

CHAPTER 4

THE ROLE OF SOCIAL CAPITAL IN POST-FLOOD RESPONSE AND RECOVERY AMONG DOWNSTREAM COMMUNITIES OF THE BA RIVER, WESTERN VITI LEVU, FIJI ISLANDS

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ABSTRACT

Floods are among the most significant and frequent hazards to affect communities in the downstream part of the Ba River in Western Viti Levu, Fiji Islands. They often leave in their wake displacements and death putting thousands at risk of sliding into poverty. Using the recent 2009 and 2012 floods, we examine how social capital aids in post-disaster response and recovery among residents in five selected villages in the downstream communities of the Ba River. Data were collected from a questionnaire survey administered to 97 households and semi-structured interviews with a further 20 respondents. It is conventionally

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believed that moving supplies, aid and expertise into flood-affected areas offers the best path to effective response and recovery. By contrast, our results indicate that residents of downstream communities in Ba District are using four approaches to create and deploy social capital among them to facilitate disaster response. The patterns of social capital used for effective response include practices of search and rescue, information, mutual assistance and commercial cooperation. Such strategies help to build resilience at household and community levels and reduce risks of loss of life and costly damage to property. The findings can be used to generate policies concerning the integration of social capital as a component of flood disaster response and recovery mechanisms.

Keywords: Disaster recovery; flood; social capital; Ba River; Fiji Islands

INTRODUCTION

Flood disasters are not only physical hazards, but also social ones. They help us to better understand complex social systems. Natural hazards, such as floods, give clues where a society is vulnerable and where it is buoyant. It also helps to better understand the degree of social cohesion in efforts towards recovery among the affected communities (Appadurai, 1984). Among all types of disasters, floods have annually caused the greatest loss of life and property. They have threatened the strength and stability of communities around the world (Adler, 2009; Zhao, 2010).

Most media coverage on flood disasters focuses on the extent of physical damages they inflict: loss of lives, damaged infrastructures, ruined subsistence and commercial agriculture and deleterious effects on public health. Many hold the view that the extent of damage determines the speed of recovery (e.g. Aldrich, 2010, 2011). A common assumption is also that the larger the scale of government response, and the more assistance and money is flowing into affected areas, the more viable will be the path towards successful recovery for affected populations. Hence, the response to flooding by government agencies, non-governmental organizations (NGOs), faith-based organizations (FBOs) and relief agencies has often been premised on the perspective that deploying more financial and

material supplies, personnel, and experts into the affected areas will enhance the state of recovery (Aldrich, 2010, 2011).

The Fiji Islands are no strangers to the caprices of devastating flood disasters. Yeo, Blong, and McAneny (2007) chronicled a 100-year historical series (1892–2002) of flooding in Fiji. His records attest to the popularly held view that the frequency of flooding has increased in recent decades causing disruption of the normal functioning of society and its sub-units with attending amplification of physical, economic and social risks (Yeo et al., 2007; cf. Duaiibe, 2008; Mudgway, 1997; SOPAC, 2009; Terry, McGree, & Raj, 2004). A recent report by the United Nations Office for Disaster Risk Reduction (UNISDR) and the United Nations Development Program (UNDP) shows that the frequency of high-intensity floods is on the increase in Western Viti Levu with devastating floods which used to occur every 190 years, now projected to occur every 25 years by the year 2100 (or even more often). In contrast to these findings and predictions, however, stands the fact that so far the 1931 flood in Ba and Nadi has been the worst in terms of flood levels and casualties. Even the floods of March 2012 did not reach the levels of 1931. One could conclude that floods in the western part of Viti Levu have increased in frequency, but not necessarily in intensity.

Flood disasters will continue to happen and damages and losses accompanying them cannot be completely eliminated even if communities are better prepared and warned earlier of approaching flood hazards. In view of governments' increasingly overstretched budgets and the outlook that flood disasters are likely to increase in frequency in Fiji, this chapter highlights the critical role of social capital as one component of effective community response to withstand such hazards and avoid or minimize disasters. Examining post-disaster responses of residents in Ba District, the chapter argues that those with robust social networks are in a better position to coordinate recovery whenever floods hit them.

The contribution then seeks to make two principal points. First, it adds to the small but growing literature on social dimensions of floods in the Pacific by analysing the under-explored intersection between flood disaster and social capital. Most publications on floods in the Pacific have been focusing on technical aspects of flood prevention and management (SOPAC, 2002, 2009; Yeo, 2000). We argue that adding a social science perspective on flood disasters can provide better tools for improved management policies. Second, the chapter draws an important link that social capital available to victims of floods matters most

immediately after the flood event (emergency response phase) and in the long period of post-disaster recovery (restoration phase). When floods strike the first respondents are not trained emergency workers, but local residents. They have deep knowledge of the area and they arrive well ahead of media, government, NGO, and relief agencies. In the days, weeks, months and years of recovery social capital and networks continue to be a critical resource, serving as “social insurance” and providing victims with information, financial help and physical assistance. Social capital employed by individuals, households and the community will provide insight to new ways of promoting preparedness as well as recovery. Flood disaster recovery is not only about rebuilding destroyed houses and infrastructure, but also about the reconstruction of whole communities building safer places. Social capital remains crucial to help mobilize members of communities towards collective action for recovery. Social capital has an important role to play in creating and maintaining resilience at the grassroots level.

While there has been a growing recognition of the value and place of social capital networks in our everyday lives, the incorporation of social capital programmes and policies in flood disaster recovery management has been rare and often overlooked by governmental and NGOs. There is little evidence that decision makers and NGOs take into consideration the importance of social capital during flood recovery. Discussions conducted with representatives of government agencies and NGOs revealed that the talk of the day is community resilience, community-based adaptation to natural hazards, and the strengthening of social cohesion and social capital. On the other side detailed ideas how to achieve this and what to do differently from the way disasters have been addressed so far remain rather scant and general. Innovative ideas are rare. Our research intends to address this gap starting by gathering information how social capital already now is “at work” when hazards strike. We then conclude and recommend that it is important to put social capital on the agenda of decision makers, and relief and rehabilitation managers. It is hoped that the insights revealed through our research help to initiate discussions and create future plans that are more effective than the present ones in contributing to disaster recovery. This chapter therefore seeks to demonstrate that social capital among residents of flood-affected communities in Ba District remains the most crucial component in the flood-disaster recovery process. The quality of community cooperation creates cohesiveness and resilience that is more stable and sustainable than the often short-lived involvement of outsiders.

THEORETICAL FRAMEWORK: SOCIAL CAPITAL IN DISASTER RECOVERY

Social capital is one of those concepts that seem to defy consensus usage and applications. However, at its core, it provides a better explanation of how people respond to natural hazards such as flood through the use of their relationships to other actors in societies for their own and for the collective good. To buttress this position, [Hawkins and Maurer \(2010, p. 1778\)](#) posit that “social capital has gained intellectual currency as a means to understand the relative strength of families and communities in time of disaster.”

Although the formulation of a conceptual framework of social capital from an academic perspective is often attributed to Pierre [Bourdieu \(1986\)](#), the groundbreaking research of Robert [Putnam \(1993\)](#) helped to popularize the concept. Putnam defined social capital “as the feature of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions” ([Putnam, 1993, p. 27](#)). [Coleman’s \(1988\)](#) position of social capital as cooperative relationship within families and communities and Putnam’s perspective on civic engagement, trust and norms of reciprocity have remained the dominant contributions to the social capital discourse for years. In our view, Coleman’s conceptualization of social capital has a higher utility for social workers, as his explanations portray social capital as “utilization of direct and indirect resources that arises as an outcome of social network and social support system among family, relatives, friends or community” ([Coleman, 1990](#); cf. [Hawkins & Maurer, 2010, p. 1778](#)).

Lately the role of social capital has been further explored by many scholars in three major disaster recovery processes: the Kobe Earthquake of 1995, Hurricane Katrina and its fury particularly in New Orleans in 2005 and the Indian Ocean Tsunami in December 2004 ([Aldrich, 2010, 2011](#); [Boettke et al., 2007](#); [Chamlee-Wright, 2010](#)). The findings revealed that New Orleans did not witness the vibrant recovery process that happened in post-tsunami South and Southeast Asia in spite of its clear material advantage. Many attribute the much slower recovery to a social capital deficit (e. g. [Aldrich, 2010](#)).

Researchers have differentiated three forms of social capital based on quality and the way they work and become effective: bonding, bridging and linking social capital. The bonding social capital strengthens relationship that exists among like-minded people or members of a network

connected together through similar activities or organizations (Aldrich, 2011; Hawkins & Maurer, 2010), people that have few social differences, people that are connected to each other horizontally, endowed with similar resource sets and holding similar positions and status in society. It comprises strong horizontal ties which connect members by providing a safety net. Putnam (2000, p. 22) regards such form of social capital as “undergirding specific reciprocity and mobilizing solidarity” or what Szreter and Woolcock (2004, p. 650) attribute as “reinforcement of homogeneity.” Bonding social capital entails strong ties that exist among relatively small groups of people. Bridging social capital refers to the horizontal ties which connect people from different networks and groups and generates broader identities and linkages to external assets. Bridging has a host of other benefits for individuals, communities, societies and governments and often gives room for improving livelihoods and upward mobility. It builds the basis for people who are dissimilar in social structure and who may have little if anything in common with one another to cooperate and share resources with an endearing social change (Sopha, Oeur, & McAndrew, 2007). The third type, linking social capital, refers to the vertical ties that individuals builds to connect them with other individuals and institutions that have relative influence and power over them such as government agencies, banks and elected officials as to grant them accessibility to services, resources or jobs (Hawkins & Maurer, 2010; Szreter & Woolcock, 2004). Summarizing the forms, Aldrich (2011, p. 4) holds that “where bridging social capital connects individuals of more-or-less equal social status, linking social capital connects those of unequal status, providing them with access to power. Linking social capital brings together citizens with decision makers and leaders who hold positions of authority and can distribute often scarce resources.” People who possess strong networks within and across all three types of social capital are generally considered to be better able to cope with hazards such as flood.

Further debate among scholars has been whether social capital is a community or an individual asset (Hawkins & Maurer, 2010; Putnam, 2000) or a function of both (Coleman, 1990; Szreter & Woolcock, 2004). In our position social capital is based on actions by individuals in relation to structural forces and processes of society. Within this context the social capital framework receives meaning; it is the outcome of agency, of structural properties of society under which individuals act. Although we concur with the Hawkins and Maurer (2010) about the uniqueness of social capital to bridge existing theoretical gaps that may arise about the understanding and importance of individual action and community structure from either

micro or macro angles, the quality of social capital lies within individuals, but it forms (and alters) society or – in our case – communities.

Another contention in literature has been whether social capital is a wholly positive asset, as not all forms of social capital guarantee a positive outcome of a desired type (Putnam, 2000; Coleman, 1988). On the one hand, studies by Aldrich (2011), Schuller, Baron, and Field (2000) and Hawkins and Maurer (2010) established that social capital emanating from support through social network can be beneficial to withstand personal, economic and emotional challenges. Others found disadvantages and downsides to social capital asserting that the very characteristics of social capital that enable productive benefits also have the tendency to bring negative externalities. Maintaining social networks can be time-consuming and costly and the benefit is not always clearly visible. Membership in social networks can act as a barrier to social mobility and inclusion, leading to division rather than bringing communities or societies together (Hawkins & Maurer, 2010; Schuller et al., 2000).

Although the importance of social capital has been emphasized in the functioning of Fijian society due to the resource tenure structure and communal nature of living, much of the work done has centred on the role of social capital with regards to community-based resource management with no work pointing to the role of social capital in disaster recovery (Sami & Reddy, 2011; Sano, 2008; Veitayaki, Aalbersberg, Tawake, Rupeni, & Tabunakawai, 2003). In his work Sano (2008, p. 3) states that “kinship groups and village or district-level activities make up the heart of social interactions, but other forms of association stretch beyond blood ties to include all *Kai Viti*, or Fijian people.” Similar to tribes in Papua New Guinea, he showed that “when two Fijians meet for the first time, they will follow a standard pattern of small talk to figure out how the two are linked” (Sano, 2008, p. 5). Even if they find no direct kinship bonds, there are other socially important connections that they can rely on based on geography and history. For instance, if a man from Nadroga/Navosa province and the island of Vanua Levu meet, they will call each other *Dreu*, signifying a historical traditional link between the two regions, often following lineage back to ancient origin gods, or *Kalou Vu*. He showed that “if the Nadroga man meets someone from Kadavu Island, they will regard each other as *Tau*, a reciprocal relationship that brings about teasing and a sense of closeness greater than the *Dreu* relationship. To be respectful, it is important for a Fijian to recognize these links and accept the stranger as kin. In this way, all Fijians are connected to all other Fijians through historic bonds that continue to be important today” (Sano, 2008, p. 6).

Given that social capital is not uniformly manifested across time and societies, there is need to put into consideration the historical and cultural environment under consideration. With regard to the cultural diversity and heterogeneity of Indian society and institutions, Serra (2001, p. 699) positioned that “standard Western measures of social capital such as those used by Putnam in his 1993 study of northern and southern Italy – including literacy, voter turnout, and membership in horizontal associations – did not map well onto the empirical realities of Indian states.”

In conclusion, social capital in whatever dimension and shades can be seen as a resource, an asset. Its utilization can enable people to achieve goals they would otherwise be unable to attain. It is undeniable that people often fall back on their network of social capital to obtain access to information and resources. On the other, they utilize their knowledge governing the behaviour and norms within a particular network to give them perspectives of how other members are likely to respond as well as to guide their decision on how they should act. Thus, social capital enables people to effectively exploit available opportunities at their disposal, both within “free markets” and also in “non-market settings” (Fukuyama, 1995; Sopha et al., 2007). In addition, by drawing on social capital, people have the potential to reproduce and at occasions transform the network of social relations context they operate (Chamlee-Wright, 2010). Finally social capital can link people to power centres, to centres of decision making, and thus allow them to – albeit indirectly – participate in power and contribute to the decision making process. All these properties are crucial particularly when external shocks create havoc to people’s lives, when people have been materially and emotionally harmed and wounded, and when public response systems are under severe pressure and stress, stretched to their limits what manpower and resources are concerned. Especially in such situations it is crucial to have alternative support structures. This is the time when social capital is to prove its worth.

METHODOLOGY

The main fieldwork for the study was conducted in five villages of Ba District of Western Viti Levu in February 2012, immediately after the January 2012 flood. The five villages were selected after consultation with the Disaster Management Office at the Provincial Office. They were the most affected villages during the 2009 and 2012 floods. A follow-up

fieldwork was conducted in one of the five villages (Votua) in September 2012 following another flood event that occurred in March 2012.

The study used a mix of quantitative and qualitative methods. Anchoring on the quantitative sources is the household survey using a structured questionnaire providing the basis for a quantitative characterization of household socioeconomic background and recovery. A total of 97 households were purposively selected, calculated from the total number of households in the five selected villages. The sample size for the survey was determined using the sampling method devised by Arkin and Colton (1963) at 95% confidence level, with a precision level of $\pm 4\%$. The sample size per village was proportionally determined based on the total number of households in the five villages (Table 1). Data was collected from the head of the households or any other elderly persons of the household who had detailed knowledge about the household experience in the two flood events and its recovery process.

For the qualitative part, semi-structured interviews were the appropriate choice. This exploratory study sought to catch “the complicated,

Table 1. Socioeconomic Background of the Surveyed Households.

Characteristics	Value	Characteristics	Value
<i>Sample size HH surveyed in study villages</i>		<i>Migration</i>	
Votua	33	Temporary (%)	35
Yalalevu	23	Permanent (%)	15
Matingara	18	<i>Education of household head</i>	
Singhawe	13	Illiterate (%)	14.4
Vatulaulau	10	Grade 1–8 (%)	48.5
<i>Gender of HH surveyed</i>		Grade 9–12 (%)	25.8
Male-headed household (%)	81.4	Above 9–12 (%)	11.3
Female-headed household (%)	18.6	<i>Ethnic composition of surveyed HH</i>	
<i>Ethnic composition of surveyed HH</i>		Total agricultural land (mean in ha)	2.03
Indo-Fijians (%)	53.6	Use of fertilizer 2010 (mean kg)	5.2
Indigenous Fijians (%)	46.4	Use of fertilizer 2011 (mean kg)	3.4
<i>Professions of HH</i>		<i>Visits by extension agents</i>	
Farmers (%)	86.6	Yes (%)	45
Traders (%)	4.1	No (%)	55
Others (%)	9.3	<i>Access to credit</i>	
Family size (mean)	5.5	Yes (%)	37
Age of household head (mean)	53	No (%)	63
Dependent family members (mean)	2.4	<i>Economically active members (mean)</i>	
Economically active members (mean)	3.1		

HH, households.

ever-evolving and often conflicted feelings within individuals” and demanded a nuanced understanding of social capital access and use (Adler, 2009, p. 17). Personal interviews allowed us to go in-depth in context and look at the local dimension of social capital in a way that large-scale surveys neglect, an all-too-common oversight of social capital research today. Essays written by disaster-affected individuals were an additional tool that was used during the second fieldwork in Votua village. Notebooks with guiding questions were distributed to 23 female and 14 male villagers. They were asked to write how they were affected by and responded to the two consecutive floods in January and May 2012.

Participants in interviews were selected based on the recommendations of gatekeepers and key informants, as well as our own personal, often random social encounters. Only a few control variables were used in selecting respondents: age and gender, comparable damage sustained in the flood, and length of time in the area. Over the course of 14 days in Ba, we held 20 interviews of 45–70 minutes each, of which 11 were interviews with people affected, 7 were key informant and gatekeeper interviews, and 2 were pilot interviews. Ethics were appropriately considered in the design and implementation of this study. The chief ethical concern was the potential harm caused to respondents by discussing a sensitive, potentially traumatic subject (Adler, 2009). This concern proved nearly irrelevant, as residents were accustomed to discussing their flood experience repeatedly with outsiders.

SOCIOECONOMIC SITUATION OF SAMPLED HOUSEHOLDS

Households in the study area consist of both nuclear and extended families. Therefore, family members included parents, grandchildren, cousins, nephews and nieces. The majority of the households are, however, of the nuclear type.

Table 1 shows the major socioeconomic background of the surveyed households that are related to household decisions. The discussion in the remaining part of this section is partly based on this table. Note that percentages used in some parts of the discussion may not add to 100% when the interest is on the specific response rather than the distribution of the sample.

Economically dependent age groups (children 0–14 and elderly above 64) per household range between zero to three, with an average of 2.4

persons for the surveyed households. Most members of the dependent age group are children below 15 years of age. The number of economically active persons ranges from one in female-headed to eight in male-headed households. Of the total, 89% of the households have one to four economically active family members, of which one half are the parents. The average of the economically active persons per household is 3.1.

The livelihood of households in Ba District depends predominantly on farming, with the exception of four household heads who are traders and nine others involved in other professions. The majority of the farmers are involved in sugarcane cultivation, especially those with Indian ethnic background. Out-migration is 35% and 15% for temporary and permanent migrants respectively. Male temporary migrants total 75%, while 8.5% of the permanent migrants are female. Remittance income is obtained by 36% of the households.

CONTEXT OF THE STUDY: REPEATED FLOOD HAZARDS

The Ba District is located on the north-western side of Fiji's main island of Viti Levu (Fig. 1). The district is known for its severe socioeconomic problems related to continuing flooding. According to a provincial official, "floods have constituted a heavy drag on development of the district with a flood offsetting healthy economic growth for years." We found that floods had such a huge impact in Ba mainly because people were caught unaware and because of the rapid rate at which the water levels rise whenever there is a heavy downpour. Thus, many businesses suffered huge losses.

The sugar industry is the dominant activity in Ba District and the surrounding districts. Thousands of farmers in Ba and Tavua Districts supply cane to the Rarawai sugar mill of the Fiji Sugar Corporation located in Ba town. Testifying to the importance of the sugar sector as an employer in the area, the Ba Provincial report states "the importance of sugar industry in the life of Ba district may be gauged by the level of activity in Ba Town itself, which comes alive on the pay day of the cane harvesting season" (Ba Town Council, 2011). The district is known to be multicultural, mostly dominated by Indo-Fijians followed by Indigenous Fijians, with a few Chinese and European minorities.

In Ba floods are an annual occurrence like in many other places in the Western Division of Fiji. Often these floods are called "normal" by the

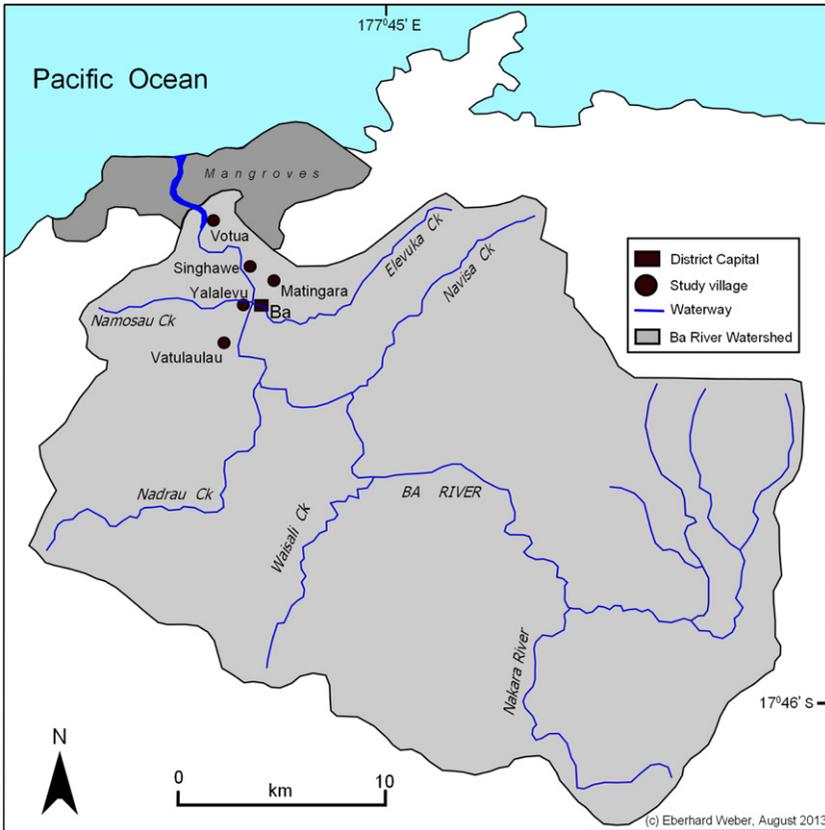


Fig. 1. Map of the Study Area.

people. They are looked upon by the residents as part of the natural landscape, and communities in the area have lived with the yearly challenge of flooding for generations. However, residents aptly noted that damaging floods, flood disasters, appear to have occurred with regular frequency in the recent years.

In the wake of the devastating floods of January 2009 and January 2012 which brought about much misery to many people of western Viti Levu, images of the tragedy and pleas for donations have captured world-wide attention. In 2012 the national government declared a “state of natural disaster emergency” in the flooded region. Flood disaster response was provided by governmental agencies, NGOs, FBOs and relief agencies, such as

the Red Cross. In addition, active military personnel from all services were called to action at all levels and deployed through much of the affected areas for rescue, evacuation and recovery far exceeding those required for any previous disaster in the country. Private companies, such as Vodafone and Fiji Water, also provided flood relief.

Good cooperation was achieved between the military, multiple relief agencies, NGOs and FBOs which enabled resource sharing to victims of the flood disaster based on their capabilities. These efforts were well orchestrated through the regional government cluster meetings, which were held frequently to assess the status on meeting needs, such as food, shelter and sanitation.

As in past flood events, the January 2009 and January 2012 floods affected the most vulnerable groups. The majority of casualties were women and children. Farming communities sustained the largest economic losses due to the inundation of farm land and severe erosion. The survey showed that more than 75% of the households reported a substantial part of their livelihood lost to the two flood events. In comparing the devastation, a majority of people attributed that the 2009 was more devastating to their income, while the 2012 flood brought more silt resulting in more hours of gutting and cleaning their homes.

Although they were by no means the only floods in recent history, the short time lag between both events, combined with the magnitude of the events, resulted that the 2009 and 2012 floods were very much at the forefront of respondents' minds. Informal discussions and interviews with a wide cross-section of residents in the study areas highlighted comprehensive memories of the floods and their impacts on people, both directly and indirectly. The sudden occurrence of the 2009 and 2012 floods led to loss of life, erosion of farmland, disruption to transport and communications infrastructure, and also affected people directly in their homes (cf. [Yeo, 2010](#)). This immediate threat to people's personal survival and well-being perhaps explains why many household heads perceived floods to be a greater risk to their livelihoods and well-being than cyclones. One female head of household who lives close to the banks of the Ba River explained how they had to move out of their house well in advance before flood waters reached any threatening level during the two floods because they weren't sure how high the water levels would rise.

The households surveyed in the five villages had experienced and suffered severe floods in 2009 and 2012. About 36% and 24% of the households interviewed were forced to evacuate their homes at the peak of the floods in 2009 and 2012 respectively. More than 85% of these households

reported to have taken shelter with extended families, neighbours and friends who provided a spare bedroom or cleaned out unoccupied space. They preferred such arrangements to seeking shelter in organized camps set by governments and relief agencies. Nearly 9% and 7% of the households had members that became ill, most commonly from intestinal complications and diarrhoea. The two successive flooding caused widespread losses to the agricultural economy and it was difficult for the villagers to recover swiftly from the damages. Although assistance from external agencies was helpful as reported by participants in the interviews, it was limited, compelling households to rely mainly on their own resources for rehabilitation. Reciprocal assistance from neighbours and friends was prominent at the onset of the floods and for a considerable time after the floods.

House damage was arguably the most fundamental and pressing impact of the floods. A much longer lasting consequence however has been the impact on agricultural land as it compromised livelihood generation for many farmers. In the Ba District farmland is situated along the river banks and within the Upper Ba Watershed. A large proportion of sugarcane production was lost during the floods. For one male-headed household the flood left a swamp in the middle of their plot, thus reducing the area available for planting. More usually, though, farmland was eroded. Of the households surveyed 25% had lost land in the past five years, each as a result of flooding. Some households lost the entire land they were cultivating. Others suffered substantial reductions: one of the few small-scale commercial farmers in Votua had his plot reduced almost by half, from five hectares to three. The loss of land also meant the loss of crops planted at the time of the flood reducing income from the respective sugarcane season.

Analysing the interviews it is surprising that few people talked about the impacts of the flood on agriculture. When asked they mainly referred to the physical impacts on their houses and land and psychological impacts. In fact, only 4% of the households surveyed mentioned losses of crops as a negative effect of the floods, although clearly a much higher percentage than that had damages to their standing crops. With regards to sugarcane production, the crop was still standing in the fields at the time of the floods. Harvesting usually starts early to middle of June. In 2012 the beginning of the crushing season of the Rarawai Sugar Mill in Ba was postponed to mid-July because of the flooding earlier in the year (*The Fiji Times*, 2012). One reason for not mentioning agricultural losses could be due to the perspective that losing crops is a minor negative impact as compared to the damage to houses and loss of land. Indigenous Fijians often have land in various places and crops destroyed near to the river banks usually is only

part of their agricultural production (cf. Neef et al., Chapter 5, this volume). In the case of sugarcane production the sector has faced enormous difficulties for many years, and most farmers since long have not depended entirely on agricultural activities. They have other sources of livelihood and as such are in a better position to compensate damages to their crops standing in the fields. Indeed, there was a general expression that agricultural impacts were of lesser importance, partly as households have become accustomed to climatic variation and incidence of extreme events.

At the time we left the district, 30 days after the first 2012 flood (a second, even stronger one, followed at the end of March 2012), the rebuilding and recovery process from the January flood was still ongoing. Flood-affected residents continued to muck and gut their water-logged homes, unsure whether to stay or go. The local authority deliberated the merits of various flood-prevention proposals involving floodwalls, green space and river dredging. Meanwhile, residents waited nervously, wondering what the future would hold for the greater Ba region and its respective communities.

PATTERNS OF SOCIAL CAPITAL DEPLOYED TOWARDS RECOVERY

In the aftermath of the two devastating floods of 2009 and 2012 the stakes for deploying various elements of the social capital towards recovery could never have been higher. As in the case of many disasters, almost all the surveyed households decided to remain in the study district.

In this section, we describe the patterns households in Ba District adopted to make use of social capital within their communities. We identified four distinct strategies that were employed towards recovery. They are of particular relevance for how civil society might solve collective action challenges. These recovery patterns include practices of (1) search and rescue, (2) information dissemination, (3) mutual assistance and (4) socio-commercial cooperation.

Search and Rescue

At the onset of the floods expression of bonding and bridging social capital was readily evident. Respondents expressed how villagers helped themselves to evacuate people, organize patrol teams to guard and look after

belongings from theft. Once the flood receded villagers and households worked together to repair community infrastructures such as canals, water gates and culverts. Most of this rehabilitation work was initially started by the villagers and then later aided by external agencies. This implies how people wanted to see their lives return back to normalcy as quickly as possible without having to wait for outside assistance, even at the expense of the deployment of individual and household resources.

The cumulative assessment of the impacts of the 2009 and 2012 floods showed that an average of 33% of the households reported to have taken refuge with friends and other families, 8% reported staying in temporary shelters, while only 5% of the households reported being rescued by volunteers. Although all households were affected as their homes were inundated during the two flood events, 51% stayed in their homes till the flood subsided. This implies the heavy reliance on social networks when it comes to rescue operations and living arrangements while flooding was ongoing. This calls for provision of rescue skills to residents in the flood-prone areas as component of preparation and recovery.

According to a study of the 2011 Thailand floods 76% of the victims were helped and checked upon by friends and neighbours (ADPC, 2012). The findings of our study reflect the same as much of the rescue operation during the two floods were coordinated by friends and neighbours. Only a few respondents stated that they were rescued by government and other agencies.

Participants in the interviews spoke highly of the efforts of the wider Ba District community in the aftermath of the flood, praising the helpfulness of villagers in the search and rescue efforts. Stirring examples of wider community involvement in the search and rescue were told to us frequently, usually with apparent gusto and pride. It seems that when floods strike the fault lines along the ethnic binary of Indo-Fijians and Indigenous Fijians in the context of Fiji dissolves, too. In spite of the heterogeneity of Yalalevu village, for instance, Rajendra – an Indo-Fijian – eludes that

in the aftermath of a flood, the first help to arrive is often your neighbour – not a Red Cross agency, Sangam Fiji Foundation or donor country expert, but the helping hand of the person next door or a neighbourhood whether iTaukei (Indigenous Fijian) or Indo-Fijian. I think the search and rescue and general recovery has an opportunity perhaps to blur some of those boundaries.

Even when the Fiji military, Red Cross and experts arrived to fill gaps and meet needs, the local population still made up the large majority for search and rescue operations.

Information Dissemination

One of the strength of social networks is the facilitation of information as they serve as important channels for information. Our survey showed the indispensable role played by the social networks in facilitating flow of information in the flood affected areas. During the 2009 and 2012 floods, 57% and 61% respectively of the survey respondents reported that they learned about the areas set up for the victims to get relief assistance through the channels of friends, relatives, neighbours and their social ties (Fig. 2). Looking at the various information sources social networks were by far the most important source.

Another interesting aspect of the dissemination of information in the recent floods in Ba was the way some individuals were using social media to extend information, awareness and support. New applications of social and mobile media were also enabling new forms of response, creating new forms of social capital. In Fiji the use of social and mobile media picked up a lot in the two flooding events of 2009 and January 2012. It is apparent to note that rather than engage in reveries about the wonders of technology, there is a need to examine and focus on supporting the intersections and collaborations between these new forms of communication and long-standing ones such as radio and TV, which are still a valuable information source in flood crisis settings for many communities in Ba as shown in Fig. 2.

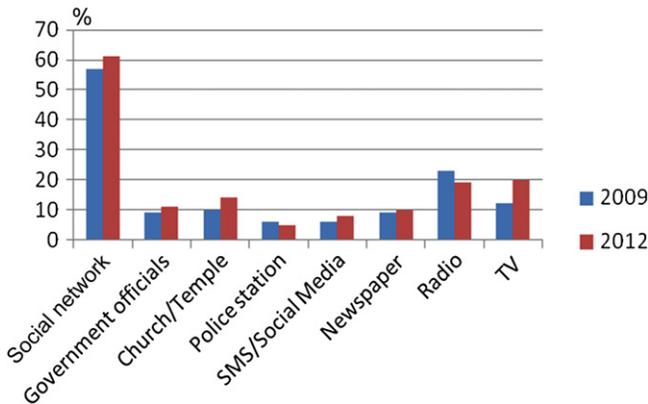


Fig. 2. Main Channels of Information Utilized by Households After the Floods.

We learned that those who took shelter with relatives, friends, or in the camps were more interested in hearing whether their neighbours had returned back to the village as many did not want to return to be the only ones in their village neighbourhood. The fear of becoming isolated and as a result exposed to a number of risks (including crime) was rather relevant. While the service providers were regularly providing updates on the status of electricity and water levels, such more individualized information was not (and probably could not be) reported.

Mutual Assistance

Mutual assistance emerges as one of the most prevalent aspect of social capital among respondents surveyed and interviewed. In contrast to charitable support which is a one-way form of help, mutual assistance is a strategy adopted by villagers to provide support to one another by short-term loans, free housing and shelter, tools and equipment, child care assistance and exchange of labour. Such support has reciprocal character and binds individuals and social groups' together, thus increasing cohesion of communities. As important as external aid and support was that came in towards recovery efforts, the small acts that people mutually offered at the time of the flood and its aftermath are what played distinct and vital roles in the recovery process – and beyond.

Mutual assistance was critical in initiating and guiding collective action in various ways. First, it served as source of material support among people. Second, it signalled that neighbours, friends and relatives are indisputably committed as partners in the recovery process. Third, it served in restoring the fabric of social networks torn apart by the flood which led to temporary relocation of people and constrained the normal functioning of community life in the affected villages.

As we observed during our survey in the flood-affected areas many people were simply unable to meet the physical demands of clearing debris in their homes and properties. People like neighbours and friends were willing to offer support in these physically challenging tasks. This direct support helped many households to move back to their houses sooner than if they would have needed to wait for support of the relief agencies. It also reduced the demands they placed on their hosts or for some who took temporary shelter in camps. Similar responses were observed when a social impact assessment was conducted in October 2009 in Samoa, a week after a devastating tsunami had struck the south-western coast of

Upolu (Gibson, 2010). Many relatives and friends of affected people came all the way from New Zealand after they learnt about this disaster to help in reconstruction and rehabilitation work. It is also interesting to note that in the last quarter of 2009 Samoa received the ever highest inflows of remittances from New Zealand, worth 47 million Samoan Tala (ST), compared to the earlier quarter when it was around 30 million ST. In 2009 it was around 9 million ST higher than the corresponding quarter of the previous year (Gibson, 2010).

Some of the respondents gave examples of bonding social capital during the floods. Mr Romolu, an Indigenous Fijian in his fifties of Vatulaulau village, described the benefits to his family from his social network during the January 2012 floods:

We were overwhelmed with the support that came from near and far, friends, neighbours, family and acquaintances who were there for us the moment waters were rising, leading the evacuation of our household goods that night and following morning and their house a comforting refuge for us on those first shocking nights. What counted for me was that they turned up – and for those who physically couldn't come sent an SMS or phone messages to convey their thoughts.

However, the tasks of recovery are challenging when looked at in the light of rebuilding the complex fabric of human relationship that has been disrupted during the time of flooding. Considering the extent of damage wrought by the floods it can be difficult for households to recollect and start rebuilding except with clear assurance and signs that others are also willing and planning to do so. Mutual assistance therefore acts as indispensable signal and affirmation of others towards recovery and restoration of community.

Following the 2009 floods, Mr Luitimailagi, a Fijian resident of Votua village had his house inundated as well as the auto spare parts shop where he worked in Ba town. His Indo-Fijian employer provided a place for Luitimailagi and his family to stay in his compound for three months. This case illustrates that by giving and receiving mutual assistance, the two were affirming their willingness to share in the effort of recovery.

We noted that educational institutions played a key role in the recovery process and rebuilding of place-based social capital. Following the declaration of the state of natural disaster on 25 January 2012 by the national government for parts of the Western Division for a period of 15 days, schools in Ba District were forced to close for one week for safety reasons. Several school buildings in the affected communities were used as evacuation centres for flood victims (Figs. 3(a) and (b)).



Fig. 3. (a, b) School in Votua Serving as Evacuation Centre During the January 2012 Flood. *Source:* Courtesy of Votua Community.

Parents had a strong desire to bring a sense of normal life back to their children by opening flood-affected schools as early as possible. Many parents and school officials took time alongside teachers and students to clean up the schools and salvage what was left. This mutual assistance offered a swift and efficient way of bringing back on track the educational life as well as created opportunity for shared memories and points of contact between young people and adults. All these experiences will help to form a greater sense of connection for the community in the long run.

Socio-Commercial Cooperation

Discussions on social capital often miss out on market activity. Whether this is by omission or commission is out of the scope of this chapter. In our study we considered the role that commercial activity played in the post-flood recovery in the study area. At an individual level, commercial activities were important to sustain families' livelihood while waiting for outside assistance as reflected in this quote from one of the written essays:

After the flood, I looked for some sources of income available such as selling crabs and prawns and fish, while waiting for the government support and other donation from private, religious and individuals. (Vasiti, young woman from Votua)

Beyond the individual level, socio-commercial cooperation was crucial in the recovery process. As pointed out by Chamlee-Wright (2010, p. 22), "commercial cooperation puts business activity at the centre of the disaster recovery." For profit making, commercial cooperation in many ways serves a similar function as mutual assistance through the provision of essential

material support, builds confidence about rebuilding of community, and impetus for redeployment of place-based social capital.

It is worth noting that material support offered by neighbours, relatives and friends finds more meaning if complemented with necessary equipment, tools and building materials which becomes available through business activity. The early reopening of hardware stores in the flood areas enabled many households to undertake the rehabilitation of damaged houses as quickly as possible. Given that the majority of the homes in the area were not insured in the event of floods or storms most households rehabilitated the destruction on their houses by themselves. Without the reopening of these hardware stores providing low-cost, easily accessible materials, it would have been difficult for victims of the flood to rebuild and even gain collective action from neighbours and friends to assist.

Appreciating that their fate were closely linked, some businesses were willing to make advance payment to their workers and extend credits to their customers even with the knowledge that payment may be significantly delayed. The immediate reopening of commercial activities served as effective signal that the Ba community was rebounding towards recovery. In order to recover from the floods, people needed to return back to their homes. In the study, among the most frequently cited frustration was the delay in the restarting of grocery stores. The reasons are rather obvious as many of the farms were damaged by flooding and shops' inventories were destroyed. It took a while before shops had been restocked through goods brought in from other parts of Fiji and overseas. The re-establishing of commercial life is one of the most important aspects of recovery, which is also considered by many emergency plans. Our findings suggest that it also renders social capital more effective.

It is important to point out that commercial activities do not serve merely as a cheerleader for social capital, but also as principal provider of social capital. For instance, *Yagona* cafés, tea shops, restaurants and bars served as joints for reconnection after the floods and provide the social spaces where residents reminisce about the flood and exchange practical advices. The conversation that goes over the *tanoa* and cups of tea offer people a reprieve from the cleaning, gutting and rebuilding as well as cushion the effect of the flood tragedy.

Many authors acknowledge the vital role of social capital in the smooth functioning of markets. The norms of generalized trust and reciprocity explain how market exchange lubricate and reduce transactions costs and associated uncertainty (Chamlee-Wright, 2010; Fukuyama, 1995, 1999; Putnam, 1993). However, what is often given less prominence and attention

in literature is the importance of commercial activity with regards to the development of social capital. The accounts of the flood victims in Ba District – be they village leaders (*turaga ni koro*), teachers, business owners, religious leaders or farmers – suggest that the social capital redevelopment is directly and intimately tied upon the market redevelopment. Under the condition of post-flood recovery as seen in Ba, commercial cooperation played a significant role in the recovery process by offering the residents the opportunity to orchestrate successful recovery and perspectives on how communities may thrive once again. Hence, we find that there is a dialectic relationship between social capital and disaster recovery: disaster recovery does not just depend on the existing social capital in a community, but the recovery process itself plays a major role in reinforcing bonding social capital. This is further discussed in the following section.

DISASTER RECOVERY AS FACTOR OF REINFORCING BONDING SOCIAL CAPITAL AND BUILDING BRIDGING SOCIAL CAPITAL

Many of the residents believed that the flood had brought about the feeling of togetherness and norms of helpfulness and trust to Ba. They overwhelmingly focused on the fact that the flood affected everyone in some way, directly or indirectly, and consequently had a unifying effect. The waters, they point out, did not discern between victims and businesses. All people suffered together “in the field” rather than “in the palace,” analogized Pastor Tukana. Differences of colour and creed blurred, as it became “vividly clear that we all are one when it comes to human needs of shelter, food, hopes and the dreams.” Alanieta agreed, noticing a change in the district after the flood: “When you go to the department stores or out in the floodway, people were affected, whether they were directly affected or indirectly.” And our community was like, “wow. And so there were a lot of people – strangers – hugging you.” Alipere saw the same phenomenon happening while waiting in long lines, trying to get some relief assistance: “As much as you hated standing in lines, you had to break the boredom by talking.” From these exchanges, “you’d almost feel like you knew them because they didn’t live that far away and they had their own story, and it made you feel a little bit better because you knew you weren’t alone.”

Norms regulating interaction eased – it became acceptable to just strike up a conversation with anyone if it began by concentrating on the flood.

Adler (2009, p. 23) writes about the significance of these exchanges: “Because sharing stories necessarily involves others to hear them, the process helps to reconnect victims, who may feel alone and alienated, to one another as they form a collective identity. The sharing of narratives also helps a community to gather individual experiences together to construct a mosaic of shared meanings of the flood disaster.” Through these casual but purposeful conversations, social networks grew and the sense of togetherness in Ba increased.

For others, flood-centred conversations yielded valuable information that led to additional financial support, help from volunteers, and even future work contacts. “The relationships I’ve built working with people to find solutions, whether it be in my job or neighbourhood, it would have taken ten to fifteen years or longer to establish those relationships. So when I look down the line in the future...you know: are you really better and stronger from having this happening? Yes,” beamed Pillay.

As individual and societal needs merged, an ethos of helpfulness took centre stage and the community united. “People just kind of joined together,” recalled Rusila. “In Ba district, because we have lost so much, people have really worked together,” said Chand. Pamela also observed the cooperative spirit of residents: “everybody seemed to pitch in and offer whatever was necessary [...] that’s just what you do.” “When things were at their worst [...] everyone was pulling in the same direction,” remarked Shameet.

What is the effect of this coming together? “There are blessings to be had,” said Alanieta. “I think what it does is: people step back and they go ‘well I have a lot; now I need to share.’ And I think the community of Ba has really done well with that. I really do.” Kirti is also optimistic. She predicts community life will be even better than before in Ba, more robust and with a more acute sense of civic pride after these two subsequent floods. When asked about the reason, she said, “we overcame this together, and we can do it.” Because of the far-reaching devastation of the flood and the initial coming together of residents, the flood is a positive integration landmark that has “affected the hearts and minds” of all residents, concluded Pastor Tukana.

Aside from reinforcing bonding capital, the two consecutive flood disasters in January and March 2012 also contributed to building bridging social capital, i.e. bonds between local communities and outsiders, such as government agencies, NGOs and private companies. This was evident from the follow-up inquiry in September 2012 that was conducted in Votua community after the second flood of 2012. Many respondents mentioned in their

written essays that they were grateful for the outpour of support from external organizations, such as the Red Cross Fiji, the military, government agencies, religious organizations, the international donor community, and even private companies as part of their corporate social responsibility (CSR) activities. Government assistance was most often mentioned in the 37 essays (21 occurrences), followed by support from NGOs (17), assistance from faith-based organizations (10) and help from domestic private companies (7). The following three quotes exemplify typical responses:

I received aid and financial assistance donated by religious bodies which were very helpful in addressing our needs. Fresh water was donated by the Fiji Mineral Water company. The Red Cross donated clothes, food parcel and bedding materials. (Maikeli, farmer from Votua)

A rehabilitation program was conducted by the government in rebuilding infrastructure, such as roads and bridges. At the same time, they provided food rations for every household to help them slowly restore their normal livelihood. (Makitalena, housewife from Votua)

Fortunately, government and private firms came to our assistance, such as Fiji Water Ltd. supplied us with drinking water, Hare Krishna with food parcels, Red Cross with clothes and food packages and some churches supplied other important things to us in order to rehabilitate ourselves and the whole village. The fire brigade came to help clean up the school and its premises with some military personnel who helped us in cleaning the debris and the village as a whole. (Mareta, female youth from Votua)

As the last quote suggests, these external organizations oftentimes joined hands with local people in well-coordinated rescue and recovery efforts (cf. Figs. 4(a) and (b)). Such joint activities established new forms of bridging social capital. Yet not all Votua communities shared this positive



Fig. 4. (a, b) Joint Disaster Recovery Efforts by Red Cross Staff and Votua Villagers. *Source:* Courtesy of Votua Community.

perspective; while one Indo-Fijian family expressed their gratitude for having received donations from international aid agencies, in another Indo-Fijian community people told us in an interview that they were bypassed by external assistance, because they were deemed less affected than their indigenous Fijian counterparts and therefore were supposed to be able to cope with the flood without help from outside.

DISCUSSION, LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This chapter explored a largely unexplored link between two well-developed fields in the context of very recent flood events. Our research is not necessarily representative of other circumstances. Ba District is a relatively heterogeneous mid-sized district with high levels of poverty and without heavy social conflict. The district is especially typical for the Western division of Fiji, though no district can be taken as a microcosm for wider society. The goal of this study was to understand, in nuanced terms, how two particular flood events impacted an outlined version of social capital in a district through the perceptions of its residents.

Yet, the recovery is far from over, and many residents agreed that the post-traumatic stress and despair are just setting in: “we are *only* hitting the tip of the iceberg in acknowledging our own pain,” said the Singahawe village leader. So, while the research respondents did share their experiences before and following the floods, they may have overlooked or omitted some important details. Furthermore, under these conditions research respondents may have been under heavy stress, which makes their perceptions likely to be skewed or memories becoming fallible. In short, much more contextual research is needed to obtain a thoroughly detailed understanding of the flood and its effect on social capital. However, the findings are important in the sense that respondents expressed their personal experiences rather than factual representation of the flood events.

As our case study indicates, there is a distinct need for a research approach mindful of extensive nuance when studying social capital and disasters. As a field of inquiry, social capital would be well-served to reduce its reliance on the top-down approach of survey measurement and opt instead for more bottom-up, contextual understandings rooted in qualitative community case studies (Adler, 2009). In addition, the metrics in gauging recovery are speed and quality. However, this study only looked at the

speed of recovery and did not address the quality of recovery per se. Hence, future studies should focus on this aspect of recovery.

Flood disaster studies should be incorporated into future social capital research, and vice versa, narrowing the curious gap between canons. The overlap is apparent: both fields seek to understand community functionality and identify inequalities within complex social systems. The study of social capital is a study of structural and cultural resource advantages between individuals and within societies. The study of disasters is a study of human and societal vulnerabilities as exposed by natural hazards. A more interdisciplinary future between both fields stands to offer each key insight on its own fundamental concerns. As this chapter illustrates, the need to synthesize disaster studies and social capital is conspicuous: together, they provide an opportunity to study normally latent social processes that help us understand the structural and cultural order of a community.

CONCLUSION

It is evident from the findings that social capital is an important resource with the capacity to complement government flood recovery efforts. Communities in flood-prone Ba District relied much upon existing complex and decentralized social structures and processes to leverage upon towards their recovery.

It was clear that in the early phase of flooding much of the search and rescue endeavours came from within the social networks, likewise in the aftermath social networks facilitated significant levels of flow of information, provision of different types of support both in kind, financial, material and emotional as well as enhancing commercial cooperation.

Given the important role of social resources, it is pertinent to ask what should be done in terms of future flood policies in Fiji. First, there is need for proper acknowledgement of the critical role of social capital and social resources by policy-makers and the non-profit sectors as often social capital and existing local networking are just mentioned peripherally in disaster planning, if they are mentioned at all. There should be more active deliberations of how to strengthen such networks. In spite of the robust contribution of social networks, what is often lacking – and what government, NGO and international actors can and should support – is capacity. It is indisputable that society's flood disaster recovery depends heavily on the

immediate capacity of the local community to respond with the appropriate skills, accountability, and technical expertise. The effectiveness of responses to future disasters will depend on local capacity and resilience.

As observed, most money flowing into flood disaster response in Western Viti Levu is restricted to providing food, shelter, health care and other immediate services, not building the capacity of local groups. This is in large part due to government's and many donors' emphasis on the delivery of services and the media's attention on immediate results. When solicited, feedback from the local community often highlights the lack of capacity-building and disaster risk reduction efforts. In this regard, government agencies and NGOs should try to make full use of existing social capital in recovery by maintaining social networks in disaster-affected areas and utilizing the existing social networks in recovery processes. Government bodies and NGOs can consider the provision of communications devices such as cell phones and e-mail connections to community groups which can facilitate them to stay in contact during the flood situation, as well as sponsor information sessions targeting the established neighbourhood-based or faith-based groups. They should also consider putting displaced people from the same community together, as opposed to evacuating them to different locations, as this has far-reaching positive consequences for communities struck by flood hazards as it helps to maintain and sustain the sense of community. However, it is important to realize that investment in social networks/capital is a long-term one, as opposed to emergency policy response.

Lastly, various public policy programmes have the capacity to build up stores of interaction and trust among members of a neighbourhood. In the aftermath of the Kobe earthquake in Japan, the city worked on creating a strong solidarity among the survivors through enabling programmes that built increased trust and participation of residents. Similar programmes can be replicated for the flood-prone Western Viti Levu. Thus, social capital could be generated through implementation of proactive policies.

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