SOCIAL CAPITAL AND DISASTER PREPAREDNESS: CONCEPTUAL FRAMEWORK AND LINKAGE

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ABSTRACT

There is a growing relationship between social capital and disaster. This article draws conceptual framework and linkage between these two components. Social capital includes social networks and the norms of reciprocity and trustworthiness which are highly important to speed up disaster preparedness and recovery. An individual's preparedness is reciprocally determined through the amount of available material and intellectual resources, their social support networks, the community-level preparedness and the ability of the community to access resources from those in power. Thus disaster preparedness and response activities create new types of social capital. Recent studies show that social capital is related to a community's ability to plan for and respond to disasters. The positive relationships have found in case of high level of fairness and trustworthiness with the disaster preparedness. So proper initiatives need to be taken by the government, NGOs and civil societies towards formation and development of social capital and disaster preparedness as well. Linking social capital with disaster preparedness could be useful to reduce disaster impacts and sustainable livelihood.

Key words: Social capital, disaster preparedness, social networks, linkage

1. Introduction

Social capital has emerged as an area of great interest to a large number of government agencies, community and welfare organisations, research institutions and community development practitioners. The potential for social capital have positive contribution to outcomes in diverse areas of social concern such as health, education, community safety and disaster preparedness. Reininger, et al. (2013) examined social capital and its relationship to disaster preparedness among low income people and found a positive relationship of social capital with disaster preparedness. Social capital can also be studied as an outcome affected by disasters, and research has highlighted how disaster can reduce social capital (Varda et al. 2009). Social capital may deteriorate following a disaster because of dislocation of network members, loss of network ties through injury or death, or overwhelmed network resource capacity (Kaniasty and Norris 1993). In other words, disasters can affect both aspects of social capital: the network relationships and the resources available through those relationships. In relation to social vulnerability, research has shown that a disaster can affect the provision of social capital resources poor individuals need (Domínguez and Watkins 2003; Stack 1975). The disruption of social capital resources can be particularly damaging to these individual's resilience as shown by the Tobin-Gurley, Peek, and Loomis (2010) that single mothers had faced slower recovery after the displacement and lost of social resources.

Social capital can be described by the social connections among homophilous network members (bonding social capital) (Putnam, 1995; Putnam, 2000), across heterogeneous networks and organizations (bridging social capital) (Putnam, 1995, 2000; Schuller, Baron, & Field, 2000) and to those with higher status and power (linking social capital) (Szreter & Woolcock, 2004). According to that aspect, an individual's preparedness is reciprocally determined through such things as the amount of available material and intellectual resources (e.g., emergency funds and personal disaster kits; timely access to disaster alerts and knowledge of evacuation routes), their social support networks (e.g., families, churches, local response organizations), the community-level preparedness (e.g., relationships between emergency services, non-governmental organizations, local businesses, community organizations) and the ability of the community to access and leverage resources from those in power (public officials, federal or international aid agencies) (Dynes, 2006; FEMA, 2004). Disaster preparedness and response activities are also credited in the creation of new types of social capital, such as the phenomena of volunteerism and charity work, or the cooperation fostered between groups for mutual benefit in the planning phase (Koh & Cadigan, 2008). Therefore this article attempts to provide the conceptual framework of social capital and disaster preparedness and explores their possible linkage.

2. Conceptual Framework

2.1 Social capital

A range of definitions that attempt to capture the concept of social capital are available in the literatures. Bourdieu (1985) provides a central and theoretically grounded definition of social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (Bourdieu, 1985). According to Putnam (2000) **"**Whereas physical capital refers to physical objects and human capital refers to the properties of individuals, social capital refers to connections among individuals - social networks and the norms of reciprocity and trustworthiness that arise from them. James Coleman (1988) describes social capital as consisting of aspects of social structure, obligations and expectations, information channels, and a set of norms and effective sanctions that constrain and/or encourage certain kinds of behavior. Putnam (1995) who popularised the concept of social capital defines social capital as "features of social organisation such as norms, networks and trust that facilitate cooperation and coordination for mutual benefit". Fukuyama has analyzed the link between trust, social capital and national economic success. He defined social capital as "the ability

of people to work together for common purposes in groups and organizations" (Fukuyama, 1995). He has further expanded the definition of social capital "as the existence of a certain set of informal values or norms shared among members of a group that permit cooperation among them" (Fukuyama, 2001). Woolcock (1998) has referred to social capital as "the information, trust, and norms of reciprocity inhering in one's social networks. OECD (2001) also states social capital as "networks, together with shared norms, values and understandings which facilitate cooperation within or among groups". In other words, social capital is made up of social obligations and connections within members in a group (Lin, 2001). Social capital has two clear components: a durable social network and the amount and quality of resources available to be passed through the network ties (Lin, 1999). Thus, there are two distinct conceptualizations of social capital which exist in the literature; one is the social network-based approach from the academic tradition of Bourdieu (1985) and Lin (1999), and the other is the norms, trust, civic-based approach of Putnam (2000) and Fukuyama (1995).

2.2 Sources and indicators of Social Capital

Table 1 summarizes various sources of social capital with their measurement indicators. Social capital is created by a network in which people can broker connections between otherwise disconnected segments. Formal and informal networks which influence the personal relationships when people interact with each other in families, workplaces, neighbourhoods, local associations and a range of informal and formal meeting places (ABS, 2000). Thus, networks help to reformulate and develop different types of social capital as follows:
- bonding social capital- characterised by strong bonds e.g. among family members or among members of an ethnic group
- bridging social capital - characterised by weaker, less dense but more cross-cutting ties e.g. with business associates, acquaintances, friends from different ethnic groups, etc.
- Linking social capital - characterised by connections between those within a hierarchy where there are differing levels of power. It is different from bonding and bridging in that it is concerned with relations between people who are not on an equal footing. An example would be a social service agency dealing with an individual

Table 1: Sources and the measuring indicators of social capital

Sources	Indicators to be included
Social participation (Network)	• Number of cultural, leisure, social groups belonged to - Frequency and intensity of involvement • Involvement with voluntary organisations - Frequency and intensity of involvement • Participation of religious activity
Social networks and social support	• Frequency of seeing and speaking to relatives, friends or neighbours • virtual networks – frequency and intensity of contact • how many close friends or relatives live nearby • who can be relied on to provide help • who provide help to perceived control over life • satisfaction with life
Reciprocity and trust (shared norms and values)	• trust in other people who are like you • trust in other people who are not like you • people will do favours & vice versa • perception of shared values
Civic participation and formal institutions	• confidence in institutions at different levels • perceptions of ability to influence events

- how well informed about local or national affairs
- contact with public officials or political representative
- involvement with local action groups; frequency
- propensity to vote
- role of influence norms and beliefs

Sources: Modified from Office for National Statistics, 2002

Shared norms and belief is another source of social capital. Shared norms which is also termed as generalized reciprocity is based on the assumption that today's good turns will be repaid sometime in the future (Fu, 2004). Putnam (1995), for example, argues that each individual act in a system of reciprocity is usually characterized by a combination of "short-term altruism (benefiting others at a cost to the altruist)" and "long-term self-interest (making every participant better off) (p. 172)." He believes that reciprocity can resolve problems of collective action and reconcile self-interest and solidarity. On the other hand, shared beliefs are referred to as "bounded solidarity" - a sense of community solidarity which results from collective shared experiences of community (Portes, 1998). Shared belief is a powerful motivational force for the community, group or section.

Adler and Kwon (2000) argue that formal institutions and rules which help to shape network structure and influence norms and beliefs have a strong effect on social capital. Transparent governments that are responsive to people's needs are a key factor in establishing formal community rules and institutions which facilitates trust among citizens; governments also influence civic behavior to the extent they elicit trust or distrust towards themselves.

2.3 Importance of social capital

The importance of social capital has captured by Lin (2001) in his visual model which is shown in Figure 1. This emphasizes on the original position of the individual inside the network which is called "Strength of Position". It indicates that considering a member of a network, the better the position of origin, the more likely it is that this member will access and better use the social capital. For instance a better educated individual might use his connections in order to achieve higher goals than a less educated individual. An individual with a high income or a high social status might have better connections inside the society and achieve higher level of wealth or wellbeing relative to an individual with a low social status or low income (it is more likely for a lawyer to have a doctor within her friends than for a plumber). The initial position may represent an advantage in terms of quality of connections and reputation (better status). The member's social interactions (through strong and weak, direct and indirect ties) can provide access to the embedded resources under the necessary condition that the member is aware of the existence of such resources (Lin 2001). Lin (2001) concludes that the access to this form of capital can make the individual better off in terms of wealth, well-being, power and so on.
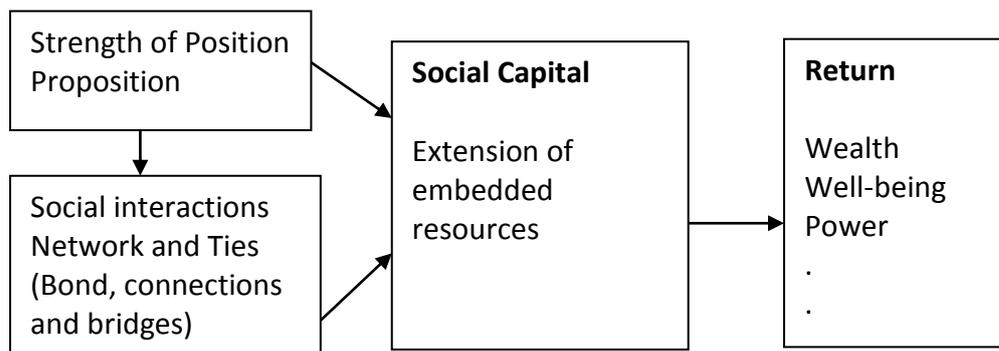
Figure 1: General Schematic Visual Model of Social Capital
Source: Re-elaboration of the visual model of social capital of Lin (2001)

2.3 Disaster preparedness

Disaster preparedness are the activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations (UNISDR, 2004). Preparedness is commonly viewed as consisting of activities aimed at improving response activities and coping capabilities. However, emphasis is increasingly being placed on recovery preparedness— that is, on planning not only in order to respond effectively during and immediately after disasters but also in order to successfully navigate challenges associated with short- and longer-term recovery (Sutton and Tierney, 2006). FEMA defines preparedness as: the leadership, training, readiness and exercise support, and technical and financial assistance to strengthen citizens, communities, state, local, and tribal governments, and professional emergency workers as they prepare for disasters, mitigate the effects of disasters, respond to community needs after a disaster, and launch effective recovery efforts (www.fema.gov).

Disaster preparedness is highly significant to reduce the impacts of disasters. Social scientists, emergency managers and public policy makers generally organize both research and guidance around four phases of disaster loss reduction: mitigation, preparedness, response, and recovery. According to a newly-released report by the National Research Council (NRC, 2006), the core topics of hazards and disaster research include: hazards research, which focuses on pre-disaster hazard vulnerability analysis and mitigation; and disaster research, which focuses on post-disaster emergency response and recovery. Preparedness intersects with both of these two areas, serving as a temporal connector between the pre-impact and post-impact phases of a disaster event. Preparedness is typically understood as consisting of measures that enable different units of analysis—individuals, households, organizations, communities, and societies—to respond effectively and recover more quickly when disasters strike. Preparedness efforts also aim at ensuring that the resources necessary for responding effectively in the event of a disaster are in place, and that those faced with having to respond know how to use those resources (Sutton and Tierney, 2006). The activities that are commonly associated with disaster preparedness include developing planning processes to ensure readiness; formulating disaster plans; stockpiling resources necessary for effective response; and developing skills and competencies to ensure effective performance of disaster-related tasks (NRC, 2006).

The concept of disaster preparedness encompasses measures aimed at enhancing life safety when a disaster occurs, such as protective actions during an earthquake, hazardous materials spill, or terrorist attack. It also includes actions designed to enhance the ability to undertake emergency actions in order to protect property and contain disaster damage and disruption, as well as the ability to engage in post-disaster restoration and early recovery activities. The "Community based disaster preparedness" (CBDP), is another important measures for enhancing disaster preparedness and risk reduction. A comprehensive disaster preparedness strategy would therefore include the following elements as shown in Figure 2.
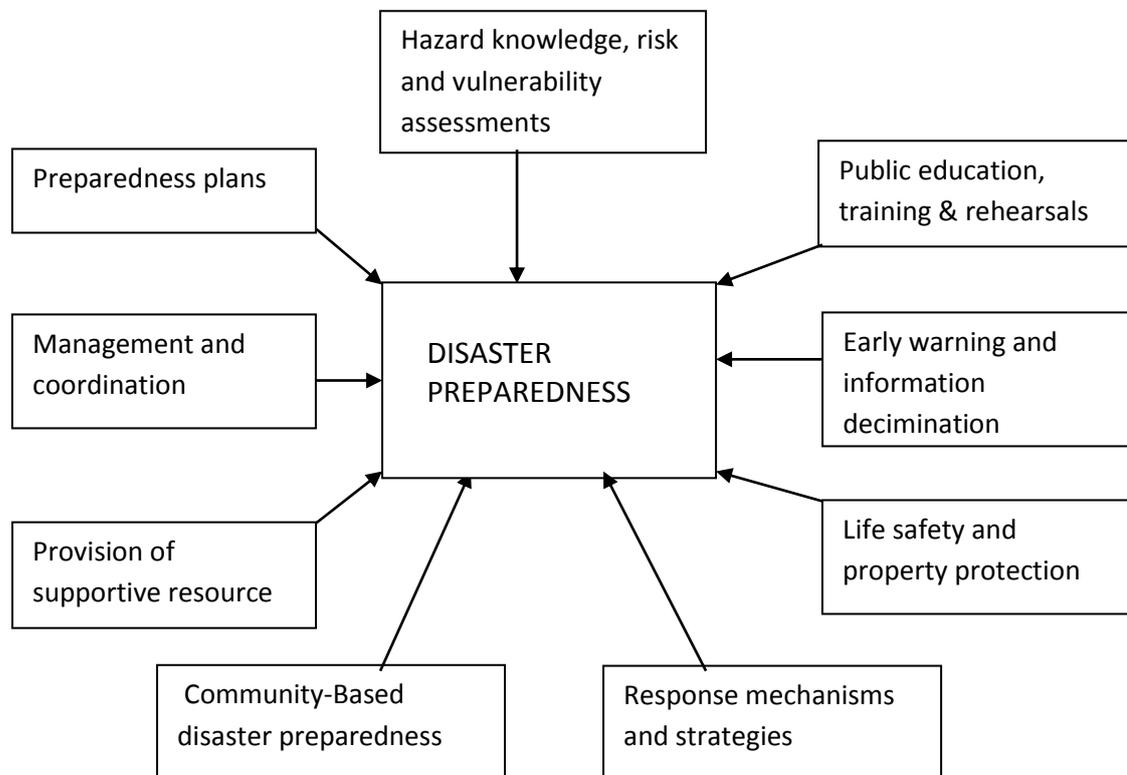

Figure 2: Elements and measures for comprehensive disaster preparedness
Source: Modified from IFRC, 2000; Sutton and Tierney, 2006

3. Linkages between social capital and disaster preparedness

Disaster research that uses this conceptualization of social capital often focuses on how social ties affect resources and support offered to disaster survivors, or how emergency and social service organizations work together during disasters (Murphy, 2007; Nakagawa and Shaw 2004; Varda et al. 2009). Disaster researchers identify financial (loans and gifts for property repair) and nonfinancial resources (search and rescue, debris removal, childcare during recovery, emotional support, sheltering, information) that can be transferred through social ties and affect resilience. Reininger, et al. (2013) have found a higher prevalence of preparedness among individuals who reported the highest perception of fairness compared to those individuals who reported lowest perceptions of fairness. They also explored a higher prevalence of preparedness among individuals who reported highest perceptions of trust compared to individuals who reported lowest perceptions of trust.

Individual and community social capital networks provide access to various resources in disaster situations, including information, aid, financial resources, and child care along with emotional and

psychological support (Elliott, Haney, & Sams-Abiodun, 2010; Hurlbert, Haines, & Beggs, 2000; Kaniasty & Norris, 1993). Despite the evidence about its efficacy, resilience research and disaster management practice have yet to fully embrace social capital as a critical component. Perhaps because scholars have agreed on fewer metrics for social capital than other economic or demographic factors (Meyer, 2013), practitioners have underutilized social cohesion and social networks in disaster planning and management (Aldrich, 2010).

The first and most common form of social network available to disaster-affected individuals is bonding social capital (Norris et al., 2002). Deeper reservoirs of bonding social capital allow individuals to receive warnings, undertake disaster preparation, locate shelter and supplies, and obtain immediate aid and initial recovery assistance (Hawkins & Maurer, 2010; Heller et al., 2005). In disasters, family ties are central to resilience because kin commonly serve as the first providers of assistance (Drabek & Boggs, 1968; Garrison & Sasser, 2009; Haines, Hurlbert, & Beggs, 1996; Hurlbert et al., 2000). Bonding social capital can reduce individuals' likelihood of seeking formal aid from organizations during disasters (Beggs, Haines, & Hurlbert, 1996) and increase the likelihood of emergent social action to respond to disaster victims' needs (Shepherd & Williams, 2014). For example, Tse, Wei, and Wang (2013) found that Chinese households with larger Spring Festival networks—a social network that meets for yearly celebrations—increased the likelihood that the household would rebuild their home after the 2008 earthquake. Higher levels of bonding social capital can translate into greater levels of trust and more widely shared norms among residents. Nakagawa and Shaw's (2004) study of the Gujarat and Kobe earthquakes uncovered that communities with high trust, norms, participation, and networks were able to more quickly recover from disaster. Thus social capital and disaster preparedness are mutually help each other and works towards sustainable livelihood which is shown in Figure 3.
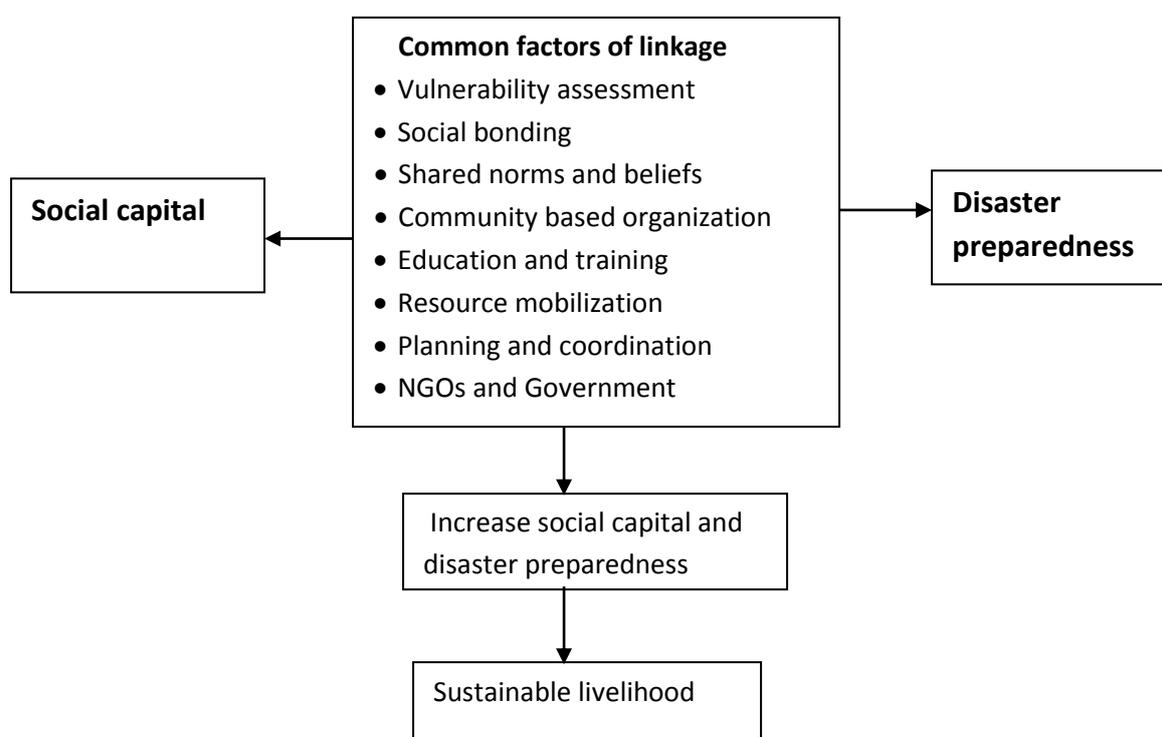

Figure 3: Linkages between social capital and disaster preparedness and their outcomes
Sources: Prepared from Nakagawa and Shaw 2004; Murphy, 2007; Varda et al. 2009; Hawkins & Maurer, 2010; Reininger, et al. 2013; Aldrich and Meyer, 2014

4. Conclusion

It is evident that social capital has a great potential in disaster preparedness and resilience of individual, community and nations as well. Bonding and bridging social capital allow individuals to receive warnings, undertake disaster preparation, locate shelter and supplies, and obtain immediate aid and initial recovery assistance. Preparedness involves activities aimed at improving response activities and coping capabilities. It also provides opportunity to work together and gains some additional social capital through mutual help and strengthening network ties and so on. Thus it is crucial for the NGOs and government agencies to adopt a number of policies and programs which would increase the bonding social capital among community members and strengthen social networks. These social capitals would further incorporate disaster preparedness and resilience or create new networks and activities focused specifically on disaster and sustainable livelihood.

Acknowledgement

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