

## Building a Disaster Resilient Community through Ritual Based Social Capital: A Brief Analysis of Findings from the Case Study of Kishiwada

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### Synopsis

This study attempts to analyze the role of social capital developed through ritual events in building a disaster resilient community. Kishiwada city in Osaka is chosen for the case study because of the existence of popular *Danjiri Matsuri* which is celebrated annually as a major ritual event. Questionnaire survey accompanied by interviews with key informants has been used as a methodology for the study. The preliminary findings show that the ritual events are contributing to the development of trust in the community at Kishiwada. Bonding social capital, bridging social capital and trust are found to enhance disaster awareness and self reliance. It is also found that ritual based organizations in Kishiwada are functioning as a social platform that regularly activates residents for collective actions in civic activities. Possible implications of utilizing ritual based organizations to cope with disaster risks are also discussed.

**Keywords:** social capital, disaster resilience, disaster risk, multiple correlation analysis, rituals

### 1. Introduction

Most research in the area of hazards and disaster have shifted its paradigm from “loss reduction” model to a more comprehensive model of community resilience based on social systems and community problem-solving approaches. Instead of just preventing loss, resilience focuses on building healthy communities that are able to sustain and rebound from the effects of a hazardous event. Early concept of hazards included the idea of hazards leading to breakdown of existing social system and extreme disorganization. However, it was realized such disorganization and havoc were learning exercise that gave way not to produce social chaos in hazards, and in a number of instances to strengthen communities (Drabek and Key; 1984). This approach focuses on strengthening

social systems through cooperation and communication across different organizations, experts and community groups. Moreover, it is also about paying attention to the concept of social capital – a term that encompasses the norms and networks that facilitate collective action. Recently, some disaster researchers have focused on how social capital can help reconstruct disaster affected communities and victims more efficiently (Nakagawa and Shaw, 2004; Dynes, 2005; and Bankoff, 2007). However, little attention has been paid on the significance of social capital in a pre-disaster context and its contribution in building community resilience. Also, it is important to understand how social capital is built over time in a community and in what ways can it contribute in solving local problems and develops a health community. This study takes a typical case of a

ritual based community and analyzes how rituals help in the formation of social capital. It also examines the association between social capital and building disaster resilience through a field study in Kishiwada City, Osaka, Japan.



Photo 1: *Danjiri Matsuri*, Osaka, Japan  
(Source: Field Survey, Kishiwada, 2010)

## 2. Ritual based Community of Kishiwada, Osaka

Kishiwada city is located in Osaka bay of Japan (Fig.1). The city is renowned for an annual ritual event named *Danjiri Matsuri* (Photo 1).

Every September, over half a million people witness this spectacular event. On this occasion, twenty-one participating neighborhoods pull the ritual float (*Danjiri*) from their parish shrines. The uniqueness of the event is an assembly of individual neighborhood processions engaged in competitive aesthetic and athletic display (Dylan, 2006).

Initially, the ritual processions give a sense of inter-neighborhood rivalry, however, towards the end they combine together to form a huge parade, symbolizing a collective identity and mutual coordination among the participating neighborhoods.

According to the City Office, there are 180 major community organizations (referred as *Chonakai* in Japan) to serve 81,880 households and the total population of 203,371.



Figure 1: Map of Kishiwada City, Osaka, Japan with *Danjiri* procession route  
(Source: Kishiwada City Office, Osaka, Japan)

Each *Chonaikai* is comprised of associations for elderly groups, women's groups, children's groups and hazard protection groups.

Some key facts about the event include; community participation and social inclusion; repetition; social dynamics during rituals such as, sharing roles and responsibilities by community people in the built-in social system named as *Chonaikai*; loyalty among actors in different levels; the deliberative process of selecting leaders; and spiritual attachment of the residents to the ritual. It can be speculated that each of these factors contribute to the formation and development of social capital.

The primordial concept of community in Japan is said to be emerged from a cooperative social organization developed to fulfill the requirements of wet-field rice cultivation (Dylan, 2006). It is later recreated as neighborhood associations or *Chonaikai*. And, this neighborhood level is precisely the level of social organization involved in ritual. The organizational structure and social virtues of *Chonaikai* helps to understand about how ritual is managed by local people. A resident in Kishiwada learns various facts about the neighborhood while moving through the various levels of this organization over one's life. The levels range from the *kodomokai*, community association for kids up to the age of fifteen to *sodanyaku*, the counterpart for adults over fifty five. Through these *Chonaikai* level hierarchies, all generations are given a function and guidance during ritual. It would allow anyone of the proper age to fulfill the duties of various positions of responsibility (*seikinisha*), even that of *nenban*, the group's year on duty needed to organize and perform the ritual.

Since its origin in 1703, *Danjiri matsuri* has sustained over time with the social and political changes in Japan. A close look on the evolvement of the festival till today gives us a clear picture about various historical, socio-cultural and political facts that surrounded people in the past (Dylan, 2006). *Matsuri* itself is also a kind of indicator that reflects the socio-political and economic changes of Japan. A retrospect of *Danjiri matsuri* reveals that rulers in the *Edo* period started the festival as a

way of paying respect to the shrine, *san no Maru Jinja*, a small branch shrine to the *Fushimi Inari* deity on the Kishiwada castle grounds (Dylan, 2006). It also marked the harvest time of the agricultural community in the past. From the beginning, the festival is characterized by a strict social hierarchy and a distancing of the ruling warrior class from the rest of the society. The early *matsuri* were mediocre and held three times a year, in the sixth, eighth and ninth months. From the sixth month of 1745 A.D., people of Kishiwada started to celebrate the *matsuri* in extravagance (Dylan, 2006). This tendency indicates the regional interest of Osaka area in the *matsuri* and the growing prominence of *danjiri*. The grander form of *matsuri* featured paper lanterns hung from the eaves of individual residences that lit on the evening of the eve, and the day of the festival. Colorful flags decorated the *matsuri* and people used drums during the festive procession. Each *chonaikai* competed with each other and spent huge sum of money to construct new and larger *danjiri* with elaborate and intricate carvings (Dylan, 2006). The festival was no longer tied only to the local castle but became a larger urban event. It placed the *matsuri* in a league with some of the prominent traditional festivals in Japan such as the famous *Gion Matsuri* in Kyoto.

There are instances in feudal period of Japan when the ruling dynasty imposed strict regulation among the local people. They were not allowed to spend lavishly and even not allowed to take rest from their work outside the festival day. After the end of the feudal era, the festival got more localized and with improving economic conditions the festival celebrations were enhanced.

## 2.1 Matsuri and Disaster

Several historical facts relate the festival to disasters that occurred in Kishiwada. In 1827, Kishiwada castle was struck by lightning and burnt down. It was reconstructed in 1954 and people celebrated the successful reconstruction of the castle with the traditional *matsuri*. In the late Meiji period, 1903, the *matsuri* had to cancel due to outbreak of cholera epidemic. One of the

participants in the festival from *Nanmatsu-cho*, a neighborhood, was infected by the disease and the police ordered the warehouse of the *cho* and its *danjiri* to be incinerated.

After the feudal era, the improvement in *Danjiri* constructions and the road conditions allowed its speed to increase. It invited many casualties such as human injuries and damages to surrounding houses. The *matsuri* was renowned as dangerous and bloody “*kenka matsuri*”. Modifications were made in the post war period to reduce the risk involved by establishing one way *Danjiri* course and installation of brakes on all *Danjiris*.

At first hand, the role of *matsuri* in terms of reducing natural disaster risk sounds to be trivial. But, it has a hidden significance in building a sense of community and collective efficacy that can be important to cope with natural disasters. Kishiwada is a natural hazard prone area with frequent occurrences of disasters such as heavy rain, flood, typhoon and earthquake (Fig.2). In this context, it is pertinent to understand the value of cultural assets such as rituals in reducing disaster risks.

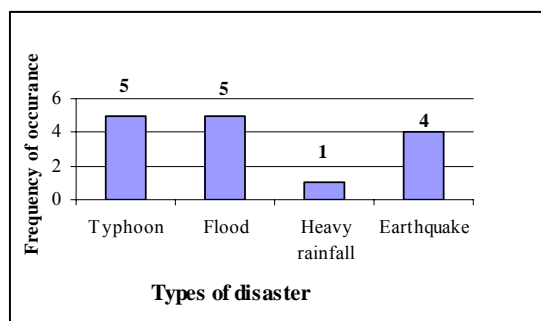


Figure 2. Past record (1940-2010) of Disasters in Kishiwada (Source: Kishiwada City Office, 2010).

## 2.2. Social Significance of *Matsuri*

Besides its recreational value, *Danjiri matsuri* can be referred as a social occasion. The *matsuri* facilitates interactions among different neighborhoods. One interesting fact is the rivalry that arose among groups in the past holding different *Danjiri* processions. Prior to the renovation of the street that led to Kishiwada Station, today known as *Ekimae Dori*, the *matsuri* ran north and south along narrow alleys.

As a result, the procession moving in opposite direction would often collide and social conflict would break out over which procession had the right of way (Dylan, 2006). Nowadays, though such face to face conflict does not exist, still people have neighborhood rivalry to have better *Danjiris* and extravagant processions. Such healthy competition supports in building a sense of commitment towards one's community. Due to this fact, we can observe broad participation of men, women and children of all ages from the entire neighborhood in the display of *Danjiri* float.

The history of *matsuri* during the Second World War is filled with hardships. It was suspended for five years. In 1942, from growing hostilities with China, the *matsuri* became a symbol of fighting spirit and included wartime slogans (Dylan, 2006). In 1944, the residents of each *cho* carried soldiers on *Danjiri* accompanied by shouts of local participants before they departed in front of the Kishiwada station. In the post war period, after surrender in 1945, local administrative organizations at local level or *Chonakai* were abolished and all *Danjiris* were ordered to be destroyed. Later, with a plead from the local residents the *matsuri* was allowed to continue as a recreational activity. The episodes of hardships of war, defeat, and loss of the *Danjiri* of *Nakanoham-cho* in the air raid in 1945 further generated a communal sense among *Danjiri* loving residents of Kishiwada (Dylan, 2006).

## 3. *Matsuri*, Social Capital and Disaster Risk Management

*Danjiri Matsuri* resembles itself as a site for community formation where local people at neighborhood level work together for conducting a safe ritual event. It is repeated annually with preparations beginning nearly a month before the actual event. During this occasion, everyone tries his/her best to fulfill the assigned task within the ritual organization. In this process, the community is expected to develop social capital. It is understood that social structure of the *Chonakai* is an ideal type where the members are

selflessly oriented toward the goals of the group. Local leaders of *Chonaikai* mentioned that the hierarchically organized group achieves harmony with the help of human relations based on functional diffuseness and trust. The organizational system is expected to operate smoothly as people have mutual trust that everyone is working for the shake of the community. Though vertical relationships are prominent within the social structure, the leaders with their benevolence and support protect the followers at all times regardless of personal cost. In return, subordinating members are expected to express their uncalculating loyalty and devotion. While at the same time horizontal ties and relationships among equals in organizations are established by cooperative interaction among colleagues. It can be claimed that *Danjiri matsuri* inculcates a spirit of local and self initiated action for community's well being. Also, it develops an extended network of organizations outside a community. On this basis, it can be understood that rituals contribute to the development of social capital in the community at Kishiwada.

A tripartite relationship between rituals, social capital and disaster risk reduction can be constructed (Fig. 3).

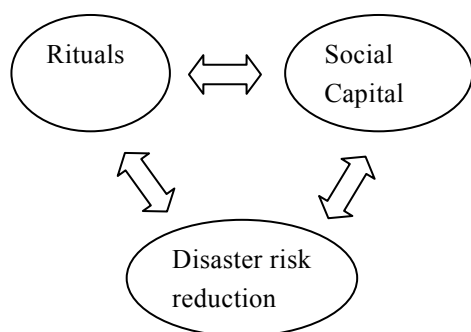


Figure 3: Tripartite relationship between rituals, social capital and disaster risk reduction.

The concept of social capital is defined generally as the norms and networks that enable people to act collectively (Portes, 2000). Robert Putnam, the most prominent advocate of this approach describes it as features of social organizations, such as networks, norms, and trust that facilitate action and cooperation for mutual benefit (Putnam, 1993). The basic idea of social

capital is that a person's family, friends, and associates constitute an important asset that can be called in a crisis (Portes, 2000). Those endowed with a diverse stock of social networks and civic associations are in a stronger position to confront poverty and vulnerability, resolve disputes and take advantage of new opportunities (Woolcock and Narayan, 2000).

Lately, the scope of social capital expands to include both the horizontal associations (bonding social capital) within a community and vertical associations (bridging social capital) among organizational entities at different levels. It gives rise to a conclusion that both strong intra-community ties and weak extra-community networks are needed to enhance the efficacy of social capital, and fulfill the broader interest of a community (Woolcock and Narayan, 2000).

Though the field of social capital covers a huge area of research, we find very few researches related to social capital and disaster risk management. Nakagawa and Shaw (2004) describe about the significance of social capital in disaster recovery in the context of earthquake disaster of Kobe, Japan and Gujarat, India. From a disaster management perspective, there is evidence that community structure with decentralized decision making through social networks using trusting and reciprocal normative behavior leads to a more effective disaster response (Neal and Phillips, 1995). Buckland and Rahman (1999) explain that communities characterized by higher levels of physical, human and social capital are better prepared and more effective responders to flood. Also, their findings show that a high level of social capital complicates the decision making process in community development activities.

Dynes (2005) explains that community is the locus of the response to disaster and such social units have the social capital necessary to respond to disasters. He further adds that communities already exhibit considerable resilience in dealing with various types of disaster (Dynes, 2005). His study explores a new dimension on how social capital could be built and enhanced in any community. Earlier researchers paid little attention on how to create social capital that can

be utilized to achieve the desired outcome. Dynes (2005) mentions that the local social system is the logical and viable base for all stages of emergency action and certain specific mechanisms can be utilized to increase community identification and collective responsibility which are the components of social capital. In this context, civic occasions such as anniversaries, disaster memorials and festivities are important. Enhancing the existing community network and social structure makes it convenient for information flow during disasters, and increases the efficiency of decisions within established authority which is crucial in the case of disaster for timely response (Dynes, 2005).

Earlier the disaster management practices focused more on reducing physical vulnerability, however, in recent times it has been realized that enhancing social capacity helps to reduce the human toll. As witnessed in severe disasters such as Kobe earthquake 1995, neighbors and individuals are the first to save the victims as the Government or Non Government Organization has limited capacity to help everyone (Nakagawa and Shaw, 2004). It is found that social capital is crucial to mobilize community efficiently in disaster recovery (Nakagawa and Shaw, 2004). At the same time, the existing networks and associations within a community can play a vital role to keep residents alert in a pre disaster situation and sustain their inbuilt capacity to cope with upcoming uncertainties.

As disasters are simply a fact of life, Japan has developed several advanced structural and non structural measures to deal with these hazards. Though not explored to a greater extent, the ritual based formal and informal associations and networks can be important in mutual assistance during disasters. Every year local people are invigorated with the ritual spirit which renews social bond and relationships that they already possess. In fact, there is a long history in Kishiwada, at the local level, of associations (formal and informal) and networks committed to individual and community welfare that may enhance people's capacity to withstand misfortunes such as disasters. These associations and networks have largely gone unnoticed by

disaster professionals who have sought to establish more mono purpose disaster related associations according to their own criteria of what such organization should comprise. Therefore, they often fail to recognize the existence of other multipurpose ones that don't share the same outward form but may fulfill many of the same functions. This paper attempts to correct this oversight by highlighting the possible role of inbuilt social institutions such as the ritual based organization under *Chonakai* in building the community capacity in a pre disaster context.

#### 4. Research hypothesis

On the basis of the theoretical explanation above, this study proposes the following research hypothesis:

- A. Rituals contribute to the development of social capital in the community at Kishiwada.
- B. Social capital built through ritual based organization contributes in enhancing awareness and self reliance of people that helps them to cope with disaster risks.

#### 5. Research Methodology

Questionnaire surveys were conducted in two different school districts namely; Habucho junior high school and Omiya elementary school in Kishiwada City. Questionnaires were sent through school children to their respective parents living in Kishiwada. Questionnaires were distributed in a booklet form, informing participants of research aims. It was assured that the survey data would be only analyzed for academic purpose. Overall 1400 questionnaires were distributed with 700 questionnaires on each school district. 485 completed responses were returned, with an overall corresponding rate of 36.4 percent. This survey didn't intend to compare the heterogeneity between areas, as our analytic focus was on the community as a whole rather than individual area.

This research aims to investigate the possible role of rituals in building social capital and how this enhances the disaster resilience of the community. Disaster resilience is conceptualized



in terms of building awareness and making local residents more self-reliant. The social capital variables considered for this study are bonding social capital, bridging social capital and trust.

### 5.1 Measures

The questionnaire survey was comprised of Likert scales. The responses to the perceived gain from the rituals were recorded using sample items such as: it helps to get much closer with people in the community; it helps to build a sense of community; and it helps to understand the local culture. Perceived loss was recorded in terms of disturbances to daily activities, increase in household expenses, crowd and chaos during the rituals. Hazard awareness was measured using sample items such as: frequency of talking with neighbors about disaster related matters; and familiarity with the city hazard map.

The sample items for bonding social capital, bridging social capital and trust were developed by referring to the World Bank list of questionnaires (Grootaert et al., 2004). Bonding social capital focused within a community and sample items include: level of interaction respondents have with their neighbors; number of people in the neighborhood that respondents can interact with; and frequency of greeting or talking with neighbors. Bridging social capital covered networks outside a community and sample items include: frequency of participation in sports groups, religious groups and civic groups such as rotary club, Red Cross, Non Government Organizations and volunteer groups. Sample items for trust include: you trust most people in your neighborhood; most people in this neighborhood are willing to help if you need it; and, in this neighborhood one has to be alert or someone is likely to take advantage of you.

In addition, responses to self reliance were recorded using sample items such as: in your opinion, who is responsible for handling supplies such as drinking water or food during disaster; and in your opinion who is responsible for making evacuation decisions during disasters. All the items listed above showed a high internal consistency (Cronbach  $\alpha$  = >0.7).

## 6. Findings and Analysis

### 6.1 Sample

Respondents are all from the two school districts in Kishiwada city (Fig. 4,5, 6 and 7).

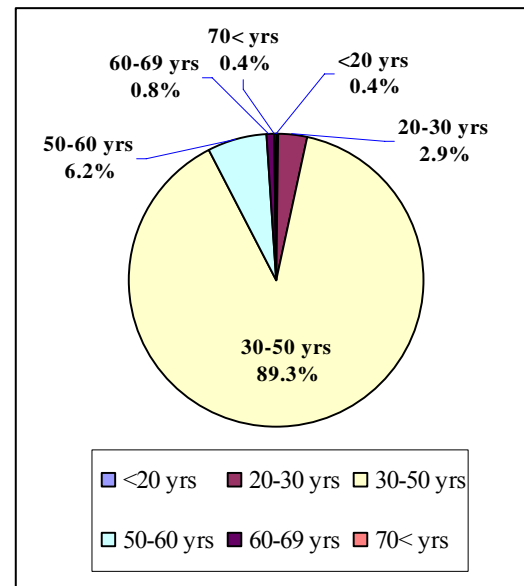


Figure 4: Demographic Characteristics

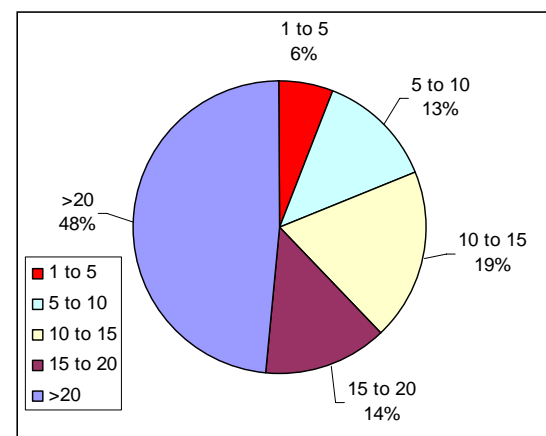


Figure 5: Length of Stay in the Area (no. of years)

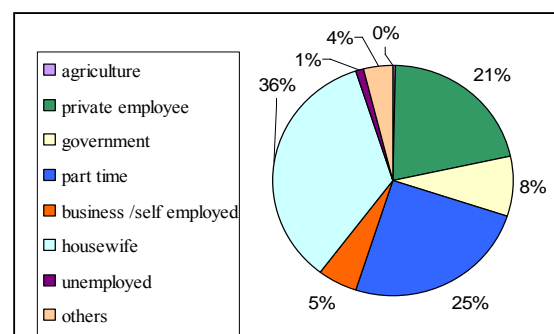


Figure 6: Occupational Characteristics

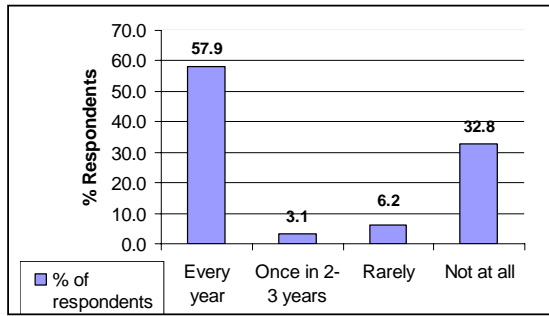


Figure 7: Frequency of ritual participation

Demographic characteristics of the respondents were as follows: gender (female = 83.3 percent; male= 16.7 percent); age ( <20 years = 0.4 percent; 20-29 years= 2.9 percent; 30-49 years = 89.3 percent; 50-59 years = 6.2 percent; 60-69 years = 0.8 percent and > 70 years = 0.4 percent); length of stay in the area ( > 20 years = 48 percent; 15 to 20 years = 14 percent ; 10 to 15 years = 19 percent; 5 to 10 years = 13 percent; 1 to 5 years = 5 percent and <1 year = 1 percent); occupation (house wife = 35 percent ; private institutions= 28 percent; part time job holders = 26 percent ;government = 9 percent; and unemployed / retired person = 2 percent); and frequency of participation in the ritual event (every year = 57.9 percent; once in 2-3 years = 3.1 percent; rarely = 6.2 percent and not at all = 32.8 percent).

## 6.2 Analysis

As shown in Table 1, multiple correlation analysis indicates that perceived gain from the rituals is positively correlated with trust ( $r = 0.28$ ,

$p < 0.01$ ). And trust is positively correlated with bonding social capital ( $r = 0.441$ ,  $p < 0.01$ ) and bridging social capital ( $r = 0.168$ ,  $p < 0.01$ ). In the mean time, trust is negatively correlated with perceived loss from the rituals ( $r = -0.193$ ,  $p < 0.01$ ). All this explains that people perceiving gain from rituals tend to develop trust among each other. Trust being an important component of social capital, it can be claimed that our Hypothesis 1 that rituals contributes to the development of social capital is supported.

The results of multiple correlation analysis in Table 1 show a positive correlation between bonding social capital, bridging social capital and trust.

The responses about the perceived gain of rituals are shown in Fig.8. It is found that nearly 80 percent of respondents agree that rituals help them to be much closer with the neighbors, develops a sense of community and helps to know about local culture. This finding supports that rituals can contribute to the development of social capital by creating social bonds.

The findings in Table 1 do not show a significant correlation between frequency of participation in ritual events, social capital and disaster variables. These findings are meaningful in several respects. To begin with, only being a passive participant in the ritual event is not necessarily important in terms of building social capital. Instead, how one gets involved and the personal attitude towards the event are important. It is true that every participant mayn't share the same ritual spirit.

Table 1: Multiple Correlation Analysis

	8	7	6	5	4	3	2
1. Trust	.280**	-.193**	-.012	.173**	.168**	.441**	.240**
2. Hazard Awareness	.147*	.048	-.012	-.004	.210**	.254**	
3. Bonding Social Capital	.116	.038	.035	.042	.390**		
4. Bridging Social Capital	.104	-.059	.073	.033			
5. Self Reliance	.044	.005	-.085				
6. Frequency of Participation	.051	-.125*					
7. Perceived Loss	-.263**						
8. Perceived Gain	1						

Pearson's r: \*Correlation significant at 0.05 level (2-tailed). \*\*Correlation significant at 0.01 level (2-tailed).



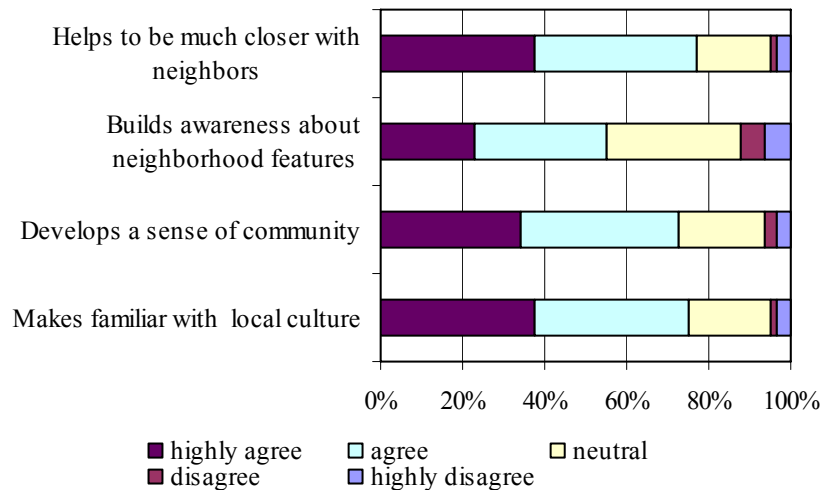


Figure 8: Perceived gain from participating in ritual events

Those who perceive benefit from the event and get actively involved to carry out ritual tasks can obviously contribute to the development of networks and trust which are key components of social capital. The relationship between rituals and disaster risk reduction is latent and this study hypothesizes that rituals develop social capital which helps to enhance disaster resilience.

Besides this, the results in Table 1 also show a negative correlation between frequency of participation and perceived loss from the ritual event ( $r = -0.125$ ,  $p < 0.05$ ). It indicates that people who participate quite often perceive less loss from the event. It might be because people learn about the significance of the event over time with regular participation.

The findings in Table 1 also reveal that hazard awareness is positively correlated with bonding social capital ( $r = 0.254$ ,  $p < 0.01$ ), bridging social capital ( $r = 0.21$ ,  $p < 0.01$ ), trust ( $r = 0.24$ ,  $p < 0.01$ ) and perceived gain from the ritual ( $r = 0.147$ ,  $p < 0.05$ ) (Table 1). Self reliance is positively correlated with trust ( $r = 0.173$ ,  $p < 0.01$ ). It reveals that increase in social capital variables such as bonding social capital, bridging social capital and trust increases the hazard awareness and vice versa. Self reliance increases when trust increases and the latter in turn increases with both bonding and bridging social capital.

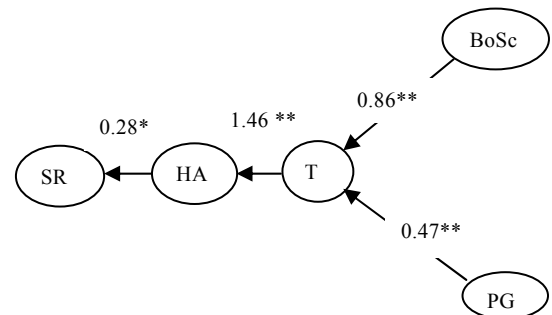


Figure 9. Structural Equation Modeling.

(BoSc-Bonding social capital; PG-perceived gain from ritual; T-Trust; HA-Hazard awareness; SR – Self Reliance) \*Significant at 0.05, \*\* Significant at 0.001

In order to show the path of linkages between social capital, hazard awareness and self reliance variables Structural Equation Modeling (Fig. 9) was performed (Byrne, 2001). Self-reliance was regarded as the dependent variable and casual relations between independent and dependent variable was analyzed. In this study, resilience is understood in terms of enhanced self-reliance. SEM indicated a linear path of linkage from other variables to self reliance.

The path is from trust to hazard awareness and self-reliance. Trust is predicted by both bonding

social capital and perceived gain from ritual. It is revealed that increase in trust results in an increase in hazard awareness and self reliance in the community at Kishiwada. The main conclusion of the model is that we can change the level of self reliance by manipulating the predictor variables. For example, by change in one standard deviation of the predictor variable (hazard awareness) will result in 28 percent change in the standard deviation of the target variable (self reliance). It is important to notice that bonding social capital, perceived gain from rituals and awareness is contributing to self reliance. In order to enhance community resilience in Kishiwada, trust built through ritual participation and social bonds at a neighborhood level are important.

The Goodness-of-Fit statistics for the model are: ( $\chi^2 = 106.3$ , D.F. = 89,  $p = 0.101$ ), RMSEA = 0.02, GFI = 0.951, NFI = 0.897. The  $p$  value of 0.101 indicates that the estimated model is a close fit to the data and the difference between the actual and estimated model is non-significant. The estimated results confirm the validity of the model as a predictor of self reliance in case of disasters.

In view of these findings, Hypothesis 2 is verified. Social capital built through rituals helps to enhance the awareness and self reliance of people in Kishiwada.

## 7. Implications and Limitations

The analytic component of the study seems to emphasize on general findings. The actual role of social capital in real disaster cases has not been taken into account. As the occurrences of natural disaster are unpredictable, one can't be certain whether the built-in social capital functions as expected in such uncertainties. If baseline data on pre-disaster and post-disaster comparative analysis were available, a more convincing evidence of the use of social capital can be obtained in the case of natural disasters. Further research is necessary in the future.

Besides rituals, other events must have contributed in the development of social capital and ultimately contributed in disaster resilience.

Ritual is one of the factors that must have contributed in building social capital in the community.

This study involved response from large number of female respondents and most of them are housewives. It can be doubted that as women are not the main decision makers in the household their opinion can not necessarily include opinion of the household head.

Despite these shortcomings in the study, it can not be ignored that social capital built through communal practices can contribute to the dissemination of disaster information. The higher trust on information from friends, relatives and close neighbors can contribute to the development of awareness and builds individual capacity. Apart from this, a ritual based organization might be a viable base for all stages of emergency action. Using the locally accepted existing authority structure of *Chonakai* can help in speeding up the decisions during an emergency situation.

It is difficult for local residents to be regularly activated and show their concern for prevalent risk in their locality. Local government trainings and disaster drills for emergency management are equally important. In the mean time, collaborative efforts between ritual based organizations and community based disaster risk management organizations can be quite helpful in sustaining risk reduction efforts and activating the coping capacity of people. Active community based disaster risk reduction initiatives can be found in Kishiwada and it can be further enhanced by strategically using the ritual based organizations.

## 8. Conclusions

This study examined the impact of ritual based social capital on disaster awareness and self reliance. It revealed two interesting points: a) people perceiving benefit from the ritual event contributed in developing trust b) disaster resilience interpreted in terms of self reliance and hazard awareness were predicted by trust, and trust in turn was predicted by perceived gain from ritual and bonding social capital. This study suggests that disaster resilience is based on social capital and social events such as rituals play a

significant role in building community resilience.

Local people can make use of ritual infrastructure to cope with disaster risk. For instance, ritual store houses can serve as community disaster centers where first aid boxes and other essential items can be stored for compelling immediate needs during response efforts in disaster. Open spaces where people gather during the rituals can serve as convergence points after initial evacuation, and also provide space for medical assistance and rescue in disasters.

A major influence of social capital in enhancing disaster resilience is investigated through this study in a ritual based community of Japan. Our study suggests that it is important to understand the significance of cultural elements such as rituals in building social capital. The findings suggest that social organizations involved in conducting ritual events are viable sources to communicate disaster risk information to the public.

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# 祭によって形成されたソーシャルキャピタルを通じた災害に強いコミュニティづくり ：岸和田市における事例研究から得られた成果の分析

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## 要 旨

大阪府岸和田市を対象に行ったフィールド調査から得られたデータを基に、本稿は祭を通して形成されたソーシャルキャピタルが、災害に強いコミュニティづくりに及ぼす影響を分析する。先行研究からは、祭が岸和田市内に住む住民同士の信頼の形成に貢献しているという結果が得られている。本研究では、結束型ソーシャルキャピタル、橋渡し型ソーシャルキャピタル、そして信頼は防災意識や自助・共助意識を高めることができることを明らかにした。また岸和田市内の祭礼組織が、日ごろから住民を市民活動などに積極的に参加するよう呼びかける社会的組織としての役割を果たしていることも判明した。さらに祭礼組織が災害時において活躍できるのではないかということに関しても、議論の余地がある。

**キーワード：** ソーシャルキャピタル, 自助・共助, 災害リスク, 相関分析, 祭