

The role of social capital in post-flood recovery in Ba District, Western Viti Levu, Fiji Islands

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ABSTRACT

Floods are among the most significant and frequent hazards that affect communities in the Western Division of Fiji, often leaving in their wake displacements and death, and putting thousands at risk of sliding into poverty. Using the 2009 and 2012 floods, we examine how social capital aids in post-disaster recovery among residents in five selected villages in the Ba District of western Viti Levu. It is conventionally believed that moving supplies, aid and expertise into flood-affected areas offers the best path to effective recovery. To test this assumption, data were collected with a questionnaire survey administered to 97 households. Semi-structured interviews were conducted with a further 20 respondents. Our results indicate that residents of the Ba District are using four approaches to create and deploy social capital among them to facilitate recovery. Our findings may be used to generate policies concerning the integration of social capital as a component of flood disaster recovery mechanisms.

Keywords: *disaster recovery, flood, social capital, Ba, Fiji Islands*

INTRODUCTION

Flood disaster is not only a physical hazard, but a social one; awareness of this fact helps us to a better understanding of complex social systems. Natural hazards, such as floods, give clues to where a society is vulnerable and where it is buoyant. They also lead to a better understanding of cohesion in and disruption of societies (Appadurai, 1984). Among natural disasters, floods have annually caused the greatest loss of life and property and threatened the strength and stability of communities around the world (Zhao, 2010; Adler, 2009).

Most media coverage on flood disaster focuses on the extent of the physical damage it wreaks: loss of lives, damaged infrastructure, ruined subsistence and commercial agriculture and deleterious effects on public health. The opinion that the extent of damage determines the speed of recovery is widespread (Aldrich, 2011, 2010). Similarly, a common assumption is that the larger the scale of government response, the more the assistance and money flowing into affected areas, then the more viable will be the path towards successful recovery for the victims. Based on these approaches, response to flooding – whether by governmental, non-governmental (NGO) and faith-based organizations (FBO) and/or relief agencies – has generally been premised on the expectation that deploying more financial and material supplies, personnel and experts into the affected areas will enhance the state of recovery (Aldrich, 2011, 2010).

Fiji Islands is no stranger to the caprices of devastating flood disasters. Yeo and colleagues (2007) chronicled a 100-year historical series (1892–2002) of flooding in Fiji. The records attest to the popularly held view that frequency of flooding has increased in recent decades, causing disruption of the normal functioning of society and its sub-units, with attendant amplification of physical, economic and social risks (Yeo et al., 2007; SOPAC, 2009; Duaiibe, 2008; Terry et al., 2004; Mudgway, 1997).

A recent report by United Nations International Strategy for Disaster Reduction (UNISDR) and the United Nations Development Programme (UNDP) shows that the frequency of high-intensity floods is on the increase in Western Viti Levu: devastating floods, which used to occur every 190 years, are now projected to occur every 25 years (or even more often) by the year 2100. In contrast to these assumptions, however, stands the fact that so far, the 1931 flood in Ba and Nadi has been the worst in terms of flood levels and victim numbers. Even the floods of March 2012 did not reach the levels of 1931.

Flood disasters will continue to occur and damage and losses accompanying them cannot be wholly eliminated even if communities are better prepared and warned earlier of approaching flood hazards. In view of increasingly overstretched government budgets and the outlook that flood disasters are likely to increase in frequency and intensity in Fiji, this paper 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 paper argues that those with robust social networks were, and are, in a better position to coordinate recovery whenever floods hit.

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 analyzing 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, 2009, 2002; Yeo, 2000). Thus, a social science perspective of flood disaster provides better tools for better management policies. Second, the article draws an important link, that social capital available to victims of floods is of greatest effect and importance immediately after the flooding (emergency response phase) and in the long period of recovery afterward (restoration). 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, NGOs, and relief agencies. In the days, weeks, months and years of recovery, social capital and networks continue to be a critical resources, serving as 'social insurance', providing victims with information, financial help and physical assistance. Social capital employed by individuals, households and the community will provide insight into new ways to promote preparedness as well as recovery. Flood disaster recovery is not only about rebuilding destroyed houses and infrastructure but about the reconstruction of whole communities, building safer places. Thus, social capital remains crucial to help mobilize the members of the community towards a collective action for recovery. Social capital has an important role 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 programs and policies in flood disaster recovery management has been rare and often overlooked by governmental and non-governmental organizations. There is little evidence, however, that decision makers and NGOs in the flood recovery efforts take into consideration the importance of social capital. Many talks in connection with the research, 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, however, detailed ideas on how to achieve this, and what to do that had not been done before, remain rather scarce and general. Innovative ideas are rare. Our research intends to address this gap, first by gathering information on how social capital is already 'at work' when hazards strike. We then 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 that emerge from our research can contribute to the creation of future plans that are more effective than the present ones and to the improvement of disaster recovery processes. This paper seeks to demonstrate that among residents of flood stricken communities in Ba district, the social capital remains the crucial component in the flood-disaster recovery process. The consequent quality of community cooperation creates cohesiveness and resilience that are 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 on 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. Buttressing this position, Hawkins and Maurer (2010, p. 1779) suggested 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 conceptual framework of social capital was initially formulated by Pierre Bourdieu (1986), the ground breaking research of Robert Putnam (1993:27) helped to make the concept popular. 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, 1993:27). Coleman’s (1988) treatment of social capital as cooperative relationships within families and communities and Putnam’s perspective of civic engagement, trust and norms of reciprocity have remained the dominant discourse in social capital debate for years. In our submission, 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 networks and social support systems among family, relatives, friends or community’ (Coleman, 1990; Hawkins & Maurer, 2010).

More recently, many scholars have further explored the role of social capital in recovery processes following three major disasters: 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, 2011, 2010; Chamlee-Wright, 2010; Boettke et al., 2007). The findings revealed that New Orleans did not witness a vibrant recovery process such as had happened in the counterpart Asian situations, in spite of its clear material advantages. Many attribute the much slower recovery to a social capital deficit.

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. Bonding social capital strengthens the relationships that exist among like-minded people or members of a network connected together through similar activities or organizations (Hawkins & Maurer, 2010; Aldrich, 2011), 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 that, by connecting members, provide a safety net. Putnam regards social capital here as ‘undergirding specific reciprocity and mobilizing solidarity’ or what Szreter and Woolcock (2004) characterize 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 that connect people from different networks and groups and generate 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 comprises people who are dissimilar in social structure and who may have little if anything in common with one another but who cooperate and share resources with an enduring social change (Sopha et al., 2007). Typical examples are political parties, trade unions and sporting clubs, which bring together people from across different social divides.

Linking social capital, on the other hand, refers to the vertical ties that individuals build to connect them with other individuals and institutions who have relative influence and power over them, such as government agencies, banks and elected officials, so as to improve their chances

of accessing services, resources or jobs (Hawkins & Maurer, 2010; Szreter & Woolcock, 2004). Summarizing the forms, Aldrich (2011:4) recounts 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 normally 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; Putman, 2000) or a function of both (Szreter & Woolcock, 2004; Coleman, 1990). 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 opinion 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 (here: communities).

Another contention in the literature has been whether social capital is a wholly positive asset, as not all forms of social capital do guarantee a positive outcome of a desired type (Putnam, 2000; Coleman, 1990). On one hand, studies by Schuller and coauthors (2000), Aldrich (2011) and Hawkins and Maurer (2010) established that social capital emanating from support through social networks can be beneficial to withstanding 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 have the tendency to bring negative externalities. To maintain 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, and hurtful to mental health function (Hawkins & Maurer, 2010; Schuller et al., 2000).

Although the resource tenure structure and communal nature of living have emphasized the importance of social capital in the functioning of Fijian society, much of the work undertaken has been centered on the role of social capital with regard to community-based resources management, with no work pointing to the role of social capital in disaster recovery (Sami & Reddy, 2011; Sano, 2008; Veitayaki et al., 2003). In his work Sano (2008:3) points out 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'. He showed that similarly to tribes in Papua New Guinea, '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, 2008:5). 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 two men, one from Nadroga/Navosa province and the other from the island of Vanua Levu, meet, they will call each other Dreu, signifying a historical traditional link between the two regions, or often following lineages 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, 2008:6).

Given that social capital is not uniformly manifested across time and societies, the historical and cultural environment must be taken into consideration. With regard to the cultural diversity and heterogeneity of Indian society and institutions, Serra (2001) posited 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 (Putnam, 1993, p.9).

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 not otherwise be able to achieve. It is undeniable that people often fall back on their network of social capital to obtain access to information and resources as well as make use of their knowledge governing the behavior and norms within a particular network to give them perspectives on 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 exploit available opportunities at their disposal effectively, both within 'free markets' and also in 'non-market settings' (Sopha et al., 2007; Fukuyama, 1995:89). In addition, by drawing on social capital, people have the potential to reproduce and on occasion transform the network of social relations in which they operate (Chamlee-Wright, 2010). Finally, social capital can link people to power centers, the centers of decision making, and thus allow them to participate in power – although indirectly – and contribute to the decision making process. All these properties are crucial, particularly when external shocks have created havoc in people's lives, when people have been materially and emotionally harmed and wounded, when public response systems are under severe pressure and stress, and available manpower and resources are stretched to their limits. Especially in such situations is it crucial to have alternative support structures. This is the time when social capital is to prove its worth.

METHODOLOGY

The field work for the study was conducted in five villages in the Ba District of Western Viti Levu in February 2012. After consultation with the Disaster Management Office at the Provincial Office, these five villages were selected as the ones most adversely affected during the 2009 and 2012 floods.

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 features 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 a 95% confidence level, with a precision level of $\pm 4\%$. Sample size per village was proportionally determined based on the total number of households in the five villages (Table 1). Data were collected from the heads of the households or any other elderly persons of the households who had detailed knowledge about the household experience

in the two flood events and its recovery process.

Semi-structured interviews were the appropriate choice for qualitative methods. This exploratory study sought to catch ‘the complicated, ever-evolving and often conflicted feelings within individuals’ and demanded a nuanced understanding of social capital access and use (Adler, 2008). 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.

Interviewees 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 fourteen days in Ba, we held 20 interviews of forty-five to seventy minutes each, of which eleven were victim interviews, seven were key informant and gatekeeper interviews, and two were pilot interviews. Ethics were appropriately considered in the design and implementation of this study. The chief ethical concern was the possibility that respondents would find discussing a sensitive, potentially traumatic subject unduly painful, intrusive or harmful (Adler, 2009). This concern proved nearly irrelevant, as residents were accustomed to discussing their flood experience over and over with outsiders.

SOCIO-ECONOMIC 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 major features of the surveyed households’ socioeconomic background 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.

Table 1: Socio-economic background of the surveyed households

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

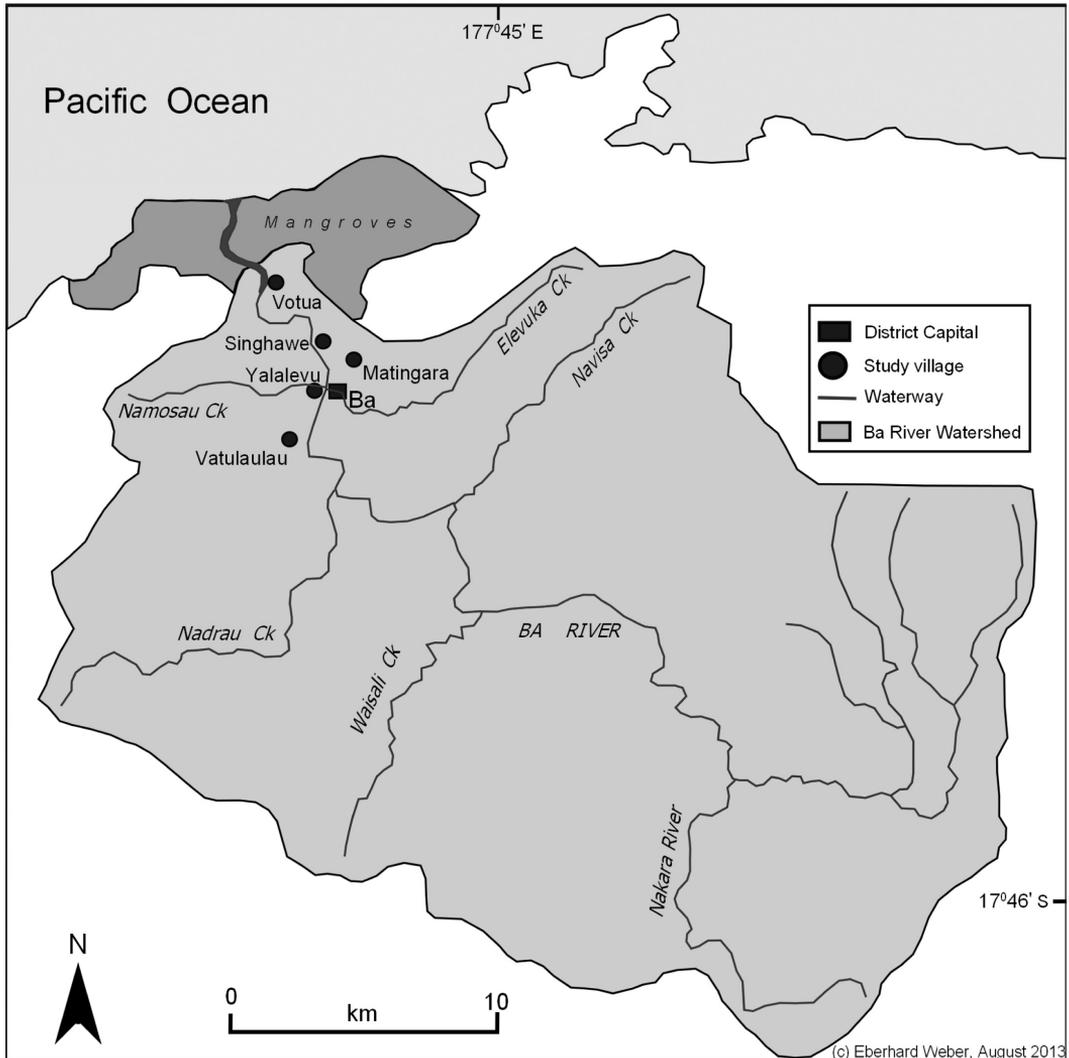
Economically dependent age groups (children, 0–14 and elderly, above 64) range between zero and three, with an average of 2.4 persons. Most members of the dependent age group are children below 15 years of age. The number of economically active persons ranges from one, in female-headed to eight, in male-headed 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 is 3.1.

The livelihood of households in Ba district depends on farming, with the exceptions of four household heads who are traders and nine others involved in other professions. The majority of the farmers, especially those of the Indian ethnic group, have been involved in sugar cane cultivation. Out-migration is 35% and 15% for temporary and permanent migrants, respectively. Male temporary migrants account for 75%, while 8.5% of the permanent migrants are female. Remittance income is obtained by 36% of the households.

CONTEXT OF THE STUDY

Ba district is located on the northwestern side of Fiji's main island of Viti Levu (Figure 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.

Figure 1: Map of the study area



The sugar industry is the dominant economic activity in Ba district and the surrounding districts. Thousands of farmers in Ba and Tavua Districts supply cane to the Fiji Sugar Corporation's Rarawai mill located in Ba town. According to the Ba Town report, 'the importance of the 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), demonstrating the importance of the sugar sector as an employer in the area. The district is known to be multicultural, mostly dominated by Indians, followed by iTaukei with a mixture of communities of Chinese and Europeans.

In Ba floods are an annual occurrence, as in many other places in the Western Division of Fiji; people often refer to them as 'normal'. The residents look upon them as a part of the natural landscape and communities in the area have lived for generations with the yearly challenge of

flooding. However, residents aptly noted that damaging floods, flood disasters, appear to have become a regular and frequent norm 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; resulting the national government, for instance, declared the 2012 floods as 'a state of natural disaster emergency' in the region. Governmental, non-governmental (NGO) and faith-based (FBO) organizations and relief agencies all mounted flood disaster responses. 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 natural disasters in the country.

To say the least, 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 flooding, the January 2009 and January 2012 floods affected the most vulnerable groups with most of the casualties comprising women and children. Farming communities sustained the largest economic losses due to the inundation of farm land and severe erosion. The survey showed 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 were of the opinion that the 2009 event was more devastating to their income, while the 2012 flood brought more silt, resulting in more hours of gutting and cleaning their homes.

Although it is by no means the only flood in recent history, the short time gap between both events, combined with their magnitude, have placed the 2009 and 2012 floods 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 suddenness of the flooding led to loss of life, erosion of farmland, and disruption to transport and communications infrastructure, and also affected people directly in their homes (Yeo, 2010). This immediate threat to their personal survival and well-being perhaps explains why many household heads perceived floods to be a greater risk to their livelihoods and wellbeing than cyclones. One *de jure* female head of household who lives close to the banks of the Ba river explained how they did not sleep in the house during the two floods because they were not 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 having taken shelter with extended families, neighbors and friends who provided a spare bedroom or cleaned out unoccupied space. They preferred such arrangements to seeking shelter in organized camps set up by government and relief agencies. Nearly 9% and 7% of the households had members who became ill, most commonly from intestinal complications and diarrhea. The

two successive inundations caused widespread losses to the agricultural economy and it was difficult for the villagers to recover swiftly from the damage. 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 neighbors and friends was prominent at the onset of the floods and for a considerable time after they had subsided.

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 sugar cane production was lost during the floods. For one male-headed household, the flood left a wetland 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 sugar cane seasons.

Analyzing the interviews surprised by demonstrating that few people talked about the flood impacts 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 suffered damage to their standing crops. With regard to sugar cane production (late summer) crops would have still been standing in the fields at the time of the floods. Harvesting usually starts in early to middle June. In 2012 the beginning of the crushing season of Rarawai Sugar Mill in Ba was postponed to mid-July because of the flooding earlier in the year (Fiji Sun, 22 June 2012). Sugar cane takes 12 to 16 months to grow. Not mentioning agricultural losses could be because losing crops is a minor negative impact in comparison 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. In the case of sugar cane production, the sector has been facing enormous difficulties for many years, and most farmers have not, for a long time, depended entirely on agricultural activities. Having other sources of livelihood, they are in a better position to compensate for damage to their standing crops. Indeed, there was a general expression that agricultural impacts were of lesser importance, partly as households have become accustomed to climatic variation and the 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. And all the while, residents waited nervously, wondering what the future would hold for greater Ba as the days and years go by.

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 chose to remain in the study area.

In this section, we describe the patterns that households in Ba district are deploying to make use of and restore the social capital at work within their communities. Among the respondents we identified four distinct strategies towards recovery that have particular relevance for how civil society might solve the collective action problem. These recovery patterns include practices of search and rescue, information, mutual assistance and social-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 themselves helped to evacuate people, and organized patrol teams to guard and look after belongings against theft. Once the flood receded, villagers and households worked together to repair community infrastructure such as canals, water gates and culverts. Most of this rehabilitation work was actually initiated by the villagers and then later aided by external agencies.

The cumulative assessment of the impact of 2009 and 2012 showed that an average of 33% of the households reported having taken refuge with friends and other families, 8% reported staying in the temporary shelter, and 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 on-going. This calls for provision of rescue skills to residents in the flood prone areas as a significant component of preparation and recovery.

A World Bank study of the 2011 Thailand floods showed 76% of the victims were helped and checked upon by friends and neighbors (World Bank, 2012). The findings of our study reflect the same trend, as much of the rescue operation during the two floods was coordinated by friends and neighbors. Only a few respondents showed that they were rescued by government and other agencies.

Interviewees 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. Stirring examples of wider community involvement in the search and rescue were told to us again and again, usually with apparent gusto and pride. It also seems that when floods strike, the fault lines along the ethnic binary in the context of Fiji dissolve. In spite of the heterogeneity of Yalalevu village, Rajendra, an Indo-Fijian, alludes to the fact that:

in the aftermath of a flood, the first help to arrive is often your neighbor – not a Red Cross agency, Sangam Fiji Foundation or donor country expert, but the helping hand of the person next door or a neighborhood 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.

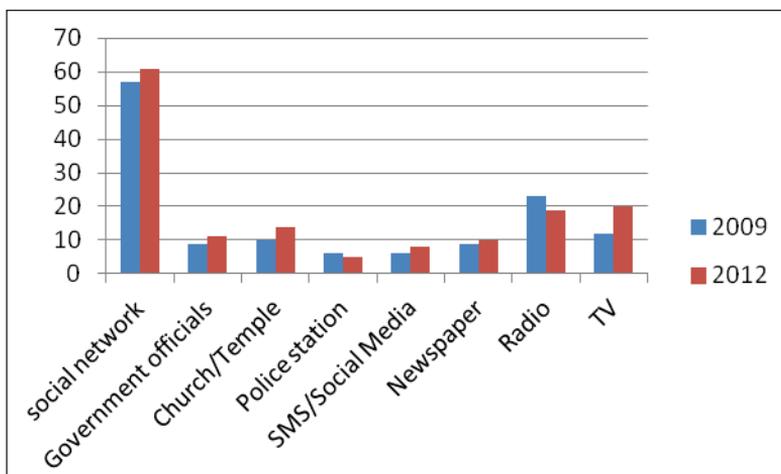
Thus, even when the Fiji military, Red Cross and experts arrived to fill gaps and meet needs, the local population still made up the large majority for search and rescue operations.

Information

One of the strengths of social networks is the facilitation of information flow, as they serve as important channels for information. Our survey showed the indispensable role of social networks in facilitating this flow in the flood affected areas. In the 2009 and 2012 floods, 57% and 61% respectively of the survey respondents reported that they learnt about the areas set up for the victims to get relief assistance through the channels of friends, relatives, neighbors and their social ties (Figure 2). Comparing the various information sources, social networks were by far the most important conduit.

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 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 valuable information source in flood crisis settings for many communities in Ba, as shown in Figure 2.

Figure 2: Main channels of information utilized by households after the floods (Fieldwork, February 2012).



We learnt that those who took shelter with relatives, friends or in the camps were more interested in hearing if their neighbors had returned to the village, as many did not want to return to be the only ones in their village neighborhood. 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 individual information was not (and probably could not be) reported.

Mutual assistance

Mutual assistance emerges as one of the most prevalent aspects of social capital among respondents surveyed and interviewed. Whereas charitable support is one-way, mutual assistance – short-term loans, free housing and shelter, tools and equipment, child care assistance, exchange of labor – constitutes a major strategy villagers deployed to provide support to one another. Such support has very much a reciprocal character and binds individuals and social groups together. In so doing it increases cohesion of communities. As important as external aid and support were in recovery efforts, the small acts that people mutually offered at the time of the flood and in the days after are what played distinct and vital roles in the recovery process.

Mutual assistance was critical in initiating and guiding collective action in various ways. First, it served as a source of material support among people. Secondly, it signaled that neighbors, friends and relatives are indissolubly committed as partners in the recovery process. Thirdly, it served in restoring the fabric of social networks that had been torn apart by the flooding and its associated temporary relocation of people and disruption of the normal functioning of community life in the affected villages.

As we observed in the flood affected areas at the time, many people were simply unable to rise to the physical demands of clearing out debris in their homes and properties. People like neighbors 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 had needed to wait for support from the relief agencies. It also reduced the demands they placed on their hosts or for some who took temporary shelter in camps. Similar behavior was 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. There, many relatives and friends of victims 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 highest ever inflows of remittances from New Zealand, worth 47 million Samoan Tala (ST), compared to the second quarter of 2009, when it was around ST30 million, or around ST9 million higher than for the last quarter 2008 (Gibson, 2010).

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

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

In view of the disruption of the social organization and relationships caused by the flood with relocation of the affected communities to different places following devastating flood events. Considering the extent of damage wrought by the floods, it is often difficult for households to return to the devastated home and start rebuilding immediately except with clear assurance and signs that others are also willing and planning to do so. Mutual assistance therefore acts as an indispensable mutual signal and affirmation of intention to move towards recovery and restoration of the disrupted community life.

Following the 2009 floods, Mr. Luitimailagi, an iTaukei 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, Luitimailagi's employer offered him a safe home. Beyond this story's demonstration of the offer of material support between two friends, it also illustrates that by giving and receiving mutual assistance, the two are affirming their willingness to share in the risk of recovery.

Educational institutions, we noted, played a key role in the recovery process and rebuilding of place-based social capital. Following the national government's declaration on 25 January 2012 of the state of natural disaster for parts of the Western Division for a period of 15 days, schools in Ba districts were forced to close for one week for safety of lives. A few of the school buildings were used as evacuation centers for flood victims. 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 collaborative assistance offered a swift and efficient way of bringing the educational life back on track as well as creating 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.

Commercial cooperation

Discussions on social capital often fail to consider market activity. Whether this is a sin of omission or commission is out of the scope of this paper. In our study we consider the role that commercial activity played in the post-flood recovery in the study area. As pointed out by Chamlee-Wright (2010) with reference to post-Hurricane Katrina, 'commercial cooperation put business activity at the center of the disaster recovery'. For profit making, commercial cooperation serves a function similar in many ways to that of mutual assistance; through the provision of essential material support, it builds confidence about rebuilding of community, and impetus for redeployment of place-based social capital.

It is worth noting that material support offered by neighbors, relatives and friends finds more meaning if complemented with necessary equipment, tools and building materials, which become available through business activity. The early re-opening of hardware stores in the flood areas enabled many householders to undertake rapid rehabilitation of damaged houses. Given that the majority of the homes in the area was not insured in event of floods or storms, most households found themselves reliant on their own resources in rehabilitating the destruction on their houses. Had these hardware stores providing low-cost, easily accessible materials not re-opened, it would have been difficult for the victims to rebuild or even gain collective action from neighbors and friends to assist.

Appreciating that their fates were closely linked, some businesses were willing to make advance payment to their workers, and extend credit to their customers even in the knowledge that payment may be significantly delayed. The immediate re-opening of commercial activities served as an effective signal that the Ba community was rebounding towards recovery. In order to achieve this, people needed to return to their homes. In the study, among the most frequently cited frustrations were the delay in the re-opening of grocery stores. The reasons are not difficult to find: many of the farms were damaged by flooding and shops' inventories destroyed. Restocking with goods brought in from other parts of Fiji and overseas would take time. The re-establishment of commercial life, one of the most important aspects of recovery, is factored into many emergency plans. However, its importance also derives from its role in allowing social capital to become more effective.

It is important to point out that commercial activities do not serve merely as a cheerleader for social capital but double as principal provider for social capital. For instance, yaqona cafés, tea shops, restaurants and bars serve as hubs for reconnection after the floods and provide the social spaces where residents reminisce about the flood and exchange practical advice. The conversation that flows round the tanoa and cups of tea offers people a reprieve from the cleaning, gutting and rebuilding as well cushioning 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 lubricates and reduces transaction costs and associated uncertainty (Chamlee-Wright, 2010; Fukuyama, 1995, 1999; Putnam, 1993). However, the importance of commercial activity with regard to the development of social capital often receives less prominence and attention in the literature. The accounts of the flood victims in Ba district be they from village headmen (*turaga ni koro*), teachers, business owners, religious leaders or farmers, suggest that the social capital redevelopment is directly and intimately tied into the market redevelopment. Under the condition of post-flood recovery as seen in Ba, commercial cooperation played a significant and shaping role in the recovery process by offering the residents the opportunity to orchestrate successful recovery and how communities may thrive once again.

Many of the residents believe that the flood has brought about the feeling of togetherness and norms of helpfulness and trust to Ba. They focus overwhelmingly 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 discriminate between victims and businesses. All people

suffered together ‘in the field’ rather than ‘in the palace’, analogized Pastor Tukana. Differences of ethnicity, color 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. We all have the same.’

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 okay to just strike up a conversation with anyone if it began by concentrating on the flood. Adler (2009:23) wrote 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-centered 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 neighborhood, 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 consecutive floods. ‘Why?’ I asked. Because, 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 imprint that has ‘affected the hearts and minds’ of all residents, concluded Pastor Tukana.

LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This paper has explored a largely unexplored link between two well-developed fields in the context of very recent flood events. It is a study of first-words, not last.

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 of 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 from the affected communities how their deployment social capital helped towards their recovery in particular during the last two severe floods.

Nor is our research a comprehensive account of the Western Division floods: fifteen days, twenty qualitative interviews and 97 household surveys are enough for little more than a snapshot. Findings cannot be generalized even to the larger Western Division. At a matter of weeks after the disaster, the recovery was far from over and, many residents agreed, post-traumatic stress and despair were just setting in: 'we are only hitting the tip of the iceberg in acknowledging our own pain,' said the Singhawe village headman. 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 their 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. Whilst these concerns are genuine, the findings are important in the sense that respondents expressed their personal experiences rather than a disengaged 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 looked only 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 the 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 to each incisive insight on its own fundamental concerns. As this paper illustrates, the need to synthesize disaster studies and social capital is conspicuous: together, they provide an excellent 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 decentralized social structures and processes to leverage their recovery.

It was clear that in the early phase of flooding much of the search and rescue endeavor came from within the social networks; likewise in the aftermath social networks facilitated significant levels of flow of information, the provision of different types of support – 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 future for flood policies in Fiji. First, policy makers must properly acknowledge the critical role of social capital and social resources and the non-profit sectors; too 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 on how to strengthen such networks.

Now, 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 capacity of the immediate 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 a flood disaster response in Western Viti Levu is restricted to providing food, shelter, healthcare and other immediate services, not building the capacity of local groups. This is in large part because government and many donors place emphasis on the delivery of services and media attention is on immediate results. When solicited, local-community feedback often highlights the lack of capacity-building and disaster risk reduction efforts. In this regard, government and NGOs should try to make full use of existing social capital in recovery by maintaining social networks in disaster affected areas and utilizing existing social networks in recovery processes. Government and NGOs can consider the provision of communications devices such as cell phones and email connections to community groups, which can facilitate their staying in contact during the flood situation, as well as sponsoring information sessions targeting the established neighborhood-based or faith-based groups, and to consider putting displaced people from the same community together, as opposed to evacuating them to different locations, as this could have far-reaching positive consequences for communities struck by flood, helping to maintain and sustain the sense of community. However, it is important to realize that investment in social networks and capital is a long-term one, rather than an emergency policy response.

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

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