

Social Capital: A Missing Link to Disaster Recovery

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Post-disaster recovery processes should be considered as opportunities for development, by revitalizing the local economy and upgrading livelihoods and living conditions. Social capital, which is defined as a function of trust, social norms, participation, and network, can play an important role in recovery. This paper examines the role of social capital in the post earthquake rehabilitation and reconstruction programs in two cases: Kobe, Japan and Gujarat, India. The Kobe case study shows that the community with social capital and with a tradition of community activities can pro-actively participate in the reconstruction program, and thereby can make a successful and speedy recovery. A model for bonding, bridging and linking social capital was developed from the Kobe experience, and was applied to Gujarat in four different communities. It was observed that the community with social capital records the highest satisfaction rate for the new town planning and has the speediest recovery rate. The role of community leaders has been prominent in utilizing social capital in the recovery process, and facilitating collective decision-making. Thus, although the two case studies differ in socio-economic and cultural contexts, the communities' social capital and leadership are found to be the most effective elements in both cases in enhancing collective actions and disaster recovery.

Introduction

Natural events like earthquakes, floods, cyclones, or droughts occur within the various processes of nature, however these events become disasters when they affect human lives and livelihoods. In recent years, natural disasters have changed their characteristics and the risk of being affected by natural disasters has significantly increased especially in the developing countries. The numbers of major events increased dramatically from the 1960s, and in the 1990s, the number almost doubled from the previous decade (Data Book 2002). However, what has been witnessed in the last decade can be termed as “man-made” disasters, which occurred as the consequence of human activities (see Blaikie et al 1994; George 1992; Brown and Starke 1996; Twigg and Bhatt 1998).

For developing countries, these natural disasters have constituted a heavy drag on development. One major disaster can be a setback to healthy economic growth for years. To mitigate such natural disasters, various efforts have been made at different levels. During the United Nations International Decade for Natural Disaster Reduction (UN IDNDR, 1990-1999), a paradigm shift was observed from post-disaster relief and rescue to pre-disaster mitigation and preparedness efforts. Another focus area was empowerment of the local governments, and involvement of the nongovernmental organizations (NGOs) and civil societies in the decision-making process. As more research on development has been conducted in various fields in recent years, the approach to disaster mitigation is becoming more and more community-based (Blaikie et al 1994; Twigg and Bhatt 1998; Quarantelli 1989; Mileti 2001; Shaw and Okazaki 2003), and much more effort has been put into incorporating disaster management aspects into the holistic development of communities. As Maskrey (1989) rightly pointed out, disaster management should not be treated as one single issue but should be incorporated into the socioeconomic activities of local people.

While there has been significant focus on the pre-disaster preparedness and mitigation aspects, post-disaster reconstruction issues should not be discarded. Rehabilitation and reconstruction programs are development opportunities, and therefore their sustainability is an important issue. There are as many rehabilitation programs as there are numbers of natural disasters. Each disaster has different characteristics and disasters like earthquakes can be particularly destructive especially for lives and properties. Earthquakes affect all, including rich, middle-class and poor. When they destroy an urban area, massive re-planning of the city is required. Thus, the recovery process is a learning exercise on what is

safe and sustainable for the community. Governments (national, provincial, city or local) and NGOs (both international and local) put tremendous efforts into reducing vulnerability and to enhancing sustainability in the reconstruction and rehabilitation programs (Shaw, Gupta, and Sharma 2003). However, the key question is: even though much effort is put into disaster recovery programs, why have some communities carried out faster (in terms of time frame) and more satisfying (in terms of holistic and participatory) recovery programs while others have not? Where do such differences come from? There is possibly no straightforward answer, since it is a complex mixture of social, economic, religious, political and other issues. However, in this paper, an attempt has been made by using social capital as a measure to find an answer to this question. A comparative study was undertaken in Kobe in Japan and Gujarat in India to analyze the post-earthquake recovery process, and to find the common elements to ensure sustainability.

Social Capital: Emergence of the Concept

Social capital, in general, refers to the trust, social norms, and networks which affect social and economic activities. Although it is not a new idea that trust and networks help reduce transaction costs and make things easier, the recent argument concerning trust is quite sensational. Supporters of this new concept believe that the level of trust, social norms and networks can be measured and a high accumulation of such capital contributes significantly to social, political and even economic performance, for better or worse. The term “social capital” has become quite popular both in the field of social science disciplines and in international development.

Coleman (1988), one of the founders of the term used in the current manner¹ sees that, “social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors—whether persons or corporate actors—within the structure.” In his analysis of the educational performance of high school students, Coleman (1988, 1990) argued that obligations and expectations, information, and norms accompanied by sanctions are the three forms of social capital, which are needed both inside and outside the family for a better outcome. It was also noted that the “closure” of the social network (vertical hierarchical bond between parents and children, horizontal network of children and more importantly, horizontal ties among parents of those children) was crucial for

educational performance. In general, he tried to account for different outputs of individuals and mechanisms of collective action by focusing on the motivation of rational individuals.

Putnam, Leonardi and Nanetti (1993) provided another dimension of social capital. Comparing the northern and southern parts of Italy, they concluded that “civic-ness”, which had accumulated during the long history of the regions, was the most important aspect for government performance and the level of civic-ness is consequently reflected in economic performance. They were of the view that social capital is the set of horizontal associations, including norms and civic engagements, which they measured using four indicators: newspaper readership, number of sports and cultural clubs, turnout in referenda, and incidence of preference voting. Serageldin and Grootaert (2000) stated that the Putnam type of social capital was the narrowest type of social capital, which was focusing only on horizontal networks. On the other hand, Coleman’s concept was regarded as a broader concept since vertical hierarchical relations, in addition to horizontal networks, were also important in his theory. Serageldin and Grootaert (2000) further added the formal institutions of law, government and courts as social capital, and this was regarded as the broadest category of social capital.

The analysis of Putnam et al. (1993) provoked controversy among many social scientists especially in the field of development and studies on social capital have proliferated since then, and the theory has been applied to different disciplines. The World Bank has listed eleven topics in social capital: crime and violence; economics and trade; education; environment; finance; health, nutrition, and population; information technology; poverty and economic development; rural development; urban development; water supply and sanitation (World Bank 2003). On the other hand, Woolcock (1998) attempted to categorize social capital into seven areas: social theory and economic development; families and youth behavior; schooling and education; community life; work and organization; democracy/governance; and more general collective action problems.

While much supportive and detailed research has been completed through an analysis of social capital, strong criticisms have also been directed at the theory, especially the vague definitions of the concept. For economists, the idea of measuring trust and of naming it as “capital” like other “ordinary” capital is unacceptable. Arrow (2000) argues that there are three requirements to be called “capital”: 1) extension in time; 2) deliberate sacrifice in the present for future benefit; and 3) alienability. He particularly believes that social capital fails to fulfill the

second requirement, saying that, “the motives of interaction are not economic.” On the other hand, sociologists question the methodology of data collection for analyzing social capital (see Levi 1996; Fox 1996; Tarrow 1996). One community seldom consists of a homogeneous group of people and sampling data might not represent the true picture of the community. Fine and Green (2000) criticize the fact that the impact of class conflict is hardly seen in the discussion of the theory. Its “over-versatility” is also a common target of the criticism (see Schuller, Baron, and Field 2000; Fine and Green 2000). With the rapid proliferation of the literature on different areas of social capital, it might be reasonable to question whether the theory really is such a “cure-all” concept. Opponents of the theory are particularly concerned with the recent trend of heated and fascinating arguments on social capital among researchers with little constructive criticism, focusing mainly on the positive side of the theory while even its definition is not clearly stated or discussed (Schuller, Baron and Field 2000; Fine and Green 2000).

Like Coleman (1988, 1990) and Putnam et al (1993), many of these studies incline to the beneficial and positive aspects of social capital and there has been a tendency to neglect the darker side of the theory (Portes and Landolt 1996). The very elements of trust and networks could be a cause of exclusion of others, restriction on individuals of a particular group or community, and the fostering of socially unwanted groups such as gangs and mafia (Portes and Landolt 1996). An empirical study on negative social capital has been conducted by Browning, Dietz and Feinberg (2000) focusing on urban crime. Based on the fact that offenders are often residents of the neighborhood community, they argue that while social networks may increase the bonding of neighbors, they also increase social capital to offenders. Consequently, such a community might end up with a need for more aggressive social control.

Many critics, of course do not totally deny the theory itself. As human capital was not recognized as capital until recently, more time is needed to make it more concrete and acceptable as a concept. Many empirical studies have been conducted to shape the concept and the methodology. For instance, a recent work of Krishna (2002a) tried to analyze levels of participation of democracy using social capital in Indian rural communities. Instead of sports/cultural associations or voluntary groups which were used for the research of Putnam et al. (1993) but are rarely found in the Indian rural areas, Krishna (2002a) measured social capital using six local activities and found that social capital influence is more prominent at the level of groups or small communities. He concluded that by enhancing bonding at community level, higher social capital could be

obtained. Also, in his agency hypothesis, Krishna argues that social capital provides “glue”, and can “gear” collective action for democracy, although capable agencies are also required (Krishna 2002a, 2002b).

As more detailed analysis has been conducted, several categorizations of social capital have emerged. Woolcock (2000) defined three categories: 1) Bonding social capital (ties between immediate family members, neighbors, close friends, and business associates sharing similar demographic characteristics); 2) Bridging social capital (ties among people from different ethnic, geographical, and occupational backgrounds but with similar economic status and political influence); and 3) Linking social capital (ties between community and those in positions of influence in formal organizations such as banks, agricultural extension offices, schools, housing authorities, or the police). He observes that poor people tend to have strong bonding social capital and some level of bridging social capital, but little linking social capital, which is the most important for betterment of the economic environment. For instance, during natural disasters or crop failure resulting from sudden climate change, bonding and bridging social capital might work as a very fragile safety-net. However, to eliminate vulnerability of livelihood and make a safer and sustainable environment, linking social capital plays a critical role.

Another important categorization was made by Uphoff (2000), who observed two categories in social capital: structural and cognitive. Included in the structural social capital are “roles, rules, precedents and procedures as well as a wide variety of networks that contribute to cooperation, and specifically to mutually beneficial collective action.” The cognitive category refers to “mental processes and resulting ideas, reinforced by culture and ideology, specifically norms, values, attitudes, and beliefs that contribute to cooperative behavior and mutually beneficial collective action.”

In the above-described scenario, it is difficult to choose the right definition of social capital. In our analysis, we define social capital as the function of mutual trust, social networks of both individuals and groups, and social norms such as obligation and willingness toward mutually beneficial collective action, which is, in this paper, the post-disaster recovery process. This social capital will be facilitated and/or enforced by trust for community leaders and also by the political maturity of the community. Political maturity means that the community is accustomed to consensus building by having meetings and discussions among community members.

Social Capital and Disaster Management

A review of activities of international organizations indicates that the World Bank, with tremendous research data on the topic, has conducted various projects on enhancing social capital for better performance of its projects. The Department for International Development of UK (DFID 1997 and 2000) has also been very active using social capital. The Japan International Cooperation Agency (JICA) recently formed a special working group on social capital to study the theory and possible implications for JICA projects. In its study report, the group suggested the importance of creating synergy between community and government for sustainable development (JICA 2002).

Incorporation of social capital in disaster management has been rare. Until recently in Japan, earthquake disaster management has been considered as an engineering issue, and solutions were sought in a technical direction. However, the Great Hanshin-Awaji Earthquake (popularly known as the Kobe Earthquake) of 1995 has indicated that solutions should be multi-disciplinary, and there should be clear links between technological solutions and social solutions. In this regard, the challenge for the developed and developing countries is shared: how to incorporate people and communities in the process of pre-disaster mitigation and/or post-disaster recovery initiatives.

Arya (2003) has divided disaster management issues into two parts: Mitigation (Risk Analysis, Prevention and Preparedness) and Response (search and rescue, humanitarian assistance and rehabilitation and reconstruction). Risk Analysis includes hazard and vulnerability assessment and risk assessment; Prevention includes both structural and non-structural measures; and Preparedness includes warning, planning and policy etc. All these elements are reflected in the cyclic process, popularly known as the Disaster Cycle. Disaster Management Policy, as observed in many countries (e.g., NDRP 2001), focuses mainly on the physical part of the vulnerability, and social aspects are often missing. Consequently, the reconstruction plans following major disasters focus mostly on the physical recovery and more visible impacts, and the plans often lack attention to social recovery. Analysis of community initiatives in six countries in Asia has shown that people as individuals, and communities as a whole, are the leading actors for vulnerability assessment (Shaw and Okazaki 2003). Since the VCA (Vulnerability and Capacity Assessment) process needs local information and context, especially on socio-economic issues, an analysis of social capital focusing on social dynamics will help in understanding the essential elements of the com-

munity, and thereby linking these with the policies and plans. This is not only appropriate to the local and national plans and policies, but also relevant to international interventions.

In recent years, disaster management has become closely connected to various fields such as environment, city planning, and community participation. Natural disasters not only cause life and economic losses, but in many cases create social divisions within communities (e.g., Aeta after the eruption of Mt. Pinatubo, the Philippines in 1991, as noted by Tsuda and Tamaki 2001) and sometimes even create political upheaval (e.g., the famine in Bangladesh in 1974 triggered by flood, as noted by Sen 1981, 1999). As a recent argument of the importance of civil society for community development explains, safety of a community should be the issue, which is discussed and determined by the community, since ultimately the community and/or individuals should be responsible for their own safety. As witnessed in Kobe, the government has limited capacity during times of crisis like an earthquake (Shaw and Goda 2004). It was individuals and their neighbors, who saved most of the victims right after the earthquake. And it was the community which determined whether each member was satisfied by the rehabilitation. But in order to meet such community needs, individual effort is essential. Disaster recovery is not only about building houses but the reconstruction of the whole community as a safer place. To mobilize each member of the community in this collective action (community development), social capital is a crucial need.

Methodology

In this study, the first step was data collection and analysis in Kobe, Japan on the rehabilitation program following the Kobe Earthquake. Multiple methods were used for data collection—from primary as well as secondary sources. Primary data was collected through questionnaire survey and interviews with key stakeholders. Secondary data was collected from official records, previously conducted studies, books, publications, journal articles, reports, the Internet, and other relevant documents. Based on the data analysis, a model was developed focusing on the role of social capital in the recovery program. This model was then applied to the earthquake-affected area of Gujarat, India, and its applicability was studied in order to reach a conclusion. Two neighborhoods were selected, one from Kobe and the other from the city of Bhuj in Gujarat. Criteria for selection of the neighborhoods were: 1) similar type of hazard; 2) urban scenario; 3) representation from developed and developing countries; 4) relatively higher effects of damage;

and 5) categorization as a special zoning area in the reconstruction plan. Accordingly, Mano neighborhood from Kobe, and the Old Town of Bhuj were selected as case study areas.

For the Kobe case study, mainly secondary data sources were used. In addition, interviews were conducted with academicians, NGOs, private consulting firms, and residents in the local communities. For the Gujarat case study, both primary and secondary data were used equally. The authors made several visits (eight times) to the affected areas in Gujarat during the research period. In the initial visits, a series of discussions were held with the local government officials, and nongovernmental agencies. These discussions were used as the process for the formulation of a research strategy and preparation of the questionnaires. Also, these initial visits were useful to identify the key communities for questionnaire surveys and key stakeholders for interviews. During the period from April to November 2002, interviews were conducted in Gujarat with government officials, NGOs, academicians, consulting firms, community leaders, residents, and the local media, aiming to collect data for analysis. The first author conducted a social capital questionnaire survey in a chosen case study location in Bhuj. The questionnaires on social capital were formulated using “Integrated Questionnaires for the Measurement of Social Capital” (World Bank SCTG 2002), with reference to the work of Krishna (2002a) and Yamagishi (1998). The disaster perspective was applied using the model developed from the Kobe case study. The questionnaire’s local contexts were ensured through discussions with the local NGO network called Kutch Nav Nirman Abhiyan (KNNA). With the help of KNNA, the questionnaires were translated into the local language, and the samples were collected with the help of four volunteers. Random sampling in the field was applied since no community-scale official data existed in Bhuj and also many people had already left their previous residence and it was impossible to trace them. Questionnaire inputs were analyzed along with the results of the interviews, and the model developed from Kobe was applied to determine the common elements of the recovery process in both the case study sites.

Kobe Earthquake: Emerging Social Issues

The Kobe earthquake with a magnitude of 7.2 on the Richter scale, and with a depth of 16 km hit the city of Kobe and its surrounding areas in Hyogo Prefecture on 17 January 1995 at 5:46am. The total number of casualties exceeded 6,400, with numerous injuries and victims of other collateral damages. Buildings and infrastructure were severely

damaged, and more than 200,000 people had to find temporary shelter in different parts of the city. Within Kobe city administrative area alone, 70,000 buildings completely collapsed, and 55,000 were seriously damaged. Public facilities like city offices, schools and hospitals were also damaged extensively, which rendered the city services paralyzed for several days. Utility services were also interrupted: electricity services were out of order in the entire metropolitan area; 25% of the telephone services did not work; water and gas services were disrupted throughout the entire city. At several locations, severe fires broke out, and 7,000 buildings were completely burned, resulting in more than 800,000 sq m. of burnt areas. The damage to social and industrial capital stock was estimated at 7 trillion JPY within Kobe city. Secondary and tertiary losses in the city and other parts of the prefecture were much higher.

The rehabilitation of Kobe started on 17 March 1995 with the announcement from the Hyogo Governor on “Designation of Land Readjustment and Redevelopment Areas” (*Toshi Keikaku Kettei* in Japanese.) The designation was open to public inspection for two weeks and residents and concerned persons could object to the plan via written documents. The City of Kobe designated six readjustment and two re-development areas but soon after the announcement many heated arguments arose among the residents from those designated areas in the plan. The designation was in many ways controversial. The decision was made without any consultation with the residents. Although it was open to public inspection, little flexibility was seen on the city/prefecture administration side regarding any changes to the plan. Naturally, the negotiation between residents and the administration became bogged down in some areas and the rehabilitation was delayed.

In the earthquake-affected areas, those designated for land readjustment and redevelopment were termed as “black zones” and other areas were called “white zones” by the stakeholders (Nakagawa 2003). The division depended on the level of commitment and involvement of public agencies toward the rehabilitation. Thus, there were many differences in official support for the rehabilitation in these two zones. In “black zones,” property owners needed to make sacrifices for land adjustment or redevelopment to proceed, however, the government provided the physical rehabilitation such as building wider roads and parks; and normally the environment was improved incorporating disaster management aspects. But in “white zones,” narrow roads remained narrow and some illegal construction during the confused period made the environment even worse than before. Also, the government provided practically no financial support. In addition, some special preferences

were given to “black zones,” for instance the sale of land up to 50,000,000 yen (1 US\$ = 100 Yen in 1995) and the exchange of land were tax-exempted (Kinmokusei 1999).

However, the most important difference was that in every “black zone,” “*Machizukuri*” (Town Development) organizations were formed. A machizukuri organization is an organization consisting of residents, private agencies and others with an interest in the area’s restoration. In Kobe, most of the machizukuri organizations were formed based on the existing community organizations such as neighbors’ associations.² Machizukuri organizations provide very important “opportunities” for community members to discuss future city planning and this was the first step to community participatory rehabilitation. Machizukuri organizations also acted as the interface with city officials and city planning consultants. Consultants and advisors also played a big role in the rehabilitation process. Consultants were dispatched to each machizukuri organization and provided technical and professional knowledge on city planning. In contrast, in the “white zones”, the forming of machizukuri organizations was not mandatory since the areas were not designated as the official project locations. In spite of many difficulties, several machizukuri organizations were formed in the “white zones,” but many were not officially recognized under the ordinance. There were areas called “gray zones” where these machizukuri organizations had existed before the earthquake for different development projects in the urban areas. However, as in the “white zones,” “gray zones” were not entitled to the special preference mentioned earlier for “black zones,” this resulted in similar situations as those in the “white zones” (Kinmokusei 1999). Every machizukuri organization faced various difficulties in the reconstruction process, and there were obvious differences in the speed and the degree of people’s involvement among the communities. In some areas, negotiation between residents and government was prolonged on issues such as the amount of land that owners in land-readjustment districts should contribute for public improvement which resulted in an even split of machizukuri organization into several residents groups.

Case Study of Mano: A Successful Example of “Gray Zone” Rehabilitation

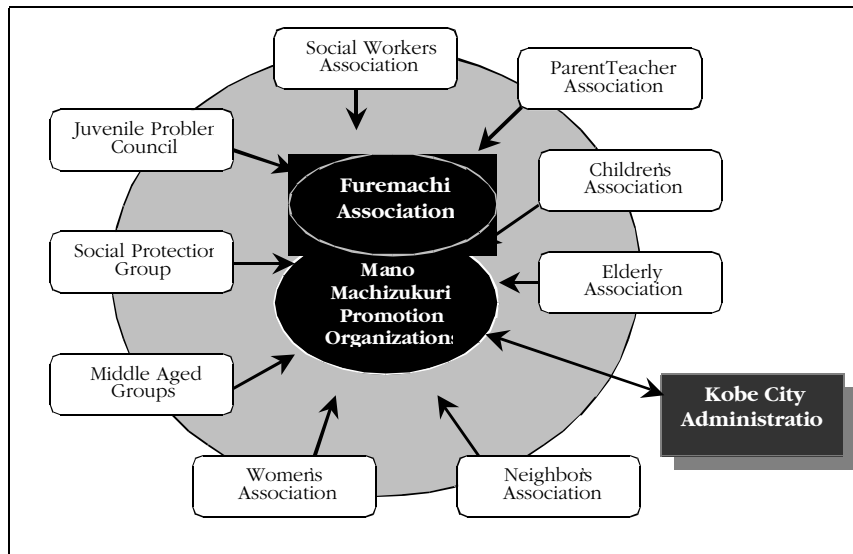
Mano is located around 5 km west of downtown Kobe, and is a small neighborhood of 2,500 people. It is a typical inner city area where factories, residences, and small shops exist together. In 1995, 20% of the population of Mano was over 65 years of age. This was much higher than that of the average for Kobe city. The neighborhood also had a

housing problem. Population density of the residential area was very high and many buildings were old wooden houses. Mano had a long history of community development, which started back in the 1960s. Amid the high-growth period of the Japanese economy, people of Mano suffered from environmental pollution, which came from factories in the area. Residents launched protest movements against it and succeeded in removing some polluting factories. This movement gradually changed its character to one focusing on community betterment, health care of the elderly, voluntary services, and livelihood issues. Due to the environmental pollution issue, younger members of the population began decreasing in the Mano area from 1976 onward, leaving behind an aging community. In 1977, based on such community development activities, the Mano Machizukuri organization was formed, and in 1981, Mano was designated as the first district under Kobe City Machizukuri Ordinance, although community activities had begun long before that.

The earthquake resulted in 19 casualties in Mano area, with 23 percent of housing completely collapsed or burnt, and 44 percent of houses partially collapsed. Immediately after the earthquake about 1,400 people were forced to stay in emergency shelters. From the very beginning of the occurrence of the earthquake, many activities were conducted by Mano community. One of the most remarkable activities carried out by the community was extinguishing fires with the help of community and local firms. This was in visible contrast to the adjoining Chitose neighborhood, where the fire destroyed the entire area (Morizaki 1995). Rescue efforts were also intensive in Mano immediately after the earthquake. Following rescue operations, the evacuation to nearby schools, establishment of a community kitchen, and provision of night guards were some of the immediate activities conducted by the local community in Mano neighborhoods. During the post-relief phase, Mano community came up with a building inspection survey, publication of a weekly community newsletter incorporating essential information, management of shelters, and retrofitting of damaged houses, etc. In the reconstruction and rehabilitation phase, the important activities undertaken by Mano Machizukuri Organization were: establishment of Mano Rehabilitation Machizukuri office, construction of Machizukuri center, establishment of “Manokko (private limited company)” for community development, signature collection campaign for construction of public houses for disaster affected people, lobbying for special houses for elderly, construction of a model house as collective housing, preparing joint housing project proposals, and running a day-care center. It should be noted that Mano belongs to a “Gray zone” and unless

the community members motivate themselves and carry out action on their own initiative, no public support can be obtained. As mentioned earlier, in many communities in the “white zones,” it was quite difficult to even form community organizations to discuss rehabilitation issues. In many communities where there were no daily communications among residents, and no community groups (such as neighbors’ associations) had existed or functioned prior to the earthquake, hardly any activities for helping community members were conducted in the early stage of the post-disaster period.

Figure 1. Mano community networks showing different community groups



The success in Mano owes much to its people’s efforts, the web of community groups and local leadership. A community group is defined as a group formed and maintained by community members for their mutual benefit. There are many community groups in Mano (Figure 1), namely neighborhood associations, women’s association, elderly association, local welfare/social worker association, middle-aged association (social gatherings), children’s association, anti-crime activists’ groups, community-based firemen’s team, juvenile problem council, PTA (Parent-Teacher-Association), Baseball clubs, Youth clubs, Welfare volunteer groups, etc. Some of these groups had already adopted a democratic system for decision-making and selection of leaders by

introducing a direct voting system from as early as their inception, sometimes as far back as 1966. The election of the group chairman was conducted every two years at a community meeting.³ As an executing agency of different community development activities, Mano Machizukuri Promotion Organization consisted of all residents (including land/property owners) and there were about 60-70 board members consisting of representatives of each block's neighborhood association, a representative from other community based groups, and a representative from private firms. Secretariat members of Machizukuri Organizations are at the same time members of other existing community groups. It is interesting to note that 11 out of 13 secretariat members are former middle-aged group members. The middle-aged group has existed largely for "get-together" purposes. But this informal network of people has considerable influence on many official operations of the organization. This loosely connected alliance made it possible to plan and implement community development projects or to conduct various activities quite flexibly and quickly, immediately after the earthquake.

The other characteristic feature of Mano was its community leadership. The first community leader of Mano influenced the neighborhood in many ways. His earliest leadership experience was in leading community members during anti-pollution activities in the 1960s against some polluting companies in the area. He succeeded in organizing the movement and mobilizing many residents, and he was successful in introducing the direct election and voting system in the community for decision-making. After the successful environmental movement, he continued in mobilizing residents' involvement in community development for the reuse of the vacant plots of companies. He also assumed a crucial role when negotiating with Kobe city administration by going directly to the city office, instead of using indirect means. Another success story was the creation of a new generation of leaders. In the course of more than 30 years of community activities with this outstanding leader, many new leaders have been generated. It is these new leaders who are currently involved in rehabilitation and community development programs. According to the survey conducted by Konno (2001), it was found that many of these leaders have been members of several community-based groups and are actively involved in their activities.

Social Capital in Earthquake Rehabilitation

The local community has different roles to play in different stages of the disaster cycle: from rescue to relief to rehabilitation to prepared-

ness (Shaw 2003). Rescue and relief activities are relatively quickly conducted in the communities and in most parts of the world. However, things change during the rehabilitation period where individual interests in their own property are at stake. As mentioned earlier, rehabilitation should take the disaster mitigation aspects into consideration, in addition to environmental issues. To achieve this, the property owners have to restrain their individual interests for community safety.

Mano, as explained earlier, had vast varieties and numbers of active community groups and they were closely connected to each other. This can be cited as a typical example of the strength of weak ties, as described by Granovetter (1973). Also, through their long history of community development, Mano had interacted with various organizations and/or professionals, such as academicians, city planning consultants, local government bureaucrats, and civic organizations in other areas. The experience of interacting with the Kobe administration, in particular, should have given special knowledge of how to deal and negotiate with government officials during a time of rehabilitation. People of Mano had a considerable amount of trust among community members through social interaction mainly originating from community programs such as recreation or sports programs or local festivals. Community leaders had strong ties among each other through their community activities.

Thus, the social capital in Mano can be explained as follows:

Bonding Social Capital:

- Trust: Sustained trust in the leader and among community members
- Social norm: Accustomed to democratic decision-making (by direct voting, majority vote)
- Participation: High level of participation of people in community activities and collective decision making through frequent community meetings
- Network: Various community based groups and their formal and informal networks

Bridging Social Capital

- Multidisciplinary: Interaction with various stakeholders such as town-planning consultants, academicians, other community activity groups, other neighbors associations, etc.
- Networks: Individual network and community network with adjoining neighborhoods

Linking Social Capital:

- Formal collaboration: Interaction with government officials through community development activities

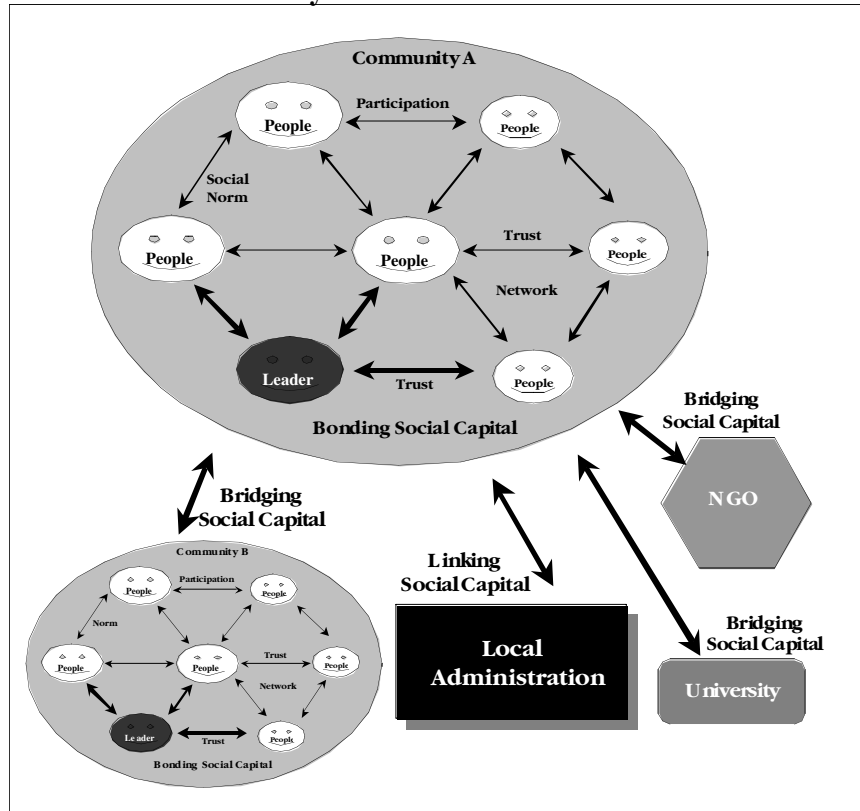
Figure 2 incorporates the experiences of Mano in conceptual form, and describes what kind of social capital worked during the rehabilitation and how it worked. It should be noted that social capital alone does not lead to successful rehabilitation. Social capital constitutes a very important seed but to facilitate it and make it grow into a beautiful flower, the existence of other factors is essential. Krishna (2002a) used 'agency hypothesis' for his analysis of the collective action for democratic movements. From the Mano case study, it can be seen that leadership is the most important in gearing and facilitating the movement. In Mano, people had the ability to cooperate as well as to create a better environment for the community through a long history of community development.

Urban Rehabilitation and Major Community Groups in Gujarat

The Gujarat Earthquake of 2001 devastated the entire state of Gujarat in western India, causing extensive damage to lives and properties. Details of the damages are described elsewhere (Shaw et al 2001; Shaw and Sinha 2003; Shaw et al 2003). In this section, the urban issues, especially focusing on the old town of Bhuj are discussed. Immediately after the earthquake, in February 2001, the Gujarat state government established the Gujarat State Disaster Management Authority (GSDMA) to coordinate a comprehensive rehabilitation program. GSDMA initiated 28 rehabilitation packages for housing, rural artisans, handicraft artisans, agriculture, tourism, capacity buildings, orphans and women, and industries and services. For the housing program, there were five special packages, which varied by geographical areas, extent of damage, and structural types of houses (GOG 2001). The package aimed to enhance owner-driven reconstructions and this program was quite successful in the rural areas where massive reconstruction was conducted through the efforts of the government, private sector (including NGOs) and international organizations.

The situation was different in the urban areas, which needed rezoning and redevelopment, and Bhuj was one of the four rezoning towns in Kutch district. Bhuj is the district-headquarters, and had a population of more than 150,000. The Old Town (also known as the Walled City) of Bhuj was a historical place, full of heritage buildings, and high-density residential and commercial buildings. Like other old cities, it had narrow roads, few vacant places, and consequently the casualty rate was extremely high within the walled city. In Bhuj, the town planning has been discussed and coordinated among Bhuj Area Development

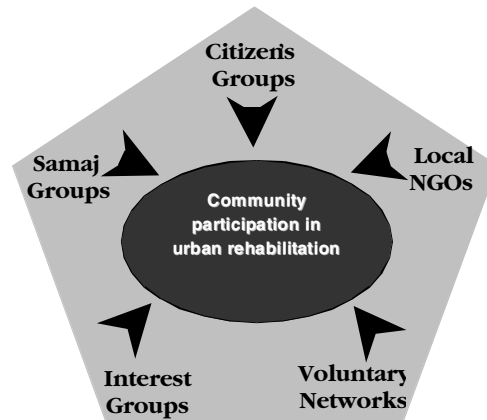
Figure 2. Conceptual diagram showing different aspects of social capital: bonding, bridging and linking. Trust, norm, network and participation are shown as elements for bonding social capital. Bridging social capital might be with different stakeholders like other communities, NGO, and university. Linking social capital is usually with local administration.



Authority (BHADA), district office, consultants, the community and NGOs. Due to its complexity, NGO involvement in the urban rehabilitation has been limited compared to its massive involvement in rural areas. Figure 3 shows the non-governmental groups that have been involved in the urban rehabilitation of Bhuj.

There are about 25 small groups representing different religions and castes in Bhuj and they were actively involved during the relief period and also in provision of temporary and permanent houses. There are also groups formed by citizens, primarily professionals, which are involved in the development of the city. One such group in Bhuj is called

Figure 3. Schematic diagram of community participation in the urban area of Bhuj, Gujarat. Samaj groups refer to different caste and religious groups.



“Bhuj Development Council (BDC).” BDC was a dormant organization established in 1992, which was basically a social get-together group, consisting of retired engineers before the earthquake. However, after the disaster, BDC has become the mediator between community and government officials, and coordinated various community meetings with community members, government officials and consultants. In addition to intensive involvement in the efforts of community participation and information dissemination, BDC also engages in the rehabilitation of slums and the informal sector.

In the Walled City, people with the same occupation, caste or community basically lived together in the same area. In Bhuj, there are nearly 20 such community groups who have lived in the Walled City, namely Lohana, Jain, Kadwa Patel, Kayashtha, Mochi, Sai Suthar, Soni, Rajgor, Brahmin, Nagar, Gurjar, Khatriya, Khatri, Khstritya, Samasta Brahma samaj, Ahir, Lewa, Patel, etc. Among these communities, four communities—namely Lohana, Khatri, Soni, and Rajput—were selected for the study of social capital and to analyze its importance for rehabilitation.

Lohanas form the important business community of the area, and have the largest population in the walled city. The Lohana community came to the rescue of the erstwhile rulers several times during droughts and famines (Menon 1999). Among 1,500 families of Lohana in the walled city, 1,300 people were killed and 500 were seriously injured by the earthquake. Most of their damaged houses were categorized as G5

(highest level of destruction) and G4 (Arya 2002). Lohana has a very well organized community committee, which forms networks at ward and district levels. In the Lohana, women can equally join the committee. The leader of the committee is chosen by vote among committee members. The operation of the committee is very transparent so that the accounts are published and distributed to the members every year. Besides the committee, Lohana has youth and women's groups, which worked actively during natural calamities like earthquakes.

Khatri are basically craftsmen and artists. There were about 170 houses of Khatri before the earthquake in the walled city and out of those, 90 houses were severely damaged. Casualties accounted for 44, and 20 people were seriously injured. Khatri also has its own community committee. The chairman of the committee is selected by vote among committee members. It has been active after the earthquake for relief operations and has provided temporary shelters.

Soni is a community of silversmiths and goldsmiths. Around 250 households were living in the Walled City, among which more than 80% were engaged as goldsmiths, in the jewelry business and as blacksmiths, and 20% were engaged in government jobs. The earthquake resulted in 57 deaths, 100 houses completely collapsed, and 150 houses were severely damaged. Soni community also has a well-organized committee. The committee has a three-tier system at ward, district and national levels. The members are selected by voting every three years. It holds general meetings every six months and board meetings every two months. Community festivals are conducted three times a year supported by the committee. There are also youth groups in Soni community. After the earthquake the committee provided various supports for the community such as financial support for suffering families, temporary shelter, livelihood kits, medicines, etc. It is interesting to note that Soni also received financial and material support from the business sectors which were not directly related to Soni community's network. Through their jewelry business, the community had interaction with various organizations throughout the country.

Rajput (originally meaning warrior), Koli and certain Islamic groups were the ruling elites of many small areas in Kuchchh until the beginning of 19th century. During several wars before and after the independence of the country, there were mixtures among different castes, and it is now difficult to distinguish pure Rajput and self-designated Rajput (Shinoda 1995). In the walled city, there are 934 families of the Rajput community. Many of them have jobs in government offices or in private sectors. Total deaths from the earthquake amounted to 107,

with 269 houses categorized as G5 and 331 houses as G4. Temporary shelters and a community kitchen were provided although these were organized through the government, not by community effort.

Results of the Questionnaires Survey

The questionnaire survey was conducted with the intention to gather information on trust, networks, and social norms of each community member and also on trust for community leaders. Total sample numbers were 128; among those, 28% were Lohana, 26% Khatri, 27% Rajput, and 19% Soni community. Different age groups were chosen in different communities to observe the different viewpoints about the reconstruction process (Table 1). Table 1 summarizes the sample attributes.

Table 1: Attributes of samples

| | | Lohana | Khatri | Rajput | Soni | Total |
|-----------------------|--------------------------------------|--------|--------|--------|------|-------|
| Sex | Male | 13% | 12% | 14% | 10% | 49% |
| | Female | 15% | 14% | 13% | 9% | 51% |
| Age | Age (20s) | 6% | 6% | 8% | 6% | 26% |
| | Age (30s) | 12% | 7% | 7% | 4% | 30% |
| | Age (40s) | 4% | 4% | 6% | 5% | 19% |
| | Age (50s) | 4% | 5% | 3% | 2% | 14% |
| | Age (over 60s) | 2% | 4% | 3% | 2% | 11% |
| Education | Education (Primary) | 8% | 9% | 6% | 4% | 27% |
| | Education (Secondary) | 14% | 10% | 16% | 11% | 51% |
| | Education (Higher) | 6% | 7% | 5% | 4% | 22% |
| Income | Average Annual Income (US\$) | 1164 | 1000 | 780 | 764 | |
| Family members | Average Numbers of Persons in Family | 4.4 | 3.5 | 4.6 | 4.0 | |

Questionnaires were designed to focus on the following aspects: satisfaction for town planning, collective actions, trust (general trust, trust for various sectors, trust in community leaders), networks, and norms.

Table 2 lists the topics of the questionnaires. Details of the questionnaire survey are discussed in Nakagawa (2003). Analyzing the questionnaires, and applying the Mano model to Gujarat, the results can be summarized as follows (Figure 4):

Bonding Social Capital:

- Trust: It was observed that Soni has the highest trust in community members and their leaders, while Lohana has the lowest trust. General trust is relatively higher in other groups also.

Table 2: Topics of the contents of the Questionnaires

| | |
|--------------------------|--|
| | Number of Groups one belongs to |
| | Democratic way of decision making* |
| | Democratic way of selecting leader** |
| Networks | Whether the Groups one belongs to have interaction with others |
| | Number of close friends |
| | Number of close relatives |
| | Whether having someone to request financial help |
| | General Trust |
| | Mutual Trust |
| | Possibility of partnership with neighbors |
| Trust | Trust in State Government |
| | Trust in District Government |
| | Trust in Community Leader |
| | Trust in NGOs |
| | Trust in Relatives |
| | Trust in Neighbors |
| | Whether criticized if do not participate in community activities |
| Social norms | Likelihood of other community members' participation |
| | Whether community members are helpful to others |
| | Responsibilities for correcting children's behavior in the community |
| | Feeling of togetherness of community |
| Community Leader | Care for the community by the leader compared to his/her family |
| | Trust in Community Leader |
| | Participation in community activities |
| Collective Action | Participation in community meeting for rehabilitation |
| | Who would approach for the petition in case of emergency*** |

* Q: When there is a decision to be made in the group, how does this usually come about?

A: 1: Decision is imposed from outside; 2: The leader decides and informs the other group members; 3: The leader asks group members what they think and then decides; 4: The group members hold a discussion and decide together; 5: Other (specify); 6: Don't know/not sure; 7: Not applicable.

**Q: How are leaders in this group selected?

A: 1: By an outside person or entity; 2: Each leader chooses his/her successor; 3: By a small group of members; 4: By decision/vote of all members; 5: Other (specify); 6: Don't know / not sure; 7: Not applicable.

***Q: In case of emergency (e.g. crop failure or natural disasters), who would approach to the local authority for the petition?

A: 1: No one, 2: Community leaders, 3: Neighbors, 4: Same tribe/caste group, 5: The entire village collectively.

- Social norms: Most of the members of Lohana and Soni belong to groups whose decision-making process is done through discussion and meeting. Although only small numbers of Lohana people belong to groups, these groups seem to have the most democratic system (consensus building by meeting and discussion or voting) in selecting leaders and decision-making. Social norm inside the community aiming to facilitate collective action is relatively high among Soni.
- Participation: Soni and Khatri have the highest participation rate for collective action. Khatri has the highest preference for business partnership, and Soni comes next. For community participation, Soni has the highest participation level.
- Networks:⁴ Soni has the highest community business network, while Khatri has the highest individual network. Networking is found to be lowest in Rajput. Khatri is connected to larger numbers of groups/associations. However, they seem to belong to groups based on individual interest. Soni community members are also connected to many groups.

Bridging Social Capital:

- Multidisciplinary: Soni and Lohana have the highest involvement in multidisciplinary actions.
- Networks: Soni and Lohana have the highest number of networks outside their own communities. It was observed that while Khatri had the highest number of individual networks, however, when it is related to inter-community networks, they have relatively lower numbers.

Linking Social Capital:

- Soni and Lohana have the highest formal collaboration with the government sectors through their leaders.

The field survey and interviews with the stakeholders indicate that Soni has been the fastest recovering community in Bhuj city, in spite of their lower income level, compared to other groups. The questionnaire survey suggests that speedy recovery and satisfaction rate for the reconstruction plan of Soni is attributed to its social capital. In contrast, Lohana has a relatively lower rate of participation in community activities, in spite of the highest economic levels within the chosen communities. In Lohana, there are top-level businessmen such as hotel owners as well as lower economic class people who depend on their livelihood as vendors. Lohana community is mainly organized and operated by the rich people, who offered resources for the construction of temporary housing outside the city. However, those resources do not

Figure 4. Results of questionnaire survey of social capital in the Walled City of Bhuj. The shades indicate intensity of respective elements, with darkest one with highest impact. It shows that Soni has the highest social capital.

| Social Capital | | Soni | Khatri | Lohana | Rajput |
|----------------|-------------------|--------|--------|--------|--------|
| Bonding | Trust | ██████ | ██████ | ██████ | ██████ |
| | SocialNorm | ██████ | ██████ | ██████ | ██████ |
| | Participation | ██████ | ██████ | ██████ | ██████ |
| | Network | ██████ | ██████ | ██████ | ██████ |
| Bridging | Multidisciplinary | ██████ | ██████ | ██████ | ██████ |
| | Network | ██████ | ██████ | ██████ | ██████ |
| Linking | Collaboration | ██████ | ██████ | ██████ | ██████ |

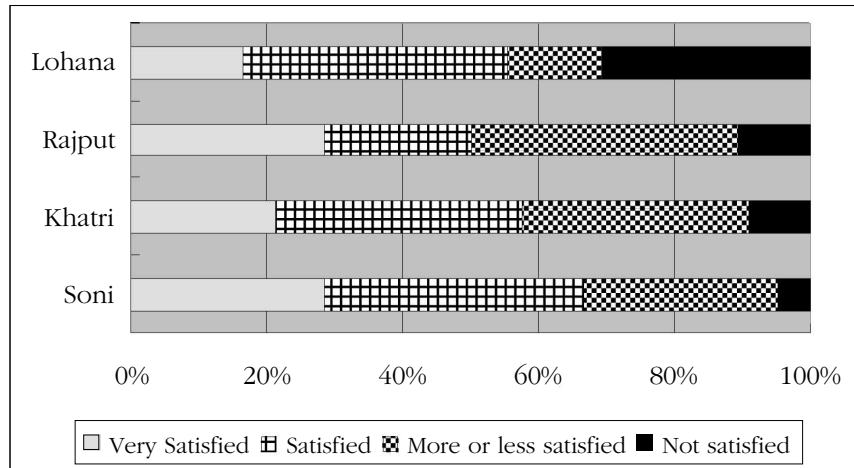
seem to be fully utilized, as evidenced from the vacant shelters constructed by the Lohana community. Rajput, on the other hand, is constrained by both financial capital and social capital and is suffering from severe recovery problems. Therefore, it can be said that mere financial resources cannot solve the recovery issues; social capital plays a critical role.

The questionnaire results also show that Lohana has the largest percentage of people who are dissatisfied with the town planning, in contrast to Soni, which has the highest satisfaction rate (Figure 5). This is possibly attributed to their collective decision-making, trust in their leaders, and the numbers of networks with government agencies. The same elements were found to be useful in Mano in terms of speed and satisfaction of rehabilitation.

Conclusion: Application of Social Capital to Disaster Recovery

Two case studies of Kobe and Gujarat Earthquakes show that although the local socio-economic and cultural backgrounds are different in these two areas, the recovery process of urban areas is quite similar. At every stage of the disaster cycle (rescue, relief and rehabilitation), the communities played the most important roles among other concerned stakeholders. In both cases, the communities with social cap-

Figure 5. Data showing satisfaction for town planning among different groups in the Walled City of Bhuj



ital are found to be efficient in rescue and relief. The most challenging part was during reconstruction, where town planning and rezoning was applied, and collective decision-making was needed. In Hyogo, as municipal governments submitted the town planning without any consultation with the local community, it took from several months to a few years to finalize the reconstruction plans in the “black zone” areas. In Bhuj, after finalizing the town planning in November 2002, massive protests from the property owner against the plan took place. Reacting to that, people who were living in temporary shelters and wished for the earliest reconstruction of the city became frustrated at further delays and demonstrated strongly against those who were opposed to the town planning (Iyenger 2003). As of December 2003, negotiations are still ongoing in certain areas of the Walled City.

As the Mano and Soni community cases show, even in the challenging situation of rehabilitation, communities with social capital can perform well. But social capital is not the sole factor determining speedy and satisfying recovery. As the Mano case indicated, strong leadership inside the community is also essential for any collective action. Also, from various interviews conducted during the field survey in Gujarat, many NGO members commented that community leadership was the most essential aspect of the successful rehabilitation in both urban and rural areas. The results of the questionnaires conducted in Bhuj also show that the Soni community has the highest

trust in its community leader. It is the trust of the community in their leaders which helped Soni to take collective decisions in the time of emergency. It should be re-emphasized that leadership is an important issue in any community-based activity and in development projects, including post-disaster reconstruction.

Uphoff (2003) described three actions for social capital: recognize, preserve/conserve and invest. These actions will lead to “mutually beneficial collective actions” and “shared thinking” in the communities. Shaw and Sinha (2003) proposed a policy framework for a four-tier system of community, local government, state government and central government for effective decision-making under the Risk Management Framework. It is the responsibility of the community and its leaders to increase their social capital and use it effectively for the post disaster recovery process. However, at the policy level, it is required to recognize the social capital of the communities as an asset. This will help in policy formulation from a grass-roots perspective, and will enhance the recovery program.

Each country has its own cultural and socio-economic context. The importance of local cultural issues has been emphasized over the last several years. However, community activity is connected to certain basic issues and norms, which are widely applicable without any geographic boundaries. The current study shows that social capital and leadership in the community are the basic attributes, which are universal in nature, irrespective of the development stages of the country. Needless to say, there are several other factors which affect rehabilitation, such as government policy and intervention of NGOs or consultants, which were quite different in Kobe and Gujarat. Further studies in this direction will help us understand the increasing importance of social capital in the modern world.

Notes

1. Bourdieu (1986) is also regarded as the founder by many while Fine (2001) sees that G. Becker should be acknowledged as the one.

2. Jichikai (neighbors' association) has its origin in the Edo-period as early as the 17th Century. The purpose of the group back then was to control and secure the livelihood of rural people by the administrator. Although its form has been changed from time to time, it continued to exist until the end of World War II. Due to the democratic atmosphere after the war, Jichikai was officially dissolved. However, it soon revived since the government, as well as people, needed it for coordination

between people and the administration for activities such as ration distribution. Also, it was necessary for keeping an eye on community safety. In Japan, Jichikai has existed as the safety net for poor people.

3. It should be noted that in many community groups like neighbors' organizations in Japan, the board members and the chairman are usually decided by commendation or rotate the post among board members. It is very unusual for this type of group to introduce the democratic system for its operation.

4. In the questionnaires, networks are classified in eighteen groups: farmer/fisherman group/cooperative, other production group; traders/business associations; professional associations; trade union/labor union; neighborhood/village committee; religious/spiritual group; political group/movement; cultural association; festival society; finance/credit/savings group; education group; health group; water and waste management group; sports group; youth group; NGO/civic group; ethnic-based community group; and others. Out of these, it is observed that Khatri has the highest number of individual network (37%), followed by Soni (29%), followed by Lohana (19%) and Rajput (15%).

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