

Social Capital and Disasters: Analysis of the Villages in Satjelia Gram Panchayat in Gosaba Block of the Indian Sundarbans

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Abstract

Disaster have increased in both frequency and intensity. This is mostly related to kind of changes happening in the world right now, with increase in population, industrialization and development. Much of this “development” has been shown to increase people’s exposure to hazards by pushing them to live in hazardous areas and adds to the vulnerability of the poor, who may then also be forced to degrade the environment to survive.

Social capital is a resource which is embedded in a community. It has been observed that social capital has played an important role in various different stages of disaster management cycle, both in pre and post disaster scenario. Social capital is embedded in the forms of networks, which are crucial to pass on the important information to all its members, coordinate and plan effectively, and in turn be prepared for an impending disaster and respond effectively. The reservoirs of social capital can serve as form of informal insurance and mutual assistance for the community, help them recover from events like disasters, and increase the likelihood that they will effectively respond.

Even if the frequency of disasters is high, and it impacts heavily on the community, the damages can be reduced through appropriate preparation for, response to and recovery from disasters. Recent research has brought forward that social capital is a key element in reducing risk at the community level. Social capital should be in future considered as the way to reducing risk at the community level. This research will look at the different aspects of social capital and how it aids to reducing risk with the help of examples from the field and across the world.

Keywords: Disaster, Disaster risk, Social capital, Community, Disaster management cycle

Introduction

Evidences prove that earth's climate has been changing at an unprecedented rate. Intergovernmental Panel on Climate Change defines climate change as any change in climate over time, whether due to natural variability or as a result of human activity (IPCC, 2014). Climate change is a natural phenomenon but has been accelerated by anthropogenic activities in the recent history (O'Brien, O'Keefe, Rose, & Wisner, 2006). Emission of greenhouse gases by human beings is the single largest contributor of global warming (Helmer & Hilhorst, 2006).

Climate change impacts the physical and biological systems in various ways (IPCC, 2007). Although the impacts of climate change are global, the actual changes and the risks can differ strongly from region to region. Effects of climate change and the risks associated with it is highest in the least developed countries, where they are most poorly equipped to deal with these adversities (O'Brien, O'Keefe, Rose, & Wisner, 2006).

The impacts of climate change are multifaceted and multidimensional. According to the 'Special Report on Emission Scenarios' (SRES) scenarios for greenhouse gas emissions the projections of temperature for the end of this century range from 1.1 to 6.4 °C when it is compared to end-20th century which leads to a wide range of effects on global, regional and local levels. These effects are changes (average and extremes) in temperature, sea levels, precipitation, food production, ecosystem health, species distributions, human health and extreme weather events (IPCC, 2007). Under extreme weather events following is happening and also expected to take place in the future (Pollner, Kryspin-Watson, & Nieuwejaar, 2008):

- Increase in temperature and decrease in mean precipitation leads to an increase in the frequency and severity of drought and heat waves.
- Increasingly warm ocean surface temperature generates more and stronger hurricanes, as well as commensurate flooding in the aftermath.
- Severe drought leads to an increase in forest fires.
- Greater intensity of wind and rain causes severe floods and landslides

Extreme weather events have been on a rise in recent years. Along with this rise of these kinds of disasters, there has been exponentially increasing economic losses, coupled with an increase in casualties due to these events, which has focused the attention of the world towards these events (Easterling, et al., 1999). Other than these disasters, earthquakes are also a major threat in many places across the globe. According to many research studies conducted, earthquakes are the biggest killers. They give rise to increasing losses of life, infrastructure and affect the development of the affected place more than any other disaster. (Berz, et al., 2001)

With increase in disasters in the recent past, most countries across the world have woken up to the threat disasters pose in stalling the development of the region it affects and have thus made policies to deal with disasters. Policies related to disasters generally follow a top down approach and are more focused on the physical aspects of disaster risk reduction (LaLone, 2012). But as important the physical aspect of disaster risk reduction is, social aspects are also as important, considering that the social aspects are one of the most important links in managing disasters at the community level (Wisner, et. al., 2004).

In last decade, there has been a lot of discussion on social capital which is one of the important resources embedded in the social structures of a community. Social capital very

simply can be defined as ‘the invisible resource that is created when people cooperate’ (Coleman, 1990).

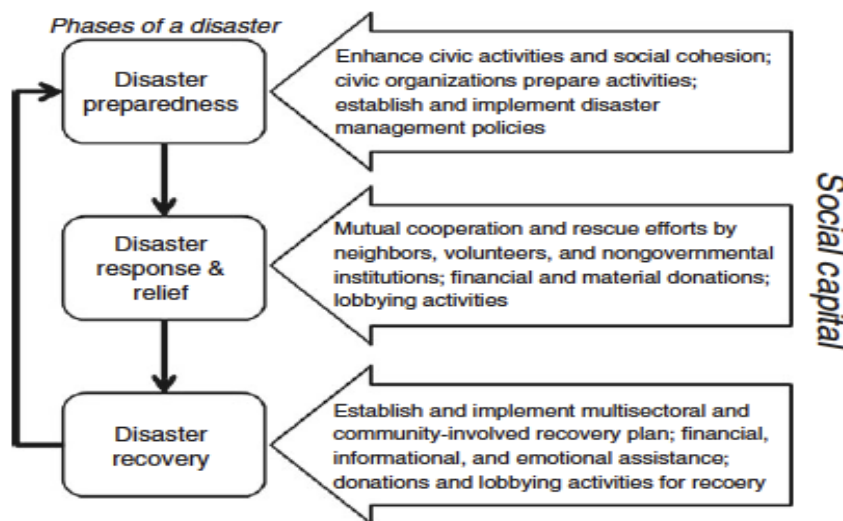


Figure 1. Links of social capital to various phases of disaster (Aida et. al, 2013).

Social Capital plays a crucial role in all the different phases of a disaster. The above figure better explains the links of social capital to various phases of disaster (Aida et. al, 2013).

In this paper, we will discuss more about social capital with cases from across the globe complimented with field based experience from the Gosaba, Sundarbans in India. Gosaba is the last inhabited deltaic island before the dense mangrove forest of Sundarbans start. This area has very limited infrastructure and institutions to deal with disasters and the community over the years has faced the wrath of disaster several times.

Social Capital and Disasters

Social capital refers to trust, norms and networks which affect social and economic activity within one community. High accretion of social capital contributes significantly to social, political and economic performance. There are many different definitions of social capital, as it has developed over the last several years based upon the work of several authors. Some have argued on the positives of social capital while others have argued on the negative impacts (Nakagawa & Shaw, 2004).

With more research being done in this area certain categorizations of social capital emerged. Two among them were the most fundamental to understand social capital. According to the work of Woolcock (1998) social capital has three categories, also explained in the figure 1:

- Bonding social capital: It is defined as the strong ties between immediate family members, neighbours, close friends, and business associates sharing similar demographic characteristics.
- Bridging social capital: It is the ties between people from different ethnic, geographical, and occupational backgrounds with similar economic status. These ties a bit weaker than the bonding social capital ties.
- Linking social capital: It is the connection between people at the community level and people in positions of influence in formal organisations like government, banks or the police.

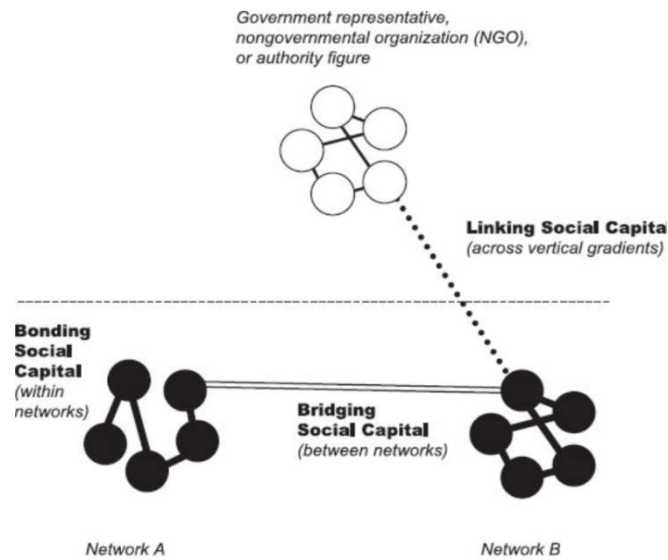


Figure 2. Diagram depicting different categories of social capital (Aldrich D. P., 2012)

On the other hand, Uphoff (2000) categorized social capital into:

- Structural social capital: It includes roles, rules, precedents and procedures of institutions as well as networks that contribute to cooperation.
- Cognitive social capital: It is the mental process in human that is reinforced by culture, norms, values, attitudes and beliefs that contribute to a feeling of reciprocity, trust, cooperative behavior and mutually beneficial collective action.

The following diagram further discusses the components of structural and cognitive social capital.

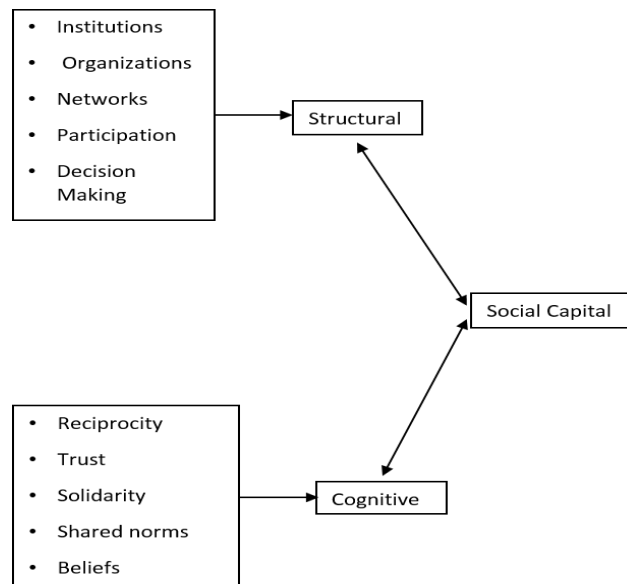


Figure 3. Diagram depicting structural and cognitive social capital (Compiled through literature review)

It is difficult to choose the right definition of social capital as there are so many different views and perspective on the concept. So for this paper, we define social capital as potential resource that stimulates multiple functions for mutual benefits carried out by members of the community.

Social capital has different roles to play in varied amount of fields. Considerable research has been conducted to understand the role social capital plays namely in studies related to family, education, democracy, governance, health, economics, business and management along with wide array of development issues. Although since the time the concept of social capital became known there was a lot of interest among researchers to analyze its impacts in their respective fields (Castillejos, 2009). But, in the field of disasters rather limited research has been done on the concept of social capital and risk reduction to disasters (Dynes, The Importance of Social Capital in Disaster Response, 2002).

Social capital is vital for community resilience efforts for preparedness, response and recovery to environmental disasters. But unfortunately the potential role and contribution of local level social organizing enabled by social capital is overlooked by the policymakers (LaLone, 2012).

Dynes (2006) highlights that there needs to be more attention given towards social capital which can help the community to deal with a disaster, other than just focusing on damage on physical and human capital. Disaster management all across the globe generally follows command-and-control approach. Although, this approach is efficient when we look at channeling formalized emergency resources but its weakness is the assumption that the community either breaks down or has insignificant contributions to make in the different phases of a disaster. This makes the policy makers to exclude the contribution of social capital from being factored into disaster management policies. Literature also shows the successes that have occurred when projects have adopted community-based participatory approach, where the social capital and its networks were intentionally identified and factored into inclusive partnership approach for community planning rather than overlooking their potentials (LaLone, 2012). Other than having structural mitigation measures it is also important to identify and use informal community networks for understanding local risks and needs, and thus reduce risk at the local level (UN-ISDR, 2005). Disaster risk reduction helps in reducing and limiting the disruptive and destructive effects of hazards. As mentioned earlier disaster risk reduction measures range from the physical such as engineering works like dikes, embankments, and safe building design to the non-structural measures such as community risk assessment, community risk reduction planning, public awareness, food security programs, group savings, cooperatives, crop insurance, strengthening the organizations for community disaster management and advocacy on disasters and development issues, legislation and land use zoning (Victoria, 2002).

Methodology

According to SADKN (2013) the South Asian region is particularly prone to tropical cyclones. Most of cyclones originate from the Bay of Bengal. Sundarbans is probably one of the worst affected by tropical cyclones over the years in this region. Therefore, for this particular study focuses on Satjelia Gram Panchayat in Gosaba Block in the Indian part of Sundarbans which was severely affected by Cyclone Aila in 2009 (IAG, 2009; Bhattacharyya et al, 2010). Gosaba is also considered to have the lowest resilience among all the blocks in the Indian Sundarbans (DasGupta & Shaw, 2015). Gosaba is the last known inhabited area after which dense forests of Sundarbans starts. This area is one of remotest in the region and the infrastructure present in area is rather limited with no electricity in this island. The study area faces a perennial problem of breach in embankments. It becomes really difficult to go in or out of the islands during the monsoon season. Support from the government in this area for disaster risk reduction is bare minimum. Therefore, because of this lack of adequate infrastructure, capable disaster management institutions, training and awareness programs,

early warning systems, remoteness of the island makes it an interesting study area to further the knowledge on how social capital can influence risk reduction of disasters.

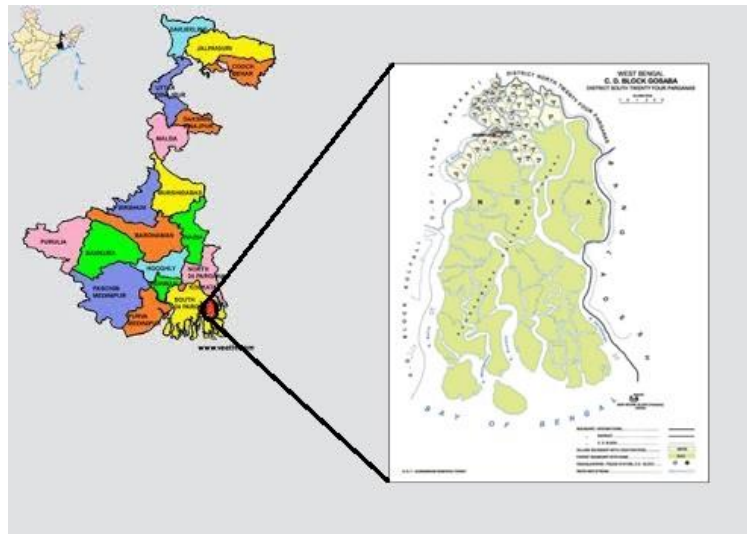


Figure 4. Map of Gosaba Block

The study is based on both primary and secondary data. Primary data collected from two villages under Satjelia Gram Panchayat namely, Dayapur and Satjelia. Primary data collection involved focused group discussions¹, and key informant interviews with the block development officer², gram panchayat head³, members of gram panchayat and a bank official from the island. Secondary data was collected to understand of the contribution of social capital with regards to disaster risk reduction. For simple and clear understanding the results of this research would look into the contributions of social capital in the different phases of a disaster management cycle. This is an ongoing study and further conclusive remarks will be provided once the study is over.

Observations and Discussions

Social capital plays a significant role in reducing the risk of the communities that are at risk of getting affected by disasters. Social capital and its networks considerably help in alleviating the distress of the affected people. Disaster researchers focused a lot on community and community based interventions, but seldom gave due importance social capital has in mobilizing the community for these interventions. A few recent studies however are focusing how social capital is helpful during and after a disaster (Aldrich & Meyer, 2014).

The study area is characterized by limited essential infrastructure, disaster management institutions and a very inhospitable terrain. In this case the community needs to deal with disaster, mostly by themselves where in social capital becomes so important. This section will look into how social capital helped the community dealing with this kind of an adverse situation. As discussed in the methodology section the observations of the contribution of social capital from this study would be classified under different phases of a disaster namely preparedness, response, relief, and recovery.

¹ The participants were selected on the basis of their occupation, age, gender and distance of their house from the river.

² A government officer overseeing the administration of a block.

³ Head of the local self-government in rural India

Disaster Preparedness: Social capital and its networks enables the community to be better prepared for impending disasters by helping in receiving information regarding warnings, locating the evacuations routes and centers and help getting the initial relief and recovery assistance.

In the two villages this phenomenon was observed during the study. Whenever there was a situation of emergency it activated the network among the community members and local institutions in preparing for it. For example, during the post Monsoon cyclone season, the local institutions like the Gram Panchayat which constituted of members from both the villages, and the business cooperatives, took necessary measures like making the evacuation center (the local high schools) ready, stocking dry food items and water to become prepared.

The network of the people in the two villages is also used to pass the information related to any threat the community might face or vital information for keeping people safe. This was observed in the two villages where villagers not only passed the information about high tides to their direct neighbours, but they tried to pass on the information to the neighboring villagers also through the network of their family.

The community institutions like the gram panchayat with the help of the villagers living near the embankments also keeps a check on the condition of the earthen embankments. When a weak point is found in the embankment, the leader mobilizes the community members for repairing of the embankment.

Disaster Response: Communities are generally the first responders to any disaster or emergency and they react to a disaster much faster than most institutions that are responsible for disaster response.

Aftermath of cyclone Aila in 2009, it was observed that people in the community were the most helpful for people in need, by evacuating the elderly and people with disability to the schools which acted as the cyclone shelters. The community members with food and water shared it with others who had none. There were also cases where some people were given shelter by owners of reinforced concrete structures as the school was far away from where the affected people stayed. The youth also helped in rescuing many a stranded people from trees.

Other than this even cases of household emergency this close-knit community comes together to help those in need. This can be illustrated by numerous examples from the villages at the times of someone's illness, the community members come together to arrange for transportation of the patient to the hospital, taking care of the family and even helping the suffering family financially.

Similar cases can be found in examples from across the globe, like after the Wenchuan earthquake in China, most of the community members were rescued by relatives, neighbours and community members (Zhao, 2013) and in 2011, after the earthquake and, tsunami, and nuclear meltdowns in Japan, the surviving members of the community indicated that many of the elderly and frail were saved by the assistance of neighbors, friends, and family (Aldrich, 2012).

Disaster Relief: During the relief stage of a disaster, social capital again plays a vital role. Many cases reflect that the community members and relatives played an important role in providing actual relief or vital information of relief, for those affected by a disaster. It was

observed in the study area, that the local youth and business cooperatives from the surrounding areas came together in the support of the affected population after cyclone Aila in 2009. This happened because of the strong network between the people from villages of Satjelia with youth from other neighbouring villages because of organising fairs and sport tournaments. The business cooperatives provided the local youth with resources which was then distributed across the affected areas. This kind of phenomenon was also observed in Mexico after the earthquake in 1985 where an overwhelming number of volunteers came for help, who were not even from the area. These kind of example reasserts how important social capital is. (Dynes, 2002)

Along with this even the friends and relatives living outside the affected area, send some money and essential relief items into the affected area.

Disaster Recovery: In the villages of Satjelia, it was observed that the existing indigenous knowledge and experiences to deal with disasters is passed on using the strong social capital and its network across the generations and population. This helps the community members to understand and adapt to the adversities and also recover faster. Social capital is also seen to be beneficial in providing emotional and mental support to those who need it at the times of distress. The community members take care of the distressed families and help them recover fully and have a normal life after an emergency or a disaster. Other than this community members who had their relatives staying outside the affected area tried their best to help by providing vital links to work outside.

Social capital also tries to utilize the connections with people from a different power gradient. In the study area, the local community leader has tried to use the linkages he has with the government in the state for better recovery. The social capital also helped in spreading the information necessary to get aid.

Conclusion

The community which is impacted by the disaster is a direct and active participant at all distinct phases of dealing with a disaster which are: preparedness, response, relief and recovery (Mushkatel & Weschler, 1985). For the communities living in hazardous areas other than structural mitigation measures, it is important to develop non-structural mitigation measures also. Consideration of social aspects is one of the most important links in managing disasters at the community level especially in areas where the institutional arrangements for disaster risk reduction are bare minimum.

Thus, by analyzing the observations it can be said that social capital networks when channelized, can greatly help in reducing vulnerability through building capacities of communities to mitigate, prepare for and respond to disaster in a self-reliant and cooperative manner. Since social capital is available everywhere and can be activated easily, risk can be further reduced using it more in a pre-disaster scenario. Social capital at the community level can be furthermore mobilized for risk reduction by (LaLone, 2012; Victoria, 2002):

- Selecting project sites with the help of social networks and targeting the most vulnerable communities
- Selecting community members best suited to be volunteers and training them to work with communities in reducing vulnerabilities

- Organizing communities and establishing village-level Disaster Management Committees (DMC) as a coordinating body which can also plan ahead of disasters and emphasize community based-discussions
- With the help of the social network identifying, estimating and ranking local disaster risks through risk mapping
- Building consensus on mitigation solutions for better acceptance among the community members
- Using the social capital to mobilize of resources and implementation of community mitigation solutions

When these initiatives which were successful in other places were discussed with the community leaders, they were very interested in it. Their only concern was that they need some support to initiate it at this scale. Therefore, it can be said that social capital generally has a positive effect on the community during different phases of a disaster which is reflected from the observations in the field and the cases from around the world. It has been observed that individuals who participated in groups activities in their community had significantly mitigated their risk of succumbing to a disaster (Koh & Cadigan, 2008). Advantages that social capital poses should be taken into consideration by the policy makers and practioners in the future, especially when planning about community-based initiatives where social capital is inherent and can be mobilized with ease.

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