).

Global fisheries governance has seen a shift from traditional customary management and ownership to state-control regulation of territorial waters, under the 1982 UN Convention on the Law of the Sea (UNCLOS). Although many countries have adequate government legislation they are short of compliance and are confused over national and local responsibilities for management implementation and thus government command-control models have so far failed to manage the crisis for SSF (Grafton et. al., 2006). The failure of this state-controlled government mixed with fiscal constraints, the increasingly recognised knowledge of local resource users and participation for compliance & co-operation, has led to increasing interest in the devolution of fisheries management (Payne, 2000). Devolution of management to the fishermen themselves was presumed to improve sustainability, efficiency and equity of resource use in SSF (Grafton et. al., 2006). This governance model has however faced many additional barriers, including the severe lack of information supply and uptake between governments and local resource users causing conflict of interests and lack of

compliance with regulation (Allison, 2001). Most recently, governance has seen a renaissance of the traditional models of community-based governance; partnerships between governments and communities for co-management and multilevel governance, market incentives and a move towards voluntary regulation models (Johannes, 2002).

Small Scale Fisheries (SSF), defined as those fisheries operating in boats less than 15m or without boats, are arguably the world's best option for sustainable use of marine resources; employing the most people and accounting for a major fraction of global catch (Satia & Gardiner: FAO, 2004, Jacquet & Pauly, 2008) (See Figure 1). They are disadvantaged however, because of their typical remoteness, lack of infrastructure and marginal political power (Allison, 2001). They face further barriers of being poor in competition for fisheries resources and market access against heavily subsidised large-scale fisheries and additional trade obstacles from sustainable fisheries initiatives such as eco-labelling (Ponte et. al. 2007, Satia & Gardiner: FAO, 2004).


















FISHERY	LARGE SCALE 	SMALL SCALE 
BENEFITS		
Subsidies	\$\$\$\$\$ 25-27 billion	\$ 5-7 billion
Number of fishers employed	 about 1/2 million	 over 12 million
Annual catch for human consumption	 about 30 million t	 same: about 30 million t
Annual catch reduced to fishmeal and oils	  35 million t	 Almost none
Annual fuel oil consumption	 about 37 million t	 about 5 million t
Catch per tonne of fuel consumed	 =  1-2 t	 =  4-8 t
Fish and other sealife discarded at sea	 8-20 million tonnes	 Very little

Figure 1. Schematic Representation of the duality of large and small-scale fisheries prevailing in most countries of the world. Source: Jacquet & Pauly: 833, 2008

The 2004 FAO Research Agenda for SSF observes that although there have been efforts to comprehensively highlight trends in global marine governance models and the experiences of large scale fisheries; little consideration has been given to the relationships between these global governance models and SSF (Satia & Gardiner, 2004). This dissertation aims to address this gap in research. The study focuses on the inshore fisheries of Fiji, as its inshore marine waters fall under dual ownership; traditional resource ownership and state seabed sovereignty, providing an interesting link between local indigenous communities and government institutions for management opportunities.

1.2 Research Aims and Objectives

The lack of research into the relationship between global marine governance and SSF constitutes a gap in knowledge, since previous research has mostly considered the experiences and prospects of the large scale fisheries. After a review of the available literature on the evolution of global marine governance, the experiences of Fiji's small scale inshore fisheries, and especially the Holothurian Fishery, is assessed. By combining the concepts of global marine governance with case experience, this dissertation will be able to assess the relationship between small scale fisheries and global governance and give a more accurate conclusion on the likely prospects for Fiji's inshore fisheries.

The overall aim of this dissertation is to therefore investigate the trends in global marine governance models and the experiences & prospects for Fiji's inshore fisheries.

The specific objectives are:

- To Summarise the evolution & trends in global marine governance models
- To Outline the background of the Republic of Fiji and the implications of evolving global marine governance for it's inshore fisheries; particular focus on the holothurian (Sea Cucumber) fishery
- To Examine the relationship, based on experiences from Fiji, between global governance models and small scale fisheries & highlight the prospects for Fiji's inshore fisheries

1.3 Methodology and Structure

This dissertation is divided into three main chapters each focusing on one of the specific objectives discussed above. Chapter 2 looks firstly at the trends in global marine governance models which highlights the major models that have evolved since they were first under ownership by the Roman Empire up until the present day (2009). Chapter 3 contextualises the investigation to enable a more complete understanding by providing a brief background to the Republic of Fiji & its marine ecosystem, the threats it faces and a history of inshore marine resource governance in relation to evolving global governance. Chapter 4 builds on the two previous chapters by discussing the relationship between the evolution of global governance models and the experiences of Fiji's inshore fisheries to conclude on prospects for the future of these fisheries and wider global SSF.

A broad literature search was carried out and material accessed via University of East Anglia's MetaLib portal, online databases JSTOR & Web of Science/Knowledge and Google Scholar Internet search engine.

In order to keep discussion structured on the specific aim and objectives, I have outlined four main global governance models to act as my conceptual framework, to which the experience of Fiji's Inshore Fisheries is then applied. To ensure continued structure to my arguments, I have also identified a set of three key questions, looking at the experiences, prospects and future of Fiji's Inshore Fisheries, which are then applied to each of the models outlined in my conceptual framework.

Chapter 2: Trends in Global Marine Governance Models

2.1 Marine Governance

Governance can be defined simply as; ‘the action or manner of governing’ (Oxford English Dictionary, 2009). Further, it can be defined as; ‘the management of stakeholder activities and relationships with regard to spatial-temporal resource use in the pursuit of many economic, social, political and environmental objectives’ (Nichols & Sutherland, 2006). Juda (2001) concludes governance involves three key mechanisms; governments, markets and NGO’s which affect legal, social and political pressures and subsequently resource use. ‘Good governance is based on recognition of the interests of all stakeholders, and inclusion whenever possible’ (Nichols & Sutherland, 2006). Nichols and Sutherland (2006) further split governance regimes;

-Hierarchal- State policy ownership, laws and regulations; top-down command-control approach

-Subsidiary- Individuals themselves rather than third party management; devolution of responsibility from state to citizen. Trends in marine governance show three models of subsidiary; community-based natural resource management (CBNRM) which utilizes informed terms and devolution/decentralisation of decision-making, mutual organisation by two or more groups in Co-management and finally, distributed structured governance; a set of organisation and institutions working together e.g. a mix of government departments.

Subsidiary models are subversive to those organisational structures based on traditional hierarchal models of governance. They challenge the view that an ‘omnipresent person or group has monopoly on useful knowledge and can govern top down’ (Paquet, 2000). For the purpose of this report governance can be viewed as the provision of direction towards the achievement of objectives and must include all interests, rights, responsibilities and difficulties facing stakeholders; a framework of social & economic systems and legal & political structures that can take a variety of forms on many levels.

Ineffective governance has so far led to overcapacity, over-fishing, illegal, unreported & unregulated (IUU) fishing and other challenges affecting fisheries in general (Satia & Gardiner: FAO, 2004, Grafton et. al., 2006). Many countries despite having adequate overall policies for fisheries have serious shortcomings in compliance, or confusions in national and

local responsibilities. Further, capacity for policy research and development are often low in the fisheries sub-sector of developing countries. The following chapter will consider trends in global marine governance models since the early 17th Century.

2.2 Trends in Global Marine Governance Models

Historically, the Roman Empire ruled marine ecosystems as terrestrial territory; *Mare Clausum* (Closed Seas). However, Grotius (1609) in his book *Mare Liberum* (Free Seas) introduced the 'freedom of the seas' concept; national rights limited to a specified belt of water extending from a nation's coastlines, usually three nautical miles (nm). All waters beyond national boundaries were considered international waters — free to all nations, but belonging to none of them (Muehlig-Hofmann, 2007a, Berkes, 2006, Allison, 2001). What was failed to be noticed here was the traditional social controls of many kinds which exist to manage common-property; for example, South Pacific Customary Marine Tenure (CMT) (Muehlig-Hofmann, 2007a). The concept that fishermen view the sea as a collective resource is neither universal nor natural and is not historically corroborated (Berkes, 1987).

Independence of colonial states, industrialisation and the discovery of mineral resources beneath the sea bed provided the impetus for a widening of state jurisdiction. Beginning in 1958 three United Nations Law of the Sea conferences were held (1958, 1960 and 1973) to decide upon the rights and duties of nations regarding ocean space. The 1982 Convention on the Law of the Sea (UNCLOS), an international agreement resulting from the third United Nations Conference, defines the rights and responsibilities of nations in their use of oceans and establishes regulations for effective management of marine resources. The coastal nations adjacent to the seas have sole exploitation rights and to implement this 200nm Exclusive Economic Zone (EEZ) and 12nm Territorial Waters were ascertained. Beyond this limit, article 87(1) states; 'the high seas are open to all states, whether coastal or land-locked'.

By assuming sole responsibility for the management and ownership of EEZ's, the state undermined fishermen's customary ownership and management responsibilities and led to Hardin's (1968) 'Tragedy of the Commons'; multiple individuals, acting solely for their own self-interest, which will ultimately deplete a shared limited resource. Hardin argues the only sustainable outlook would be for the controlling centralised governing body to establish and manage a suitable property rights framework, including access and withdrawal rights, for the communities (Dietz et. al., 2003). Berkes et. al. (1990) criticises this theory as insightful but

incomplete; in the face of overexploitation pressures, resource users will group together to control access and agree regulations themselves, such that a new model of self governance and sustainability emerges.

The 1992 UN Conference on Environment and Development in Rio enunciated the Agenda 21 plan for sustainable management and subsequently The UN Convention on Biological Diversity (CBD) and The UNF Convention on Climate Change (CCC); of which Fiji is signatory. Chapter 17 of Agenda 21 addresses fisheries, highlighting the need for increased research, integrated coastal zone management (ICZM) and a formal conflict resolution mechanism in order for a sustainable future (Muehlig-Hofmann, 2007b, Juda, 2002). Additional to this and reacting to the growing intensity of international conflict over straddling stocks, the UN produced an Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks in 1995 which extended the 1982 UNCLOS (Miles, 1999). During the same year the FAO released a Code of Conduct for Responsible Fisheries to facilitate changes towards more sustainable and responsible approaches to fisheries and their management (Allison, 2001).

Global Governance Models

2.2.1 State Governance

The early 20th Century command-control state governance, set specific policies within the broader international law framework and also negotiated & implemented international agreements. They then imposed these international policies and agreements based on scientific advice for each particular area; for example Total Allowable Catches (TACs) (Muehlig-Hofmann, 2007a). Compliance with these regulations is ensured by appropriate policing, a very costly process useful only, therefore, for industrial fisheries in temperate waters (Allison, 2001).

State governance, however, lacks a clear, long term vision, following change rather than anticipating or directing (Berkes, 1987, Allison, 2001) and often marginalises & excludes SSF leading to a lack in compliance with policy regulations (Berkes et. al. 2006). The recurrent fish stock crises have tarnished the top-down bureaucratic approach to fisheries management (Jentoft et. al. 1998) and a move towards cooperation and participation of knowledgeable local communities was seen in an attempt to make laws work (Pomeroy & Berkes, 1997).

2.2.2 Self Governance

As Johannes (2002) informs, late 20th Century saw a renaissance of the centuries old community-based management regime as models moved from command-control governance to self-management and tenure reform in hope of stopping the bleak ‘Tragedy of Commons’ outlook. Local communities have broader more in depth understanding of the local ecosystems & natural resources therefore devolution of management to these users will encourage self interest and responsibility and subsequently sustainable management (Berkes, 2006). Jentoft et. al. (1998) also notes that participation of users will legitimize the regulatory regime and hence increase compliance.

The concept of self governance, based on the idea that self-interest and responsibility provide incentive for sustainable use, fails however to consider whether communities are willing and able to regulate their own fishing activities and whether they have the capacity for research and management (Muehlig-Hofmann, 2007a). Devolving management alone will not end the competition for marine resources, unless supported by incentives to change practice (Allison, 2001).

A property rights framework, assigning individuals to a secure share of the resource, means they no longer have an incentive to race for fish (Berkes, 2006). Instead the incentive is to maximise economic benefits by reducing the cost of using their rights & increasing the rights value. Transferability is required to ensure local elites/large scale fisheries don’t ‘squeeze out’ SSF, therefore consolidating global fisheries (Jentoft et. al. 1998). Individual Transferable Quota is the focal mechanism for rights based management, however SSF in developing countries lack the capacity or are reluctant to pay government services to collect scientific advice and catch monitoring data which are requirements for the success of this mechanism. Tenure reform without the necessary skills and finance transfer will therefore fail (Berkes, 2006).

2.2.3 Co-Management

Instead, current paradigm shift has seen a movement toward co-management; that is shared decision-making and finance, to monitor and assess resource status between two or more organisations or institutions and multi-level governance (Pinkerton, 1989, Jentoft et. al., 1998). External environmental changes, such as large scale El Nino/La Nina events and the negative impacts associated with Climate Change along with more localised problems of

pollution and land degradation are also considered in this governance reform (Jentoft et. al., 1998). A committee or institution based on the merging of governmental departments to ensure structure and effective planning and policy making is also often established as part of this model (Muehlig-Hofmann, 2007, Jacquet & Pauly, 2008).

2.2.4 Market Governance

Markets are more recently also influencing the management of marine resources e.g. product-labelling and certification placing emphasis on product quality control. More Economically Developed Countries (MEDCs) economic prosperity and wide availability for choice, leading to increasing concern of production processes & standards of marine resources, provided impetus for a shift towards this model. The idea then, is that certification constructs linkages between consumer choice and the impact on marine ecosystems & livelihoods (MSC, 2009).

During 1997 WWF & Unilever Corporation launched Marine Stewardship Council (MSC) to strengthen links of consumer choice and market forces to sustainable, well-managed fisheries. Sustainable products are then obvious to the consumer as they bear the MSC logo (MSC, 2009). This method has been criticised for not accounting for complex small-scale developing countries local fish trade and favouring major buyers (Allison, 2001, Jacquet & Pauly, 2008). Frequently, SSF do not have the capacity to provide such transparency data and subsequently face additional barriers of marginalisation as they cannot achieve MSC labelling. There is also little to no consideration for domestic markets; a major source for SSF in developing countries (Jacquet & Pauly, 2008).

On a localised level, there has been increasing focus on eco-labelling but also on fair trade. The indirect effects of fair trade have been reduced competition between small scale & large scale fisheries as large scale producers have to meet standards and policies that protect the interests of SSF. This subsequently raises the global awareness and profiles of SSF (Allison, 2001).

2.3 Discussion

Vulnerability of small-scale fishing communities are not geographically bound but are instead connected to large-scale processes of socio-cultural change & market integration, for example trends in global commodity markets and governmental policies can have positive effects both locally and at a larger scale (Adger et. al., 2008). Something, Adger et. al. (2008), describe as The Hierarchy Theory outlining that lower level phenomena are constrained & controlled by processes operating at higher levels.

Various governance approaches used together can slow down and replace destructive incentives with a resource rights framework that facilitates environmental stewardship e.g. self-interest in attachment to an area (Berkes, 2006). Social goals including eco-labelling and raising the interests of SSF joined with a push towards co-management should help reorient management to serve communities and not just fish and rich consumers for future sustainability.

Chapter 3: Fiji

3.1 Background: Republic of Fiji

The Republic of Fiji is an archipelagic nation comprising approximately 322 islands with a total land area of 18,274 km² and surrounding Exclusive Economic Zone (EEZ) of 1.3million km². Situated in the middle of the South West Pacific Ocean the island group lies 1,770 km northwest of New Zealand [18⁰S 175⁰E] (*See Figure 2*). (FAO Fishery and Aquaculture Country Profile: Fiji, 2009, CIA World Fact book: Fiji, 2009). Fiji gained independence from British Colony in 1970, becoming a Dominion and most recently a Sovereign Republic. The country has seen rapid but uneven social and economic development and has faced four military coup d'états between Indo and Native Fijians since 1987, the last in December of 2006 (Teh, 2009).

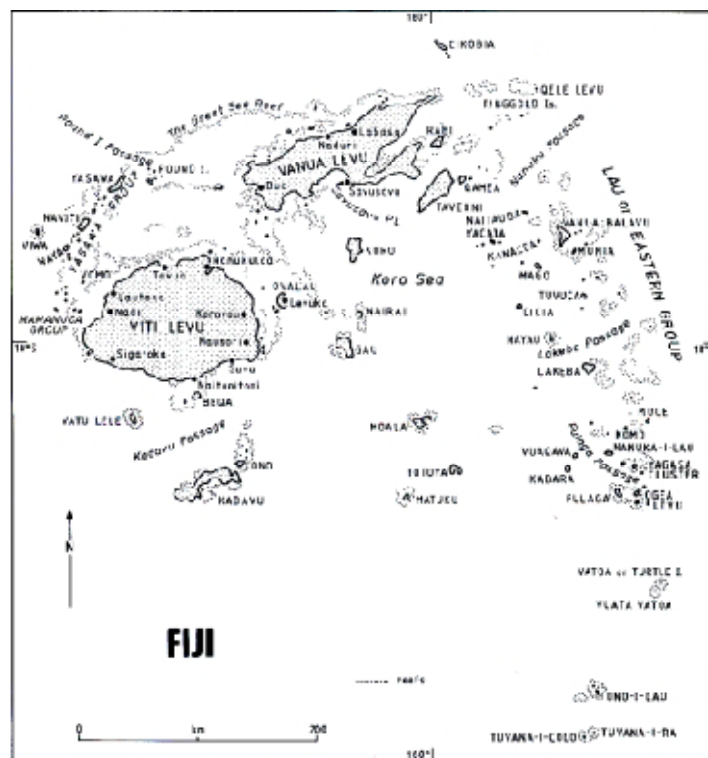


Figure 2. The Republic of Fiji. (Vunisea et al, 2002)

3.2 Area Under Pressure

Fiji has a rapidly growing population of approximately 944,720 people of which 99.9% are living on or within 75km from the coast (WRI, 2005, Fiji Islands Bureau of Statistics, 2007,

CIA World Fact book: Fiji, 2009). It is estimated that at least 60% of all rural households are involved in fishing both as a source of livelihood and subsistence. (FAO Fishery and Aquaculture Country Profile: Fiji, 2009). The inshore fisheries are a mixture of both multi-species, multi-gear fisheries – women generally collect fish daily for subsistence through either reef-gleaning or netting and men fish for artisanal/commercial needs often using motor boats, spear guns and hand lines (Vunisea et al, 2002). Poison and dynamite fishing are banned under legislation; however, ‘Duva’ plant poison, used to stun fish, is still in use illegally across the country (Teh, 2009).

There were a peak number of vessels in operation at 2,112 in 1989 and during the same year a Fish Aggregation Device (FAD) programme was introduced to encourage fishing offshore, by 2004 the number of vessels had dropped dramatically to 727 (WRI, 2005). Overseas demand and subsequent price for food & aquarium trade; beche-de-mer, trochus, live reef finfish, giant clams and other coral reef resources is increasing and currently some high yield species such as sea cucumbers, tritons trumpet, finfish and giant clams are being targeted and overexploited (Teh, 2009).

Further to these local pressures, cultural demands for marine resources are still also evident. Traditional Fijian villages are split into family *mataqolis* each of which has an individual ‘totem’; often a marine animal such as a shark or whale. The shark is also considered to be the God of safety for many, whilst whale’s teeth are exchanged as a sign of wealth and respect at any formal occasion such as a wedding or birthday and are extremely highly valued (Carens, 2000)

3.3 Threats

Waitling and Chape (1992) suggested that threats to Fiji’s marine ecosystem were manifold. Fiji’s marine environment is under increasing pressure from anthropogenic threats including; climate change and subsequent coral bleaching, the introduction of invasive species, and the lack of efficient economic and political structures. Increased urbanisation and related infrastructure developments are leading to point-source excess runoff pollution and siltation from the sugar industry, inadequate sewage disposal and the agricultural sector (Lane, 2006). Further, increasing demand for marine resources from external markets and access to more efficient fishing gear is leading to over-exploitation and destructive fishing practices from both artisanal and commercial fisheries (Thaman et. al., 2005). Additionally, the local

economic market is small and relatively undiversified, resulting in added pressure of an economy vulnerable to fluctuations (Teh, 2009). These threats are only worsened by the high risk of natural disasters (cyclones, tsunamis, floods etc.) which face this archipelagic of tropical islands (Kelleher et al, 1995). A study (Bell et al, 2008) shows Fiji to be among eleven pacific islands that will not be able to meet future food security.

Marine resource degradation used to be managed by traditional culture but as the critical threats discussed above are intensifying this management is becoming increasingly inefficient. Further, despite the high importance of these inshore fisheries they are undervalued, understudied (no data collection of catch status, composition or contribution) and highly misunderstood (Fa'asili et. al. 2002). Veitayaki (1998) reports that the Fijian Government have attempted to undertake data collection surveys but failed up until now due to fiscal barriers. Current policies are based on data collected during the late 1970's and are therefore outdated and inefficient (Veitayaki, 1998). The development of Fiji's inshore fisheries has been largely piecemeal, problematic and expensive (Muehlig-Hofmann, 2007a) and without addressing these fundamental issues the problem is likely to continue, there is therefore a need for a more effective and sustainable governance plan for the future.

3.4 A Brief History of Marine Governance in Fiji

3.4.1 Stakeholders

Stakeholders in governance of Fiji's inshore fisheries can be recognised as the following (*See Figure 3*);

- ***Village Customary landowners & Provincial Administration (Primary Stakeholders)***; the majority of whom either directly subsist or earn cash income from the land and resources they border. They enjoy resource sovereignty over much of the land and inshore marine area of the country as part of the NLFC recorded CMT (*Qoliqolis*).
- ***National Government of Fiji: Ministry of Agriculture, Fisheries & Forestry***; provides a legislative and policy regime across all major natural resource sectors. The Ministry holds ultimate decision-making power, as part of the 1997 Laws of Fiji, after cabinet discussion and promulgation to the Fiji Gazette. NLFC was established as a governmental organisation to act as a voice for primary stakeholders and their traditional management regimes.
- ***Civil society***; active in the domain of environmental policy and management. A range of local and transnational nongovernmental organisations (NGOs) increasingly participate

actively in policy development at a national level and are also directly involved in a range of experimental projects in environmental management to advise governmental policy. Notable organisations are University of South Pacific (USP), Fiji's Locally Managed Marine Area (FLMMA), World Wildlife (WW) & the 1947 Secretariat of the South Pacific Community (SPC). (Richards et. al., 1993, Lane, 2006, FIBS, 2007, Muehlig-Hofmann, 2007a, FAO, 2009 and Teh, 2009)

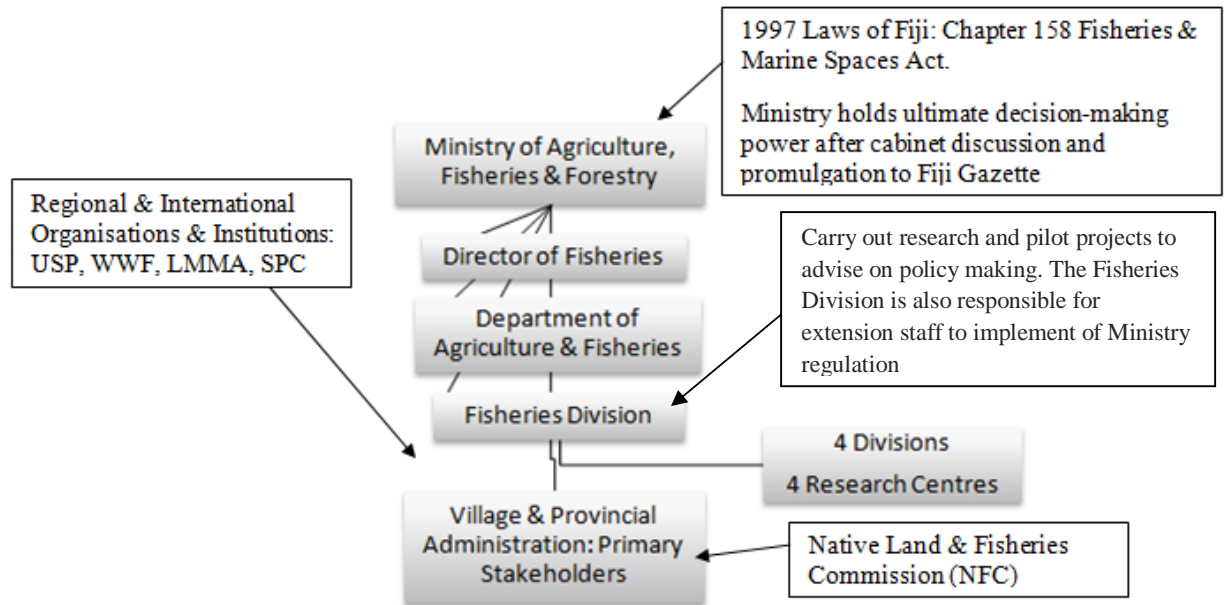


Figure 3. Model of Governance for Fiji’s Inshore Fisheries. **Source: Own, Based on literature: Richards, 1993, Lane, 2006, FIBS, 2007, Muehlig-Hofmann, 2007a, FAO, 2009 and Teh, 2009**

3.4.2 Trends in Marine Governance

In 1880 the Great Council of Chiefs resolved that Native Land should be registered under *Mataqoli*'s into specific *Qoliqoli* areas managed and owned by the communities bordering them with Ratu Cakobau as Tui Viti (King of Fiji) (Techera & Troniak, 2009). This was to prevent the mass alienation of Fijian land to Europeans (UNDP, 2006). Centuries old traditional management of these *Qoliqolis* includes temporary closures, limitations on fisher numbers and catch size, restrictions on gear types, fishing licenses and the use of 'Tabus' that prohibit fishing in certain circumstances. Traditionally, when the Chief of a village passes away, a portion of the community's fishing ground is set aside as no-take, or 'Tabu' area for 100 days as a token of respect for the chief (Carens, 2000)

During the colonial period many customary laws of the Indigenous population was subordinated to the introduced legal systems and the local communities stripped of marine tenure (Veitayaki & South, 1998). In 1970 Fiji gained its independence but the western command-control legal system was maintained. The 1978 Marine Spaces & Continental Shelf Act, Chapter 158A, as set out in the Government Laws of Fiji, denotes the sea bed as crown property but as discussed, 'Fiji has a long established system of local customary marine tenure consisting of several hundred *Qoliqolis* (traditional fishing grounds or customary fishing rights areas passed through generations) that are under the control of the communities adjacent to them.' (Muehlig-Hofmann, 2007a). Despite the regulations of the official legal system, many Indigenous peoples continued to live a traditional lifestyle according to customary law (Techera & Troniak, 2009). However, Teh (2009) estimates out of the 400 registered *Qoliqolis*, 70 are overexploited and over 250 are currently under threat from over exploitation.

The 1997 revised Laws of Fiji include a Fisheries Act: Chapter 158 and 158A, which governs the use and access to marine resources (Fisheries Act, 1997). 'They outline regulations for: Licences and Registration (Section 9—part II), Prohibited methods and areas (Section 9—part III), Mesh limitations (part IV), Size and limits of fish and prohibitions (part V), Exemptions (part VI) and Procedures for application for licences' (FAO Fishery & Aquaculture Country profile, 2009). Within this revised Law, the government still owns the sea bed, but in recognition of customary rights ownership and management, the Native Land & Fisheries Commission (NLFC) was strengthened to act as a voice for the local communities and record customary tenure. The Law states, in recognition of NLFC registered

CMT; communities are authorized to fish for subsistence within their *Qoliqolis* and the village chiefs, acting on behalf of the community, are given empowerment to advise the Ministry and Fisheries Division on the regulation and granting of commercial fishing licenses. The commercial fishermen are then legally obliged by the Fisheries Division to pay a goodwill fee (~FJD 650) to the communities in return.

The 1997 Fisheries Act, based on data from 1970's, is becoming increasingly out of date and is viewed as being too lenient with penalties (Richards, 1993). An application has been made by the Fisheries Division as part of the Fisheries Management Bill to give ownership of the seabed back to the Customary Marine Tenure (CMT) registered by the NLFC. This initial proposition failed but a second *Qoliqoli* Bill was proposed in 2006 to give property rights back to native Fijians part causing the more recent political coup as this proposal marginalised Indo-Fijians (Teh, 2009, Veitayaki, 1998). It is probably useful to note here that Veitayaki reported the initial application in 1998, yet still by 2009 when Teh reports, the application for the second proposal is still to be processed as a result of the governance disruption caused by most recent coup. This, along with the up-until-now failed governance, highlights the Government and subsequently the Ministries, lack of coordination; for example, the Fisheries Division lack financial/physical capital to manage the implementation of regulation sufficiently, have limited staff to aid with extension of regulation knowledge or assistance to the communities and also, therefore, cannot properly monitor or evaluate pilot projects or data collection (Muehlig-Hofmann, 2007b). A lack of communication with other agencies and government departments, leads to responsibility of management being scattered and unstructured (Adams, 1993). These problems are worsened by the large gap of information sharing within government departments and between government and local indigenous communities (Muehlig-Hofmann, 2007b).

The lack of tenure reform and resulting dual ownership of Fiji's marine spaces and resources leads to an interesting management field; confusion of responsibility and a subsequent conflict between government institutions and local communities is extensive (Adams, 1993). Pratt (1996) emphasized Fiji's top-down management regime mixed with the threats of modernization discussed above (e.g. the shift from subsistence to commercial fishing due to increasing technology; boats, motors etc. & increased access to markets) led to a larger capacity of fishermen, improper governance and un restricted fishing and subsequently overexploitation of the marine resources. A governance model linking communities with

legal institutions was required to reduce the confusion of responsibility, increase communication, management capacity & co-ordination and structure the governance for future sustainability.

In 2001, the Fiji Locally Managed Marine Area (LMMA) network was established as a co-management governance regime to work alongside the Governmental Ministry & Fisheries Division and NGOs (USP, WWF, SPC) as a forum for communities to share ideas, findings and setbacks and subsequently develop a sustainable management plan for each *Qoliqoli* controlled by the communities themselves (Govan et. al., 2008). There are currently 217 LMMA's in 116 *Qoliqolis* (LMMA Network, 2008). The LMMA integrate modern governance concepts such as marine protected areas with centuries old 'Tabu' area techniques, traditionally used for ceremonial occasion, in an attempt to sustainably rejuvenate fish stocks within Fiji's EEZ (LMMA Network, 2005). The Village Chief and community work together to select suitable sites, usually between 10-20% of total fishing ground, and impose five year bans based on their own observation and advice from Government Department of Fisheries, USP, SPC and WWF. These 'Tabu' areas are then strictly no-take zones to allow fish stock recovery (LMMA Network, 2005). Thus a LMMA is significantly different from a marine protected area in that it allows the community to provide information on their resources and empowers them to make crucial decisions regarding the management of marine resources as opposed to a central body. The apparent success of LMMA, in setting up 'Tabu' marine protected areas, suggests a need to move towards a structured co-management governance regime to manage inshore fisheries in Fiji for future generations (Teh, 2009, Muehlig-Hofmann, 2007b).

3.5 Case Study: The Holothurian Fishery

There are approximately 1,200 species of Holothurians (Sea Cucumbers) worldwide, 15 of which are located on Fiji's inshore reef flats (Richards, 1993). There is little current knowledge on the biology of sea cucumbers; most research is focused towards taxonomy of species (Adams, 1993). Research has shown that it takes approximately 2-3years to attain the age of first reproduction and have low levels of natural recruitment (Adams, 1993). Holothurians are eaten locally either fresh or cooked. There are also dried to produce 'beche-de-mer' through a process of boiling, cleaning, drying and sometimes smoking (the sea cucumbers will keep for months without fridge or preservation in this state) they are normally then rehydrated prior to consumption (Teh, 2009) (*See Figure 4*). China and South East Asia

perceive sea cucumbers a delicacy and aphrodisiac and subsequently produce high demand markets. International trade and currency regulation mixed with the fact that many South East Asian stocks are overexploited have led to a rapidly increasing market therefore economies are beginning to look elsewhere for supply, Fiji included (Adams, 1993). The relatively low skill and gear equipment requirement and relative open-access nature of the resource is worsening the overexploitation (Teh, 2009). Harvesting of holothurians is by hand, free diving, gleaning, SCUBA spear fishing and hookah¹. The harvesting and production process is critical to final price; final produce being graded by size, species and quality. There is no data on subsistence importance of sea cucumbers but there was a 1988 peak in trade followed by a bust in commercial exploitation; market sales in Dario species (most popular) between 1986-1992 has dropped dramatically suggesting over exploitation (Richards, 1993).



Figure 4. Sea Cucumbers drying in the sun- part of the Beche-de-Mer process. **Source: Own Photo**

3.5.1 Management

The Fisheries Division began regulation for sea cucumbers approved by the cabinet in 1984 which restricted harvesting to Fiji nationals and non-SCUBA spear fishing, there were however no size restrictions at this stage. By 1988 the Division introduced laws, as part of Chapter 158 Fisheries: Government Laws of Fiji, to regulate no species to be sold less than

¹ *The use of breathing tubes from a surface supplied compressor enabling long periods of fish collection; Live Food Fish Trade, 2009*

7.6cm in length and banned all Dairo exports (Richards, 1993). After a resource survey in 1989 the SPC recommended not leaving the resource until it reaches exploitation capacity but instead appropriate regulation needs enforcing e.g. blanket size limitations. Once sufficient data has been collected a move towards quota regulation should be implemented with a focus on SSF for sustainability and an association of members to liaise between exporters and the Government's Fisheries Division should be established (Adams, 1993). These laws and advice failed to include a ban on the use of Hookah for harvesting and this led to a boom in this method of exploitation in 1991 (Teh, 2009). Since regulation in 1988 little has been done to preserve Fiji's Holothurian Fishery (Teh, 2009).

The current size restrictions in place are unlikely to stabilise the fishery, since too much has already been harvested. A more realistic approach, therefore, would be to accept the boom-bust cycle, maximise exports for a period and then close the fishery for a few years to allow regeneration (Adams, 1992). This governance approach idea acknowledges the need for the Holothurian Fishery to be included in the co-management governance regime of FLMMA. Such that particular areas of the fishery are closed for certain time periods to allow stock regeneration, similar to the FLMMA 'Tabu' area management approach.

Chapter 4: Global Marine Governance Models: Experiences & Prospects for Fiji's Inshore Fisheries

4.1 Governance Models & Fiji's Inshore Fisheries

The following chapter addresses the third aim outlined in the Research Aims & Objectives in Chapter 1; the relationship between the evolution of global governance models and the experiences of Fiji's inshore fisheries and thus the likely impact and prospects for SSF worldwide. In order to keep structure throughout the discussion the following questions will be applied to each of the four main global governance models identified in chapter 2; State Governance, Self Governance, Co-Management and Market Governance.

Question 1. Has this model been used in attempts to sustainably govern Fiji's inshore fisheries?

Question 2. What were the experiences?

Question 3. What are the requirements for success of this governance model & how realistic, therefore, is this governance model for the future?

After assessing the experiences and prospects of Fiji's inshore fisheries for each of these governance models, the recommendations for the future governance of these fisheries is discussed, before concluding, based on this evidence, the likely outcomes for wider global SSF.

4.1.1 State Governance

Question 1. State Governance has been experienced in Fiji since 1978, when the State gained ownership over the sea bed as part of the Marine Spaces & Continental Spaces Act (Muehlig-Hofmann, 2007a).

Question 2. This mode of governance, however, has been poorly received and has failed to manage the over exploitation crisis for Fiji's inshore fisheries (Bell et. al., 2008, Fa'asili et. al., 2002, FAO, 2009 & Lane, 2008). Pratt (1996) emphasizes the management of marine resources in Fiji using a top-down regime mixed with the threats of modernization has led to overexploitation of marine resources as it fails to account for the interests of primary stakeholders and bases policy on international paradigms unsuitable for Fiji's small-scale inshore fisheries. The main reasons for failure of this model, discussed in detail below, were;

- lack of vertical communication between the centralised national government, the public & primary stakeholders
- lack of efficient research, monitoring and evaluation information, policy fragmentation as a result of out of date legislation
- the lack of an integrated framework between government departments.

Fiji's Government is highly centralised; both geographically and administratively. The Government, geographically, is located in Suva. A study by Lane (2008) proved department budgets for extension was minimal. Fiji, being a diverse island nation of over 332 islands, means fishing communities are often extremely remote and are therefore geographically marginalised. This, mixed with the limited communication technology available, has led to limited regional presence of the national government and, therefore, a limited ability for policy makers to understand and relate to local circumstances and needs (Muehlig-Hofmann, 2007b). This limited presence and the primary stakeholder's lack of trust in the government following the multiple political coups, has led to the marginalisation of fishing communities and the lack of compliance with policy (Fa'asili, 2002).

The command-control nature of the national government is reinforced by its administration structure. Vertical governance; the national governments relation to municipal government, customary landowners and the public, is weak, with the majority of policy planning conducted without consultation or consideration of primary stakeholders (Lane, 2008). For example, ultimate decision-making power to approve planning and regulation for Fiji's marine resources are held by the Ministry of Agriculture, Fisheries & Forestry, yet minimal power is given to the Fisheries Division who is in charge of the implementation of these regulations (Lane, 2008). The lack of vertical governance also leads to insufficient extension and research staff to communicate regulations to communities, ensure proper monitoring and evaluation of pilot projects e.g. the national government's Fisheries Act licensing policy to regulate fishing is rarely enforced due to lack of physical capital to provide appropriate policing within the Fisheries Division (Teh, 2009).

Further, the lack of effective research, monitoring and evaluation of pilot projects leads to knowledge gaps and the failure to learn from experience such that the same mistakes are being made over and over again. The planning and development of natural resource policy

requires extensive research, monitoring and evaluation (Vunisea et. al., 2002). The absence of an active planning and research agenda in Fiji exacerbates the information shortfalls (Lane, 2008). Research is vital otherwise the government faces huge constraints in their ability to adapt to fast emerging issues and to design and implement new policies. The Fisheries department, for example, is currently undertaking a survey of fish stocks in each *Qoliqoli* so that it can advise communities on the extent of its inshore resource. However, of the 216 *Qoliqolis* registered only thirty five sites have been completed (Muehlig-Hofmann, 2007a). Despite this information gap the current licensing policy is fundamentally based on the limited knowledge of the extent of the fishery for each area and if this data is unavailable then based on data collected during 1970's, this therefore proves this policy to be unreliable and out of date for those areas unstudied (Lane, 2008). Monitoring and evaluation data is also crucial for the long-term success and sustainability of policies e.g. compliance with licensing requirements (Adams, 1993).

The current lack of communication between government departments has lead to ineffective and fragmented policy. The national government's departmental configuration is based on a series of solitary environmental responsibilities and policy issues (forests, agriculture, environment and so on). The structure fails to consider the recently recognised link between policy issues and the subsequent need to integrate these as part of a broader policy framework. This policy fragmentation is exacerbated by the fact that legislation to address many of these departments (e.g. Fisheries Act) is outdated (the current Act is based on data collected during the 1970's) and viewed as being too lenient in enforcing penalties for offenders and therefore lacks compliance (Richards, 1993).

Question 3. The Global State Governance Model, implemented in the context of Fiji's lack of an efficient democratic government due to the multiple coups, has led to a scattered and unstructured management framework with weak governance capacity and policy fragmentation. Improving this model for the future would require, fundamentally, a review of the role of local communities relative to the central government, an improved mechanism to provide environmental advice to customary owners and improved community participation on policy. Further, as multiple department issues, such as global warming and sustainability, begin to rise up the policy agenda, the current structure of Fiji's government will need to be reformed to work towards the inclusion of multiple government departments and a more

integrated policy and strategy with specific institutions in charge of research, monitoring and evaluation and subsequently planning for policy making. This integration and increased vertical communication, Lane (2008) argues will help to reduce repetition of policy, reduce the failure to perform all necessary tasks and help move towards a more effective framework and consistent end goal.

The proposed 2006 *Qoliqoli* (Fisheries Management) Bill should help to overcome the problem of narrowly defined departmental responsibility and enable a higher degree of policy integration (Teh, 2009). It highlights the need to establish cross-sector and community participation coordination and to reform tenure back to CMT as listed by the NLFC (Teh, 2009). Although as discussed in Chapter 3 the proposed *Qoliqoli* Bill is yet to be formalised and implemented due to disruption caused by the last political coup.

4.1.2 Self Governance

Question 1. The globally recognised failure of state-controlled governance and the recognition of local knowledge and participation as necessary requirements for governance success meant Fiji saw a shift, during the late 20th century, towards the Self Governance Model.

Question 2. The indigenous communities hold a wealth of ecological knowledge built over many generations which is often underestimated (Vunisea et. al., 2002). Giving these communities the empowerment to manage, monitor and conserve their own resources addresses local needs and requirements, raises aspirations and encourages active participation in sustainably managing their resources.

The main shortfalls with the application of this global governance model in managing Fiji's inshore fisheries, however, are;

- lack of physical, organisational and financial capacity
- lack of a sufficient mechanism to control management e.g. a user institution/village council to decide upon decisions
- the lack of tenure ownership which mixed with the limited options available for alternative livelihoods subsequently produced a lack of incentive to change practices or engage and comply with policy making and implementation.

The capacity of key actors to manage environmental resources, and to network and collaborate with other actors, is a crucial dimension of environmental governance (Lane, 2008). This requires considerable socio-political, organisational and ecological knowledge and capability along with the financial resources to implement and prosecute their objectives and maintain structure (Virdin, 2000). A study by Veitayaki (1998) proves the local communities lack physical (the number and skills of people available to implement, research and monitor management), organisational (lack of legally recognised CMT tenure sovereignty, no users institution or formal council to address needs and issues as they arise; the village chiefs have ultimate decision-making power) and financial (travel, monitoring, evaluation etc.) capacity. These capacities are vital requirements for the success of the global Self Governance Model such that the application of this model to manage Fiji's inshore fisheries is incompatible.

The current lack of any central village council or user institution who meet to decide on policy making, resolve and conflict issues, monitor implementation etc. led to sporadic governance success and rising conflict (Muehlig-Hofmann, 2007b). Regardless of legislation or enforcement, the responsible management of marine resources will only be achieved when fishing communities themselves see it as their responsibility (King & Fa'asili, 1997). Despite an initial application being made by the Fisheries Division as part of the Fisheries Management Bill & the second 2006 *Qoliqoli* Bill attempt to give ownership of the seabed back to the Customary Marine Tenure (CMT) registered by the NLFC, these propositions have both been unsuccessful so far (Teh, 2009, Veitayaki, 1998). This lack of self interest and responsibility and the subsequent lack of attachment to the marine resources lead to the local communities lacking incentives to manage this supposedly 'free resource'. The failure of communities to recognise their management responsibility in this sense leads to a failure of the global Self Governance model.

Further, the limited opportunity for alternative livelihoods available provides extended lack of incentive to change practices and move towards sustainable management. 'It is unreasonable to expect communities to adopt conservation measures, which will (at least in the short term) reduce their present catches of seafood, without offering alternatives' (Govan et. al., 2008). A study by Zann & Vuki (1998) showed that options for alternative livelihoods

including tourism, monitoring and coral/seaweed farming were effective but limited for small scale coastal communities in remote locations such as Fiji.

Question 3. The current lack of organisation and capacity of the local communities needs addressing for the global model of Self Governance to be useful for the management of Fiji's inshore fisheries. The most likely option for this is the establishment of a mechanism to facilitate constant interaction, communication and collaboration to support decision making; for example, an institution of users and a village council who meet regularly to discuss issues, opportunities for management and establish governance regimes based on these findings. Further, technical training of carefully selected key actors of these institutions is required in order to enhance the local community's capacity for information & organisation, provide appropriate decision-makers for governance regimes and to aid effective implementation and monitoring.

Opportunities for alternative livelihoods must be identified and made more widely available as an incentive to change their current destructive practices. Further the current state sovereignty of resources is proving a barrier to the application of a Self Governance Model. The return of ownership to traditional tenure as recorded CMT by the NFLC is required to enhance self interest and responsibility as an additional incentive. Again, this policy is included in the return proposed but yet to be legalised 2006 *Qoliqoli* Bill.

4.1.3 Co-Management

Question 1. The realisation that models of state and self governance would not work alone, mixed with the opportunities for shared decision making, finance and research led to a global shift in the early 20th century towards a governance model paradigm of Co-Management. The Fiji LMMA network, established in 2001, was set up to work as a non-governmental organisation alongside the Government's Fisheries Division and partner NGO's as a forum for communities to share ideas, findings and setbacks and subsequently develop a sustainable management plan for each *Qoliqoli* controlled by the communities themselves (Govan et. al., 2008). Its success rate along with the global paradigm shift towards Co-Management saw the inclusion of governmental institutions and there is currently policy being discussed to legally bind this approach into national legislation.

Question 2. The Co-Management Model for Global Governance, applied in Fiji through the FLMMA network has been predominantly successful (LMMA network, 2008). The hybrid of modern and traditional management means both the national government and local community's requirements and interests are accounted for, providing an efficient alternative to the two governance models discussed above which act independently of each other often leading to conflict or lack of effective management regimes being established (LMMA network, 2005). As well as recognising and incorporating these stakeholder needs the vertical communication also provides accountability and transparency which encourages compliance from all levels (Adams, 1993). There are three shortcomings with this approach;

- The problem of implementation & enforcement
- The confusion over national and local management responsibilities under the current dual ownership
- And deeper gender and youth issues rooted in Fiji's socio-cultural traditions.

Monitoring and evaluation data collected from a period of 1997-2004 in the village of Ucunivanua indicates the dimensions of the LMMA pilot projects success. The number of clams increased dramatically in both the 'tabu' area and adjacent harvest area. The beginning of 1997, the start of the pilot project, clams were found no bigger than 5cm in diameter yet today, the local community routinely find clams of over 8cm in size in the 'tabu' areas (LMMA Network: Aalbersberg, B. 2005).

The apparent success of the clam and coral reef farming initiatives managed using the LMMA approach suggests the opportunity to manage the Holothurian Fishery in a similar fashion. Since top-down regulation in 1988, little has been done to preserve Fiji's Holothurian Fishery (Teh, 2009). Adams (1992) recognises due to the current state of the fishery a more realistic approach to its management would be to accept the boom-bust cycle, maximise exports for a period and then close the fishery for a few years to allow regeneration, supporting the LMMA 'Tabu' idea for governance regime.

Future problems which are beginning to arise with LMMA case studies elsewhere are, ironically, direct results of the 'Tabu' success. Due to higher numbers of fish and other desirable species, outside fishers, being drawn to the site, and local fishers are increasingly becoming involved with illegal, under reported and un-reported (IUU) fishing (LMMA

Network, 2005). In response, FLMMA must enhance policing by supporting the training of community members as fish wardens and grant them legal power to apprehend offenders.

The current dual ownership between the state and customary land owners is leading to conflict and confusion over the responsibilities for management. But, a deeper challenge facing the FLMMA initiative which is often neglected involves working within the social framework in Fiji, traditional culture does not usually allow for women to be a part of decision-making (Carens, 2000). This has proven a disadvantage; Fijian women are often the ones most involved in collecting inshore marine resources and have unique knowledge about them (Muehlig-Hofmann, 2007). However, although women collect the seafood for the communities, it is the men who make the decisions regarding management. Further, it is also difficult for young adults to participate in decision-making as they are often overruled by village elders. Policy must work to address this incongruity without causing conflict; possibly set up a women's group meeting which discusses the management plans or attempt to set a gender/age program requiring a certain number of each sex and age group to be present at meetings.

Question 3. The barriers facing the application of a Co-Management Model are the problems of enforcement & monitoring and deeper issues within the traditional socio-cultural setting in Fiji, such as gender and youth roles. The issue of dual ownership applies for all three global governance models discussed so far and thus, whatever the future prospects for governance this issue must be addressed and can be subsequently discounted as an issue specific to Co-Management Governance Model.

In response to the challenges of IUU fishing in 'tabu' areas, the communities are taking action to clearly identify the perimeters of the 'tabu' and the national government's fisheries department are providing fiscal and technical support to train fish wardens. Another option to consider aiding the decrease the IUU fishing is to legally delineate the 'tabu' areas as no-take fishing zones. This would allow police to patrol the area and make arrests (LMMA Network: Aalbersberg, 2005).

The inequitable representation of gender and young villagers in decision-making needs to be further assessed and rectified without violation of traditional systems, for future sustainability of the co-management approach. The establishment of women's group meetings which

allows women to participate and discuss issues without intimidation from village chiefs and the men of the community could be an option, but this still doesn't address the need for women's input into decision-making.

4.1.4 Market Governance

Question 1. The most recent global governance model paradigm is the Market Governance Model which places emphasis on product quality control to ensure transferability along the global commodity chain and subsequently lead to fair and sustainable fisheries trade. The most widely recognised certification programme is the global Marine Stewardship Council, launched as a joint effort by the WWF and Unilever Corporation in 1997. This model has not been experienced in Fiji yet.

Question 2. This method has been criticised elsewhere for not accounting for complex small-scale developing countries local fish trade and favouring major buyers (Allison, 2001, Jacquet & Pauly, 2008). Frequently, SSF do not have the capacity to provide such transparency data and subsequently face additional barriers of marginalisation as they cannot achieve MSC labelling. There is also little to no consideration for domestic markets; a major source for SSF in developing countries (Jacquet & Pauly, 2008).

Question 3. For the success of this global governance model in Fiji the issues of research and monitoring data gap would need to be fully addressed and further, as you can see from above, Fiji's current unstructured and unstable government would need a complex vertical governance reform addressing physical, financial and organisational capacity in order for transparency to be achieved.

Local small scale fisheries are focusing also on fair trade. The indirect effects of fair trade have been reduced competition between small scale & large scale fisheries as large scale producers have to meet standards/policies that protect the interests of SSF subsequently raising awareness and the profiles of SSF (Allison, 2001). Perhaps before adopting the new global governance model of Market Governance Fiji should consider their options for fair trade initiatives so their inshore fisheries don't become marginalised by the large scale fisheries operating in the area that have a larger physical, financial and organisational capacity to deal with the transferability and traceability required.

4.2 Discussion

4.2.1 The Experiences, Prospects & Recommendations for Fiji's Inshore Fisheries

In summary, the discussion of the relationship between global governance models and the experiences of Fiji's inshore fisheries above prove the most successful governance model for sustainable management of these particular resources is the Co-management Governance Model. To focus solely on the design, structure and operation of the government, or alternatively, to focus exclusively on the activities and capabilities of communities, would be incomplete and inadequate.

After considering the above evidence and discussion, the following issues can be recognised as requirements for an effective governance reform towards the goal of a successful co-management governance model for Fiji's inshore fisheries;

-Integration & Co-ordination- Intensive training of government staff in the area of collaboration, consensus building and communication, as well as specific resource management training to enhance extension and communication of policy and regulations. Secondly, there is a need for integration of government departments to work together towards a shared policy goal of environmental sustainability. Co-ordination of a resource user's institution to manage day-to-day management and relay experiences to the national government would help structure the local management without command and control from the state level.

-Centralised Government- A thorough review of the role of local organisations relative to the national government to improve the vertical structure of Fiji's national government and enhance participation of local communities in management. A committee of resource users and government departments should be established to include the needs of the local community, aid with implementation of policies and increase information sharing and uptake. This participation should be encouraged with incentives to change practice and an improved mechanism for information and advice sharing with customary landowners.

-Strategic Planning- There is a need for the national government to establish a more highly developed strategic planning capability. This can only be achieved by establishing

institutional responsibility for planning, across government departments, within the national government. Increased training opportunities must also be provided for governmental staff in planning and collaboration.

-Information- There is a need to improve the extent and quality of information available e.g. stock extent and quality monitoring to understand the state of the environment and enable adequate policy making based on this. This monitoring must be collected to form an environmental database which maintained over time and which is widely available to cross sector government departments. Further, evaluation of the effectiveness of pilot projects and policy implementation is essential to enabling institutional learning and adaptation of policies as circumstances change.

-Capacity- Financial and technical training would help improve the capacity of the current governance model but also the creation and accessibility of databases and information sets to ensure sufficient policy making and the establishment of mechanisms to facilitate interaction, communication and collaboration of intra-government departments and local communities.

The current policy framework would also benefit from increased & updated information sharing as it is currently based on data from the 1970's and is increasingly becoming out of date. Further policy reform should endeavour to recognise community interests as local bylaws, harmonizing international and local law, and include the return of marine sovereignty to CMT as recorded in NFLC to increase self interest and responsibility of local communities and encourage policy compliance.

- Enforcement- As well as addressing the need for strategic planning this needs to be backed up by a mechanism to aid with the implementation and follow up enforcement of the policies. This can either be done by enhancing policing through the support of training for key community members as fisheries wardens or to legally delineate the 'tabu' areas as no-take fishing zones, allowing the police to patrol the area and make arrests.

Figure 5 shows a schematic model for the recommended Co-management governance reform in light of the desired requirements suggested above.

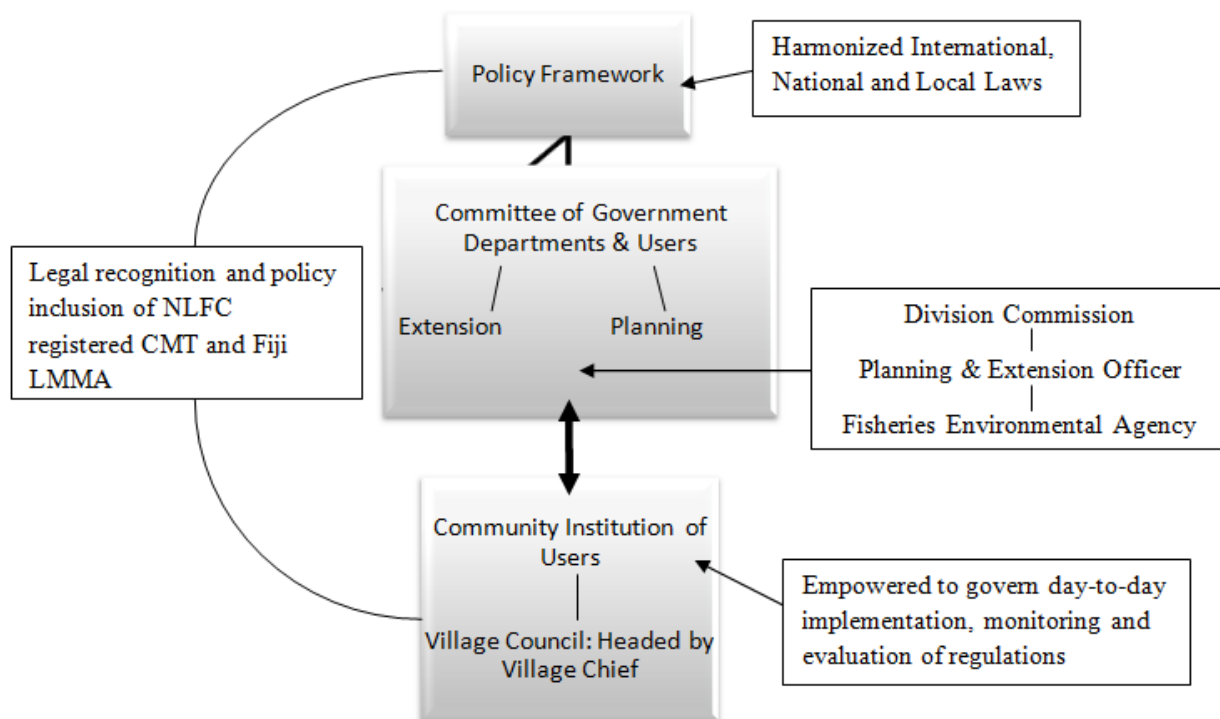


Figure 5. Model for the recommended governance reform to manage Fiji’s inshore fisheries sustainably. **Source: Own**

4.2.2 Small-Scale Fisheries Worldwide

As shown by the evidence above, the failure of top-down, centralised management for SSF has led to increased interest in developing more devolved and locally accountable management structures, and the development of co-management and community-based management arrangements.

Fisheries are dynamic and highly complex systems that vary enormously in scale, from village managed SSF to large, highly migratory fish stocks, such as tuna that travel across national boundaries. This complexity is deepened by the subsequent wide range of uses and users of different fisheries and their physical, organisational and fiscal capacity to cope effectively with the governance of their resources. It can be concluded, therefore, that the required governance structures and institutional arrangements for individual fisheries are not universal.

The prospects for SSF, in light of the discussion on the evolution of global governance models, supports the assertion that the governance of small-scale fisheries resources should take place at an appropriate local scale with nested institutional arrangements between the regional, national and local governance levels to support this, hence the success in a push towards co-management for SSF governance.

4.2.3 Limitations & Further Research

This dissertation, carried out from November 2009- January 2010, faced obvious time and length constraints and subsequently narrows to the experiences and prospects for Fiji's Inshore Fisheries. To sharpen the analysis further, I would have liked to refer to governance issues in other cases. The data and argument considered should be viewed as building blocks for more extensive research into the global theory of the effects of global governance models on SSF.

Conclusion

This dissertation's focused aim is to investigate the trends in global marine governance models and the experiences & prospects for Fiji's inshore fisheries and SSF worldwide. Discussion of the evolution of global governance models has identified four main trends in

global marine governance models which were then applied to the experiences of Fiji; State Governance, Self Governance, Co-Management and Market Governance.

Currently, Fiji is focused around a highly centralised government, which has limited capabilities and shares sovereignty as dual ownership with customary tenure and resource owners. As well as considering government structure and administration, a focus on global marine governance shows the relationship between the government and local communities and how these relationships must shape future policy. A Government, based on command-control policy and regulation, is not realistic for the Republic of Fiji, or as a matter of fact for global SSF. It is widely resisted by local communities as it fails to legally recognise CMT and is structured around sole policy issues rather than integrating departments with a sovereign actor to oversee control producing fragmented policy and insufficient regulations. The establishment on FLMMA network in 2001 provides a new Co-management Model for governance which has created mechanisms for more systematic inter-organisational collaboration. Figure 5 shows a schematic representation of the governance reform needed in order to improve the governance of marine resources in Fiji in a strategic way.

The route of success to sustainably managing Fiji's inshore fisheries and more broadly SSF globally is to focus on co-management as a regime of participation and governance as a whole as opposed to the government alone. To focus solely on the design, structure and operation of the government, or alternatively, to focus exclusively on the activities and capabilities of communities, would be to miss a fundamental characteristic of contemporary social political life in Fiji and worldwide.

Abbreviations

CBD	Convention on Biological Diversity
CCRF	Code of Conduct for Responsible Fisheries
CMT	Customary Marine Tenure
EEZ	Exclusive Economic Zone
FAD	Fish Aggregation Device
FFA	South Pacific Forum Fisheries Agency
FJD	Fijian Dollar
Fiji LMMA	Fiji Locally Managed Marine Area
IUU	Illegal, Unreported & Unregulated Fishing
MSC	Marine Stewardship Council
MPA	Marine Protected Area
NLFC	Native Land & Fisheries Commission
NGO	Non-Governmental Organisation
SCUBA	Self Contained Underwater Breathing Apparatus
SPC	South Pacific Commission
UNCLOS	United Nations Convention on the Law Of the Sea
UNEP	United Nations Environmental Programme
USP	University of South Pacific
WSSD	World Summit on Sustainable Development
<i>Qoliqoli</i>	Fijian tribal land-sea 'estate' (<i>vanua</i>) that extends from a central watershed seawards, generally to the outer margin of the seaward slope of the fringing reef (Zann & Vuki 1998)
<i>Mataqoli</i>	A group owning a particular parcel of customary land (Lane, 2006)

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