How local communities and global development agencies reduce vulnerability to natural disasters and climate change: Examples from the Pacific

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ABSTRACT

Development agencies and international donors have long assisted Pacific Island countries to address risk as natural disasters regularly affect the region and because of the perceived high vulnerability of Pacific Islanders. The enhanced risks associated with climate change have now led to an influx of new policies, initiatives and development partners aiming to reduce vulnerability and increase resilience.

This paper investigates how community based disaster risk reduction (DRR) and climate change adaptation (CCA) approaches are becoming the common methodology employed by development agencies to increase resilience to disasters, as local communities are able to work with development partners and identify risks themselves, thereby addressing vulnerability issues using local knowledge (Van Aalst et al, 2008). Furthermore, by introducing a participatory approach, where community members become the leaders and implementers of the project and contribute in meaningful ways, a sense of ownership is generally achieved leading to longer term sustainability of the project's outcomes (Pretty, 1995 and Oakley, 1991). This approach also sets the project in the appropriate cultural setting (Allen, 2006) which is particularly important in the Pacific where local cultures are alive and well. Despite the increasing push of Western culture in the urban centres, many Pacific Islanders still identify with their local culture first and foremost.

Our research further examines how local cultures, communities and global development agencies forge relationships in the field of DRR and CCA using participatory approaches at the community level. It aims to answer the questions: Who drives DRR and CCA at the local level?

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What is the role of national governments? How do local systems of governance in the Pacific fit in with global agency's approach, or vice versa?

These questions are answered through extensive research in DRR and CCA in the Pacific, using specific case studies and through interviews and focus groups with relevant development partners and community members. Answers to these questions are providing valuable insights to the emerging challenges of 'Earth System Governance'.

Section 1: Introduction

1.1 Background on the Pacific: Focus on Fiji and Samoa

The Pacific Islands (see Figure 1) are a diverse group of nations situated in the world's largest ocean, with a combined total population of approximately 10 million (Haberkorn, 2004). Economies of Pacific Island Countries (PICs) are typically dependent on a relatively small resource base with a large subsistence sector. Tourism – especially in Fiji and Samoa (the countries of interest for this study) is also a key income earner (AusAID, 2009). Development challenges facing the region are typically concerned with the quality of services such as health and education, and the transition of countries from traditional to cash economies (AusAID, 2009). The political situation in Fiji is also of concern regarding the impact of sanctions on Fiji's development.
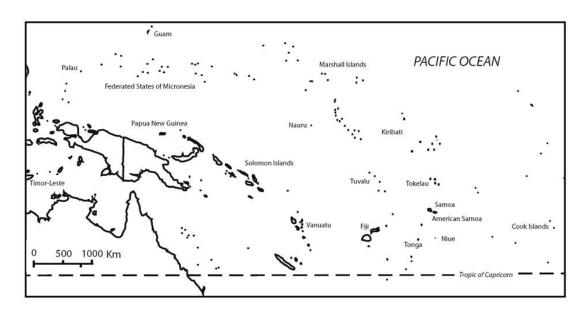

Figure 1. Map of the Pacific Islands (Modified from Meheux et al, 2006. Reproduced with permission)

1.2 Disasters and climate change

PICs frequently experience natural hazards such as tropical cyclones and storms, earthquakes, tsunami and volcanoes. Past disasters in Samoa include the 1990 and 1991 tropical cyclones, Ofa and Val, which caused damage equaling four times the gross domestic product (GDP) of Samoa (MNRE, 2005), and the recent tsunami in September 2009, where close to 200 people died and scores of villages in the popular tourist areas were wiped out (OCHA, 2009). In Fiji, the floods in early 2009 affecting the sugar belt of Viti Levu, Fiji's most populous island, cost FJD$54 million with an additional FJD$5 in humanitarian costs (Lal et al., 2009).

Furthermore, as small island developing states (SIDS), many Pacific nations are intrinsically vulnerable due to their small size, insularity and remoteness, environmental factors, limited disaster mitigation capacity, demographic and economic factors (Pelling and Uitto, 2001).

The impacts of climate change on the Pacific are also expected to be severe, owing to the low-lying nature of many islands and the fact that most of the population reside close to the sea and interact daily with the environment for their food and livelihoods (Nunn, 2009). Sea level rise and associated impacts (e.g. coastal erosion, storm surge, inundation and coastal hazards), changes to the nature and frequency of extreme events and threats to water resources (Mimura et al 2007) are expected to occur as a consequence of climate change in coming years.

It is now recognised that disasters are the result of human actions, not simply natural processes (Helmer, 2006). Disaster risk reduction (DRR) is therefore concerned with reducing the underlying factors that contribute to human vulnerability. DRR activities can be concerned with "hard solutions" e.g. building infrastructure to certain standards, or "soft solutions" relating to education and the raising of awareness (amongst others).

Climate change adaptation (CCA) recognises that due to the concentrations of greenhouse gases in the atmosphere, our climate is, and will continue to change, despite efforts to curb emissions. It is therefore necessary to brace ourselves to some extent for coming changes, particularly with regard to vulnerable populations and those likely to experience proportionally more negative impacts. CCA activities therefore also address vulnerability, in this respect in regard to climate (or climate driven) changes. Like DRR, CCA activities are seen as both hard and soft solutions –

e.g. replanting mangroves, coral gardening, reinforcing sea walls, ceasing upstream logging, rebuilding or maintaining healthy ecosystems, as well as climate change education and awareness raising.

1.3 Background of research

The findings presented here are drawn from a larger research project investigating the integration of community based DRR and CCA in the Pacific[2]. This paper introduces the context of DRR and CCA and looks at the actors involved in the case study countries of Fiji and Samoa. Examples of community based DRR and CCA are used to examine the relationship between actors/agents operating in these fields in the Pacific, in particular the paper addresses three key questions:

1. Who drives DRR and CCA at the local level?

2. What is the role of national governments?

3. How do local systems of governance in the Pacific fit in with global agency's approach, or vice versa?

The paper draws conclusions as to how local culture, communities and global development agencies forge relationships in the field of DRR and CCA.

Section 2: DRR, CCA and Community development in the Pacific
2.1 Similarities and differences between DRR and CCA

A number of studies have investigated the conceptual and practical similarities and differences between the two fields of DRR and CCA with a view to identifying opportunities for integration (e.g., Mitchell and Van Aalst, 2008; Venton and la Trobe, 2008 and Thomalla et al, 2006). A number of key differences between DRR and CCA approaches have been identified and are illustrated in Figure 2.

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[2] Integrated Community Based Disaster Risk Reduction and Climate Change Adaptation in the Pacific, Australian Development Research Award 0800028, Australian Agency for International Development (AusAID) through the Australian Development Research Awards, and managed by the University of New South Wales (UNSW) in Sydney, Australia.

CCA

- Climate related hazards only
- Long term view
- Encompasses changes to average conditions
- Forward looking perspective
- Origins in science
- High political interest
- Funding streams growing and sizable

Focus on reducing vulnerability and enhancing resilience

DRR

- Encompasses all geophysical risks
- Builds upon past experience and knowledge
- Focusses on extremes only
- Origins in humanitarian assistance
- Low to moderate political interest
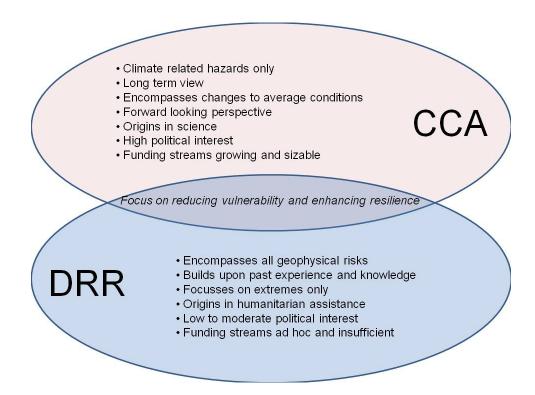- Funding streams ad hoc and insufficient

Figure 2. DRR versus CCA (modified from Venton and la Trobe, 2008).

The growing number of DRR and CCA initiatives in the Pacific illustrates the international community's realisation that climate change is an urgent issue in need of attention particularly in small island developing countries (Barnett, 2005). However, what is emerging as a challenge is the integration of these two themes. Institutional, financial and political barriers exist (Helmer, 2006) which act to inhibit actors and stakeholders from truly collaborating and creating cross-disciplinary and holistic programs. For example, the Global Environment Facility (GEF) is a funding mechanism, formed under the auspices of the United Nations Framework Convention on Climate Change (UNFCCC), available to fund projects framed as CCA. The Global Facility for Disaster Risk Reduction (GFDRR) is a global partnership between the United Nations International Strategy for Disaster Reduction (UNISDR), World Bank and donor countries and has a DRR focus. How an initiative is "framed", or conceived (e.g. as either DRR or CCA) therefore has a significant bearing on where funds may be sourced from.

However, when it comes to the implementation of specific DRR and CCA activities, most could arguably be classified as either. For example, mangrove habitats are well known to provide a barrier to coastal risks whilst also serving as a crucial element of the coastal and estuarine

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environment. They feature strongly in past DRR projects, well before CCA became an issue. With the threat of rising seas and increased coastal erosion associated with more frequent severe weather, they are also cited as a response to climate change. Which is correct? Does it matter?

The answer in some cases is yes, using the funding example described above. If a project is CCA, there are certain donors, development partners, government ministries, regional organisations, non-governmental organisations (NGOs) and UN agencies that are likely to be involved, with certain pools of funds being made available. If a project is DRR, a different group of organisations will be involved and difference sources of funds available.

2.2 Who's who: actors, players and stakeholders

Organisations and agencies involved in DRR and CCA initiatives in the Pacific cross all scales, from small NGOs to large transnational level institutions and donors. Roles and responsibilities are diverse. For example, donors provide the funds, technical aspects and resources while faith-based organisations often implement through their networks in country. A list of organizations involved in Pacific activities is listed in Table 1.

Table 1. List of organisations involved in DRR and CCA in Fiji and Samoa (many of these organisations operate across the Pacific region)

Donor	United Nations*	NGO	Government	CROP** Agencies	Faith Based	Academia	Red Cross
Australian Agency for International Development (AusAID)	FAO	Foundation for the Peoples of the South Pacific International (FSPI)	National Disaster Management Office (NDMO, Fiji and Samoa)	Secretariat of the Pacific Community (SPC)	National Council of Churches Australia (NCCA)	University of the South Pacific and Pacific Centre for Environ-mental and Sustainable Development (PACE-SD)	Inter-national Federation of the Red Cross / Red Crescent Movement
New Zealand's International Aid & Development Agency (NZAID)	UNESCO	LajeRotuma	Ministry of Natural Resources and Environment (MNRE, Samoa)	Pacific Islands Applied Geoscience Commission (SOPAC)	Caritas	Fiji School of Medicine	RC/RC Climate Centre
World Bank	UNDP (Pacific Centre and Multi-Country Offices)	Women in Business Development Inc (WIBDI)	Department of Environment (Fiji)	Pacific Regional Environment Programme (SPREP)	CARE	East West Centre, Hawaii	National Red Cross Societies
Asian Development	UNISDR	Worldwide Fund for	Fiji Meteorological Service	Pacific Islands Forum	Adventist Disaster	University of New South	

Bank (ADB)		Nature (WWF)		Secretariat (PIFS)	Response Agency (ADRA) Wales (Aust)
China	OCHA	Oxfam	Ministry of Finance and Planning (Fiji and Samoa)	Forum Fisheries	Fiji Council of Churches
Japan	UNICEF	International Union for the Conservation of Nature (IUCN)	Ministry of Agriculture and Fisheries (MAF, Samoa)	Pacific Islands Development Program	
European Union (EU)	UNIFEM	Conservation International (CI)	Ministry of Health (MOH, Samoa)		
Germany Agency for Technical Co-operation (GTZ)	UNESCAP	Live and Learn			
Taiwan	WHO				
Finland	Small Grants Programme (SGP)				
The Asia Foundation / Office for Development Assistance (TAF/OFDA)	Global Environment Facility (GEF)				
France					
Asia Pacific Network (APN)					
Force of Nature					
Canadian International Development Agency (CIDA)					

* See http://www.unsystemceb.org/oneun/acronyms for list of acronyms

** CROP: Council of Regional Organisations of the Pacific

In response to the large (and ever increasing) number of actors involved in DRR and CCA in the Pacific, networks have been established in an attempt to coordinate activities and share knowledge and experience. The "Pacific Disaster Risk Management Partnership Network" convenes annually to present advances made and share information on relevant topics. Pacific based donors in the CCA field have recently established a similar network, called the Development Partners on Climate Change (DPCC). The DPCC meet every 6-8 weeks to discuss current initiatives and to share information. Lastly, since our project's focus is on community-based projects, the stakeholders are generally the local communities themselves.

Section 3: Local to Global Governance systems

The layers of formal organisations noted above are just one part of the DRR and CCA world. Each of these agencies are involved (in a range of ways) in projects/initiatives in communities (villages) in Fiji and Samoa. This section briefly describes the governance systems for Fiji and Samoa, with particular emphasis on the local level, since that is the focus of this research.

3.1   Governance in Fiji

Much could be written about the situation in Fiji with regard to the current government and recent coup culture; however that is not the purpose of this paper. Here, we describe how Fiji's governance structures are set out. Later sections will describe how these fit with regional and global agency's approach to community based DRR and CCA.

The current state of Fiji is a result of its post-colonial past, inheriting its territorial boundaries, institutional structure and its class, ethnic, gender and regional nature from its previous British rule (Naidu, 2006). In current day Fiji, government activities can be broken into four distinct systems:

- National Government Administration

- Fiji Administration (which looks after indigenous Fijian affairs)

- Municipal Administration (which incorporates towns and cities)

- Rural Local Authorities (which incorporates areas that are not classified as towns or cities) (Mataki et al., 2006).

The multi-ethnic nature of Fiji has lead to different forms of local governance, depending on the ethnic makeup of the local population. A "village" is the term used for a community of indigenous Fijians, while a "settlement" is the term used for a community of non-indigenous Fijians (Meheux, 2007). Housing differs between the two systems, with village layouts related to family and heredity, and settlement layouts more spread out and based on a different system of land tenure (Meheux, 2007).

Village governance structures operate via the Fiji Administration, headed by an elected *Turanga ni Koro*, or village mayor while settlements are governed via multi-ethnic administration, called the Advisory Council. Advisory Councillors are appointed by the government and are members of District Council (Meheux, 2007). On a slightly larger scale, Provincial Councils (headed by a *Roko Tui*, or Provincial Administrator) are responsible for the interests of Indigenous Fijians while the District Advisory Council are responsible for Indo-Fijian interests at this level (UN, 2007). Both systems fall under the Ministry of Fijian Affairs, Heritage, Provincial Development and Multi-Ethnic Affairs.
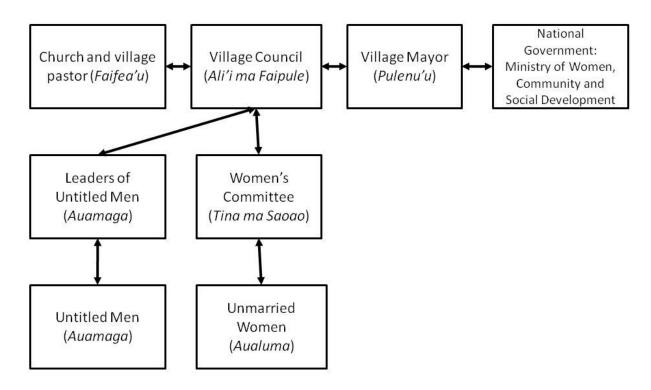
3.2   Governance in Samoa

Samoa became independent in 1962; the first nation in the Pacific to do so. Their own system of governance, the *fa'amatai*, or *matai* (chiefly) system remains strong at the village level – something Samoans are proud of (Huffer and So'o, 2000). Samoa's current Head of State is His Highness Tui Atua Tupua Tamasese Efi, who was elected by the National Legislative Assembly (NLA) in June 2007 for a five-year term.

The NLA is elected under universal suffrage for five year terms with all but two of the 49 seats reserved for *matai,* who are the recognised chiefs of Samoan villages (the remaining two are chosen by non-Samoan citizens from a separate electoral roll). All laws passed by the Legislative Assembly require approval of the Head of State. The Samoan Government is administered by the Cabinet, which consists of the Prime Minister and 12 Ministers that he selects. All other Government MPs are regarded as associate ministers. The current Prime Minister is the Hon Tuilaepa Lupesoliai Sailele Malielegaoi MP, who has been Prime Minister since 23 November 1998. Samoa also has an independent judiciary, including a specific court to resolve disputes over land and traditional titles (Australian Government, 2009).

Fa'aSamoa means "the Samoan way", and is comprised of important elements including *aiga* (extended family), *nu'u* (village), *matai* (chief, head of extended family) and *fono* (meeting of council of chiefs) (Iati, 2000). All this is underpinned by the strongly held belief in Christianity and the importance of the church in daily life. Family affairs are governed by the *matai*, while the village is governed by the Village Council (*Ali'i ma Faipule*). A strong level of autonomy, along with customary land tenure is present at the village level, allowing cultural needs and

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obligations to be met by Samoans (Huffer and So'o, 2000). The Village Council (*Ali'i ma Faipule*) and Women's Committee (*Tina ma Saoao*) are the two main institutions responsible for village level governance (Fairbairn-Dunlop, 2000). The head of the Village Council, the *Pulenu'u*, is elected and provides the link to national government via the Ministry of Women, Community and Social Development (Tuiloma-Sua, per comm.) Basic Samoan village structure is illustrated in Figure 3.

Governance in Samoa can therefore be viewed as having a dual system: *fa'aSamoa*, and the liberal system adopted at the national level (Huffer and So'o, 2005). This presents challenges not only to Samoans themselves, but also the international donor and development communities who aim to provide Samoa with developmental assistance. This is explored further in later sections.

Figure 3. Fa'aSamoa: Samoan village structure for governance and decision making. (Tuiloma-Sua, pers comm..)

3.3   DRR and CCA Local to Global Governance

The previous sections provided some insight into how PICs governance structures at the village level are administered. These examples show the complexity of local to national relationships in

government and highlight the fact that each country's system is the result of its colonial past, impacts of migration and local cultural identities. We now contrast this with a global level example, which illustrates the complexity in developing and implementing community projects with participation of cross-scale stakeholders.

Global development agencies operate in accordance with defined structures, policies and frameworks. Executive Boards, often with global membership, reside over operations according to set arrangements and accountability systems. The United Nations (UN) perhaps presents the best example of a truly global bureaucracy, and is illustrative of other global agencies. The United Nations Development Programme (UNDP), the UN's development network, presents a further example of this global bureaucracy in tune with the themes of this research: DRR and CCA, which, for the most part, fall under the responsibility of the UNDP.

UNDP operates in 166 countries with the key thematic areas being: Democratic Governance, Poverty Reduction, Crisis Prevention and Recovery, Environment and Energy and HIV/AIDS (UNDP, 2009). Programming in these areas is underpinned by aiming to achieve the Millennium Development Goals (MDGs) by 2015. At the country level, programming is couched in an overarching framework called the United Nations Development Assistance Framework (UNDAF), which defines key areas for development operation and cooperation. Although developed in cooperation with national governments, the UNDAF is very much a UN document, including the phrases, terminology and links to other UN background frameworks and policies.

At the country level, UNDP employ a combination of international and local experts to undertake project implementation. The inclusion of local nationals allows for local knowledge of culture to be included in programme implementation. However, despite this local input, operations are undertaken in accordance with globally set out arrangements, with local considerations often not officially included.

Figure 4 outlines the various local to global policies in place to provide DRR and CCA with a structured means of achieving their specific goals, which is ultimately reducing vulnerability and enhancing resilience for local people. These policies, along with the above example of the UNDP

as a global development agency, illustrate the complexity involved in implementing community based programs for DRR and CCA.
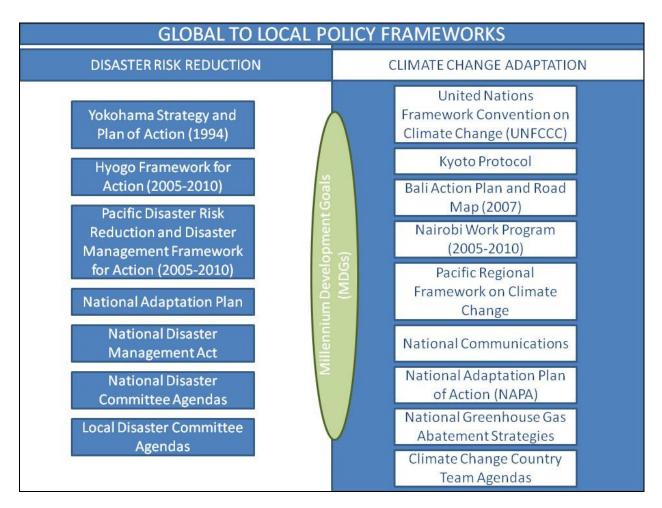

Figure 4. Global to Local policy frameworks for DRR and CCA

Section 4: Case studies from Fiji and Samoa

The preceding discussion has provided an overview of the complex and contrasting organizational structure within DRR and CCA actors. The following case studies from Fiji and Samoa provide useful illustration of the relationships between actors in locally/community based DRR and/or CCA projects in the Pacific. Case studies are based upon data collected by the project investigators in Fiji and Samoa between July – September 2009. Semi-structured interviews, focus groups, active and passive observation techniques were used to collect information on current DRR and CCA initiatives, and the actors and stakeholders involved from the local to global scale.

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4.1 Fiji Case Study: Navua Local Level Risk Management (LLRM) Project

The Navua Local Level Risk Management (LLRM) project in Navua, southern Viti Levu, Fiji, began in 2007 and builds upon a previous project in the area which developed an early warning system for flood, funded by the European Union (EU). The early warning system was implemented following major flooding of the Navua river system in 2004. The 2004 event and previous flood events in Navua resulted in widespread damage to homes, infrastructure and subsistence and commercial agriculture across the Navua area. The follow-up project, initiated by the UNDP, aimed to raise the awareness of the early warning system while at the same time, mainstream the issue of DRR into provincial planning and development. The Local Level Risk Management (LLRM) approach was employed, which addresses risk in areas defined by similar natural and physical hazards, and not bounded by political or administrative borders that often define risk management strategies (UNDP, 2006). This approach, which is essentially a top-down, UNDP driven project, poses a number of challenges in the context of Fiji's local administrative structure.

As noted in Section 3.1, Provincial Councils represent the interests of indigenous Fijians, while the Advisory Council represents the interests of Indo-Fijians. In Navua, both are represented on the Provincial Development Committee, which makes decisions about development within the region. These bodies are both represented on the LLRM committee in addition to a representative from the Commissioner Central's Office, the Provincial Administrator, the Rural Local Authority, as well as representatives of national Government agencies with representation in Navua, (e.g. Ministry of Health, Ministry of Agriculture and Public Works).

Institutional administration is complex in Navua, given the range of actors, and there are concerns about whether or not local authorities have the political influence to reach national level and advance local issues. The UNDP, as lead agency for this LLRM project, explicitly acknowledged these concerns from the outset and was proactive in identifying and addressing the challenges. The UNDP thus aimed to work with the existing systems and build capacity and make local to national links where possible.

Figure 5 shows the local to global partners involved in the Navua LLRM Project. As the Figure illustrates, many of the major players in DRR in the country and region are involved in the

project. This includes Fiji Red Cross, with technical input from their global partner, the International Federation of the Red Cross/Red Crescent Societies (IFRC), SOPAC (which initiated the early warning system along with the Fiji Public Works (Hydrology Division) and Fiji Meteorological Service), the National Disaster Management Office (NDMO), TAF/OFDA for DRR training assistance and global donors such as the Global Environment Facility (GEF) and the Bureau for Crisis Prevention and Recovery (BCPR, a UNDP body) who also provide technical assistance in devising DRR strategies for implementation.
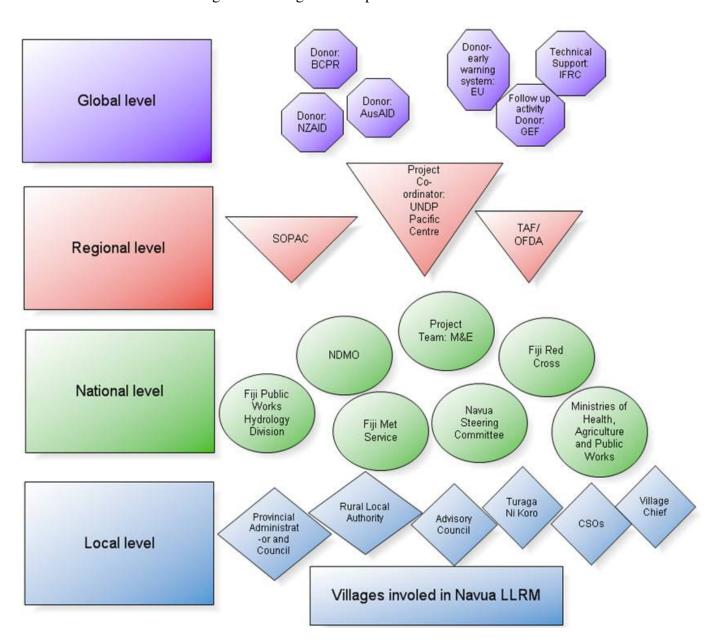

Figure 5. Local to global stakeholders in the Navua Local Level Risk Management Project, Fiji

Challenges faced in the project's implementation were associated with the change in local government personnel which occurred towards the end of the end of the project. UNDP representatives had worked hard to ensure local ownership of the project had occurred. However, a sudden and unplanned change in local government representatives allowed no time for a handover of tasks, background information or future plans for the new government representatives. Thus, a lot of the project's momentum was lost, requiring project managers to basically begin again with relationship building and awareness raising of the importance of DRR amongst community members. This demonstrates the fragility of the project and the importance of local partners and their 'buy-in'. The experience also arguably highlights a weakness in the approach that relied too heavily on transient local bureaucrats rather than the community members themselves.

4.2 Samoa Case Study: Community Based Adaptation (CBA) in Fasito'otai, Samoa

The Community Based Adaptation (CBA) case study in Samoa provides an example of a bottom-up, locally initiated project. The project is located in Fasito'otai, a coastal village on the northern side of Upolu, Samoa's most populous island. This side of the island was largely unaffected by the tsunami on September 29th, 2009. However, the village is suffering from coastal erosion which in turn is impacting upon the livelihoods of local people dependent on coastal resources. Impacts are highlighted by local people as being associated with the types of changes connected with global climate change.

The CBA project, funded by the Global Environment Facility (GEF) and implemented by the Small Grants Programme (administered by the UNDP) in Samoa, aims to assist the village in implementing the first steps toward more climate-resilient coastal resources and livelihoods.

Groups involved in implementation are shown in Figure 6. The figure shows the hierarchical nature of Samoan society at the village level. Groups such as the Council of Chiefs (or *matais*), through their village *fono* (meetings), work alongside religious leaders from the church. The *Tina ma Saoao* (Women's Committee) provide their input on a range of issues relating to day to day village life, from food and water, health, cleanliness, children's issues and other livelihood concerns (Fairbairn-Dunlop, 2000). National government are also included in Figure 6. Their

participation is via the Steering Committee, and potential follow-up activities after the project's conclusion.
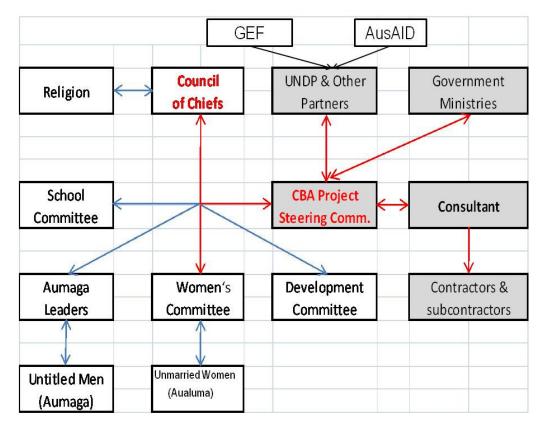

Figure 6. Groups involved in CBA initiative in Fasito'otai

Development of the CBA initiative in Fasito'otai originated from the village pastor (*faifea'u*), who was keenly aware of the impacts of climate change on his coastal village. These concerns were then raised in the village *fono*, and then escalated whereby a local from the village who works as an engineer in Samoa's capital, Apia, was brought in. His expertise, and knowledge of Western approach to development, provided the village with an entry point to the UNDP's Small Grant Programme. From there, consultation with the UNDP followed, whereby the ideas originally proposed by the *faifea'u* were expanded and couched in the language and terminology appropriate for the application of funds via the CBA program.

With the assistance of experienced local Samoan and international staff at the UNDP, Fasito'otai were awarded funding through the AusAID / GEF CBA programme. Workshops and presentations, in the local Samoan language, followed to ensure local people implementing the

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initiative were aware of their obligations to their donor. This included regular reporting via official (and generic GEF) monitoring and evaluation channels. Other official mandatory protocols included the signing of project documents. This was done in accordance with Samoan cultural protocols, which included an *'ava* (called *kava* elsewhere in the Pacific) ceremony, and speeches from orators ("talking" chiefs). CBA documents usually require one signature from the village. However, in Samoan culture, three are necessary for the village to view it as acceptable: the *faifea'u*, the high chief and the orator. Concessions from the UNDP allowed this to take place, despite it going against the official global protocols.

This case study has demonstrated the value of local knowledge and the role of traditional Samoan structures in making change happen from a grassroots, or "bottom-up" approach. The initial ideas from the village pastor, coupled with the local engineer's knowledge of Western development agencies, and in the context of local governance (the village *fono*) have resulted in a fully funded and developed approach to addressing climate change at the local level. Local ownership of the project remains strong due to the initial ideas and development coming from people local to Fasito'otai.

Section 5: Discussion

Our case studies illustrate that community based development programs in DRR and CCA that are currently being developed and implemented by global agencies need to take into account local cultural considerations. Community-based development, particularly relating to DRR and CCA, is emerging as an accepted and preferred method by donors and national governments (Uitto and Shaw, 2006). Benefits associated with this approach are many, and include the achievement of better outcomes; sustainability and local ownership (Twigg, 2007). Without recognition of local governance structures, cultural norms and protocols, implementation and success of the project would not occur. The examples above also highlight the fact that governance at the local level is just as strong and structured as for global bureaucracies such as the UN.

Lessons to be learned from the examples include the need to incorporate flexibility in global development agency protocols, and respect for, and recognition of, local cultural practices and governance structures. Inclusion of local staff and local community in project development is

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also advisable and beneficial, so as to better understand, from the outset, how global partners can work in harmony with local practices.

With regard to the research questions posed in the abstract, answers and discussion are as follows and stem from field observations and partner consultations:

1. *Who drives DRR and CCA at the local level?*

The examples described above indicate that local level DRR and CCA can be initiated from top-down, with various groups (such as those listed in Table 1) recognising the need to implement some form of risk reduction activity at the community level. Projects can also be initiated from the community level, and be the result of local people becoming aware of changes to the environment to which they are intimately linked to in the daily lives, and following this through with their knowledge of the types of funding, or organisations proving funding. This was the case with the Samoa example: the local engineer was well versed in the types of organisations associated with development for DRR and CCA, thus this was the avenue taken by villagers from Fasito'otai.

In our view and within our experience, the "bottom-up" approach results in the best outcomes, since feelings of local control and ownership arise leading to longer term sustainability of the project. This is not to dismiss "top-down" approaches, only to highlight the need of global stakeholders to understand the governance structures existing from the local to national level, and to work with these systems in order to achieve sustainable and effective outcomes.

2. *What is the role of national governments?*

As seen in both Case Studies, national government participation appears minimal when compared to the input at the local and global level. This is an interesting finding in itself and needs to be explored at greater length since implications exist for how development projects are implemented across scales. Nunn (2009) identifies three tiers of decision making at the national level: government, community-based and NGO decision making. For PICs, there are issues of capacity within government, given the small populations of most countries and the correspondingly low numbers of trained people with regard to DRR and CCA (Nunn, 2006).

Policy at the national level relating to DRR and CCA is therefore sometimes limited and in need of further development. As noted in Figure 4, National Action Plans are structured to do this: to assist governments in national capacity building with regard to disaster management. It may therefore be the limited capacity within national governments, and the undeveloped nature of DRR and CCA policy, that explains the restricted participation of national governments in community projects.

3. *How do local systems of governance in the Pacific fit in with global agency's approach, or vice versa?*

PICs have diverse forms of local governance, with examples described above. Global agencies, such as the UNDP, also have a structured approach to their programming with strict policies and protocols to ensure accountability and consistency in their approach. How these different, and sometimes opposing systems operate depends on the specific project, but experience shows that if both approaches employ some flexibility and sensitivity, then the outcomes can be beneficial. Local people may need to learn about official mechanisms of monitoring and evaluation as their obligations to their donor. The donor may also need to be flexible in how the project is implemented to fit in with local cultural practices.

With regard to the case studies, the Navua LLRM example illustrated that the change of administration was not something UNDP was prepared for and represented a major setback. The Samoa CBA case study showed that local changes to the natural environment were observed and followed through by the village pastor. This, coupled with the local engineer, who was familiar with UNDP operations and could successfully navigate to build constructive relationships with development partners and result in a fully funded community CCA initiative.

These examples demonstrate the importance of being fully aware of the intricacies of the administrative (governance) structures at the local and global level, and potential challenges associated with dealing with cross-scale governance arrangements.

Section 6: Summary and conclusion

Disaster risk reduction and climate change adaptation are key development issues for the Pacific, given the region's susceptibility to natural disasters, coupled with PICs geographical, economic,

cultural and social situation. However, the complexity of the two fields combined with the diverse range of actors presents challenges. As a result, development partners and organisations, from local to global scale and from a multitude of backgrounds (as seen in Table 1) are involved in DRR and CCA projects across the region, with the aim being to reduce vulnerability and enhance resilience.

Organisations – from local villages to global development agencies – have defined governance structures, and this paper has described some of the ways in which these varying structures are navigated at the practical level. Case studies presented here have shown that good governance and therefore positive outcomes for DRR and CCA in the Pacific requires mutual respect between groups and flexibility and eagerness to learn about how to overcome challenges in different approaches. Much can be learned from past activities, with lessons learned widely disseminated so as to build up a strong basis for future work.

Section 7: Acknowledgements

Section 8: References

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