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### RECONNECTING CULTURE AND RESILIENCE: UNDERSTANDING MINANGKABAU WOMEN STRATEGIES IN DISASTER MANAGEMENT

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#### A B S T R A C T

West Sumatra province is the homeland of Minangkabau ethnic group, which possess a strong adat and Islamic value principle; "adat basandi syara', syara' basandi kitabullah" and also prioritizing women as the key person in clan (suku). Aside from its cultural and religious aspects, this province is also prone to disasters. These disasters are directly impacted on Minangkabau people's livelihood, especially women. In Minangkabau society, women have a crucial role because they are the leader of Rumah Gadang (big house owned by community). This situation puts women as the problem – solver in any occasion, especially when it comes to disaster issues. The aim of this study is to understand the resilience of Minangkabau's women, which focused on their coping strategies at pre, during and post disaster, and how the local knowledge will be applied in this condition. This study used a qualitative methods; observation, in-depth interviews (with local leaders and Bundo Kandung) and also used secondary data. The findings depict some strategies could be taken by women at disasters, including; mamagang sawah (organizing the paddy field activity) and also badoncek (an ancient tradition which similar with arisan). Those strategies showed a strong connection between women, traditional practice and resilience.

#### A. INTRODUCTION

Indonesia is defined as the most disaster-prone country in the world and has experiences in many disasters such as earthquakes, tsunamis, volcanic eruptions, landslides, floods and also drought. The most destructive disaster that ever happened in Indonesia was the earthquake on September 30, 2009. This 7,9 earthquake struck the western coast of Sumatra island.

The report by the Indonesian government, the most victims occurred in Sumatra Island, especially Aceh and West Sumatra. There were 1,115 dead, 1,214 severely injured and 1,688 slightly injured (USAID, 2010). Situated in the western part of Indonesia, West Sumatra is categorized as a disaster prone area. This province consists of lowland and highland that formed by Bukit Barisan, a mountain range running from north to south on the island of Sumatra. The peculiar form of West Sumatra is also completed with the long coastline, which has a direct connection to the Indian Ocean along

1.973.246 km (West Sumatra Provincial Government, 2012). Geographically, West Sumatra is located between two continents, Asia and Australia, and bordered with Indian Ocean, which makes this province have the unique climate, rainy and dry season. From its geological condition, West Sumatra is situated in active mountains line and located at the confluence of two plates Eurasia and Indo-Australia. This led West Sumatra became one of the areas which are really prone to disasters such as earthquakes, tsunamis, volcanic eruption and floods.

On September 2009, a big earthquake occurred in West Sumatera. This vast earthquake caused loss and damages in people and infra structure. The most deaths occurred in the areas of Padang Pariaman (675), Padang (313), Agam (80) and Pariaman (37). In addition, around 135,000 houses were severely damaged, 65,000 houses were moderately damaged and 79,000 houses were slightly damaged. An estimated 250,000 families (1,250,000 people) have been

affected by the earthquake through the total or partial loss of their homes and livelihoods (DIBI, 2010).

No longer after the earthquake, another disaster such as galodo or big floods also became a threat in this province. In Solok district, galodo always attacked community especially when landslides and big rain happened in hilly area. The tremendous disaster was happened at the end of 2014 where 2.824 houses drowned because of flood (BNPB, 2014). The damages were not only on people's houses, but also on public infrastructure in Solok.

Due to that situation, West Sumatra government tried to reduce the disaster risk by synergizing with many stakeholders (donors, international bodies, NGOs, academician, private sector, and community) and also implemented Community Based Disaster Risk Reduction Program (CB – DRR) since 2011. This program aimed to strengthen communities resilient and to minimize the victims of disaster. According to Wardani (2014), the involvement of communities is very crucial to DRR programs, the accomplishment and sustainability of DRR programs has a strong connection to local culture, know ledge and indigenous practices. Local culture is not only defined by indigenous habit, but also may define as a collective memory that circulated from generation to generation. In managing disaster, using local culture could be one of the best solutions, because there are some traditional methods which might be easily understood by community and more advance, it also involved local (Adat) leaders and women as the community advocates in Minangkabau.

The purpose of this study is to reinforce the use of local practice and knowledge in disaster risk reduction and also in livelihood management that help community to become more resilient in disaster phase. The study is conducted in two different areas; Padang Pariaman and Solok district. Moreover, the specific objectives of this study are identify local practice and knowledge in West Sumatra at pre, during and post disaster period, which focused on how Minangkabau women are coping with disaster and managing their livelihood after disaster. Also, assess opportunities, challenges and strategies for replication and scaling up of the local practices in other regions.

## B. METHOD

This part will discuss the framework of the study and also the process for data collection and analysis. This study was carried out by using qualitative approach; observation, in-depth interviews with local (Adat) leaders and women leaders (*Bundo Kanduang*)

in two districts; Padang Pariaman and Solok which showed link between women, traditional practice and resilience in some cycles of disaster risk reduction. The process of this study is divided into three parts; (1) developing the study framework; (2) conducting the 'snowballing' process in the field; and (3) analyzing the data.

The objective of the study was to understand the principle of local practices that have been applied by Minangkabau community, especially women, to survive and cope with disasters and its impacts. This understanding would be very useful for government, practitioners and related stakeholders to identify the best practices and policies to disaster risk reduction mechanism, and at the end, it could promote the safer communities in disaster.

The framework explains the study; defines the essential part of local knowledge and its correlation between women and disaster resilience. This framework also describes the procedure and the logical analysis of the data that has been gathered, and sees the possibilities about another local practice in disaster risk reduction at the different regions.

This study used the snowballing process. Snowballing process is usually applied in explorative, qualitative and descriptive study (Hendricks, Blanken and Adriaans, 1992). At this study, there are three important processes; first, reviewing the literature; second, interviewing the key informants (Adat leaders and Bundo Kanduang); and last, conducting focus group discussion with community. This process is very crucial to investigate the hidden social phenomenon in community.

Data analysis was conducted at the end of data collection: literature review, in-depth-interview with key informants and also FGDs. An analytical framework is supported by data analysis. The local knowledge has become determinant factor of this study, and surely, disaster mitigation and the women's roles in improving their livelihood at pre, during and post-disasters are the most crucial part.

## C. RESULTS AND DISCUSSION

### 1. Culture on DRR Context

Culture has been formed since our ancestors existed and most scholars have defined 'culture' as a religious or traditional belief and its created by social and livelihood system. In The Oxford English Dictionary by Stevenson (2010), culture could be defined as the arts and other manifestation of human intellectual achievement regarded collectively; or as the ideas, customs and social behaviors of a particular group or society; or even defined as the

attitudes and behaviors characteristic of a particular social group. But in fact the definition of culture is more complex than just an attitude of a social group. Culture and society are very dynamic, since they consist of many aspects and interactions (Hewitt, 2012).

In disaster risk reduction, one of the crucial things to be considered is culture. This aspect has been highlighted by many scholars since enormous disasters hit developed and developing countries over the past decades. When earthquake and tsunami attacked Aceh and some Southeast Asia countries in 2004, local people proved as the real survivors by utilizing their cultural practices. For example in Simeulue (Aceh), when tsunami happened, indigenous people were saved by climbing the mountain in their village (Mongabay, 2014). This action conducted because their ancestor has experienced the similar thing in 1907 and it could be the lesson learnt for Aceh people. There is another example about how indigenous knowledge might save people's life, when tsunami hit the coastal area of Thailand, lots of tourists became the victims because they did not understand how to survive on that disaster. But at the other hand, local people could survive because they understood their area and knew how to rescue themselves from disaster (Arunotai, 2008).

It is undeniable that culture has become the way of life that reflects values and norms (William, 1961) and this theory was strengthened by Hall (2003) which mentioned that culture is a value or norm that distributed from one generation to another generation, which still used as the life guidance for individuals to survive in the society.

In disaster risk reduction context, culture may influence the human perception of nature and disaster, and at the same time, culture could be such an implication in empowering communities to have more preparation in disaster (Bankoff, 2011). When disaster and climate change issue acknowledged as the biggest challenge in the world at the end of 1990s, many scholars seemed neglected the connection of culture and risk. But now since vulnerability and resilience became major problems in community, many scholars and disaster experts try to understand and apply cultural aspect in reducing disaster risk. Moreover, in connecting the role of culture and disaster risk reduction, Thomalla (2015) tried to simplify some aspects in DRR. It's not only consists of daily practice and behavior of community, but also considering the manifestation or products of culture, the beliefs and values within community, knowledge and social structure.

According to Hannerz (1992), culture could be seen as a cognitive dimension (which

contained meanings, attitudes and values) and also as a material dimension (something which can be observed practically). But in this paper, we are focusing on analyzing culture in the specific context; disaster management or disaster risk reduction.

**Table 1. Aspects of Culture in DRR (Adopted from Thomalla et al. 2015)**

Aspects of Culture	Implications in Disaster Risk Reduction
Practice and behavior	May influence the decisions which has been made by individuals or groups in the context of environmental hazards and change and may be impacted disaster preparedness in community.
Manifestations or products of culture	May influence the vulnerability and resilience of community, and also the strategies for adapting and responding to environmental change and hazards
Beliefs and values	May influence the perceptions of people within the nature and causes of disasters, and may empower individuals and communities in disaster preparedness.
Knowledge	May influence vulnerability and resilience to environmental changes or hazards either in positive or negative way. It may influence recognition of risk and strategies for preparedness, response, and recovery.
Social structure	May influence a social or power structure. Promotes risk or resilience, and how its impacted on their vulnerability

Additionally, the discussion about culture in disaster risk reduction context always has a strong relation with livelihood and the habitual action of individuals. The common terminology of livelihood is defined as "make a living". But, in more advance level, livelihood comprises of capabilities, assets, income and activities of someone which can secure their own life (Chambers and Conway, 1992). Because livelihood is tied with community, obviously it has a strong interconnection with local customs and knowledge. Many scholars had mentioned that a livelihood has to be sustained, and to sustain the livelihood, it should indicated that community should be able to cope and recover from shocks and stresses from threats and disasters without destroying their resources base (IFRC, 2010).

But unfortunately, cultural aspect seemed to be seen as something unimportant in disaster sphere, and also some scholars (Oliver – Smith and Hoffman, 1999) were argued that it's very difficult to address and link the cultural and livelihood aspects within disaster risk reduction context. They argued that cultural and livelihood aspects are always ignored by government and donors. Similar condition also happened in West Sumatra when Resilient Village Program (Desa Tangguh) launched, government and donors collaborated in managing the disaster by strengthening the capacity of villages in West

Sumatra, but they forgot to consider the cultural aspects of community, whereas this aspect is very important in DRR. (Pradipta, 2014).

## 2. Socio-Cultural Condition in West Sumatra

When people discussed about West Sumatra or Minangkabau, the culture is strongly glued to people lives. With a strong belief in Islamic value, Minangkabau society puts culture in the same equilibrium with religious principle; 'adat basandi syara', syara' basandi kitabullah' (culture is based on religion; religion is based on Holy Quran). From this statement, it might be assumed that culture is really tied up with Islamic practices (Asrinaldi and Yoserizal, 2020). Subsequently, Minangkabau society is also familiar with disaster. Almost in every regency people attacked with varieties of disaster (earthquake, tsunamis, volcano eruption, landslide, floods and droughts). But along with that vulnerable condition, Minangkabau society is still survived by applying their local knowledge either at pre, emergency or even at post disaster phase.

The majority of people who inhabited in West Sumatra come from Minangkabau tribe. Minangkabau tribe is a society which holds the wisdom and values of culture and philosophy. Minangkabau people are very familiar with proverbs that have a close relation with their lives. They are attached to Islamic Shari'a, and because the Islamic Shari'a is the main principle in Minangkabau tribe, then comes the philosophy of "Adat basandi Syarak, Syarak basandi Kitabullah" which means "Custom is based on Religion, and Religion is based on the Holy Book (Qur'an)". By this philosophy, it cannot be denied that the majority of people in Minangkabau are Moslem and they always act based on their custom, tradition and religion (Taufik, 1966). In addition, the Minangkabau community life is very close to nature, they are known as people who live communally and prioritize the relationship with nature. By this human – ecological pathway, then a philosophy is forming "Alam Takambang Jadi Guru", which means that nature is the place of learning. Nature is the source of knowledge.

Moreover, Minangkabau tribe is not only well-known because of their philosophy; but the order of power in the family is also unique. This power is dominated by women, through the succession of matriarchal control over external family affairs (Blackwood, 1993). It should be recognized that the social organization of families (and heritance issues) holds the matrilineal principle (Meiyenti and Afrida, 2018). Matrilineal is reinforced through the structure of traditional leadership wherein rules of primogenitor largely apply, with hereditary power assigned to (elderly

female persons or called Bundo Kandung (Hermayulis, 2008). Putri (2017) also added that Minangkabau society put high respect on female networking and believe that it could be a social capital or social strategy to survive.

Minangkabau is the only tribe in Indonesia which adopted matrilineal system. This fact also supported by Kato (1978), that declared the matrilineal system in Minangkabau is possibly the biggest matrilineal societies in the world. As a tribe which have special concerned on women, people never seen women as vulnerable group. Though many scholars are categorizing women as vulnerable group because their lack access to resources and do not have power in decision making, but in Minangkabau these statements are contra. Women are the central point to strengthen the vulnerable groups and they have an essential part to build resilient communities.

Similarly which mentioned by Gokhale (2008), women are the important agents for change and they need to be strengthened. They have good skills and capacities in protecting their family and environment. Besides, they have skill in organizing food, nurturing their children and mobilizing the community. By seeing these facts, government and other stakeholders are supposed to realize the women's potential at disaster phase and involve them more in disaster risk reduction program.

As mentioned before, West Sumatra is very prone to disasters, such as earthquakes, landslides and floods. According to the data from Disaster Management Agency of West Sumatera Province, in 2014 many disasters occurred in lowland (Padang Pariaman) and highland (Solok). In Padang Pariaman, the earthquakes and tsunami always become the biggest threat for community. Unlike Padang Pariaman, Solok which located in highland is also get threat from volcano eruption and galodo or big floods (Yonariza and Mahdi, 2015). These disasters are impacted directly on Minangkabau people's livelihood, especially women. In disaster sphere, women frequently categorized as vulnerable groups, but this common term is not applicable in West Sumatra. Minangkabau women have a strategy to survive at pre, during and even post-earthquake period, and the most interesting part; they still integrate their traditional values in facing disaster risk. This strategy then becomes an effort to strengthen their capacities, networking with other community members and at the end it really works in minimizing the impact of disaster.

Subsequently, previous study by Twigg (2007) also mentioned about 'strategy to survive'. He stated that strategy to survive is a process that has similar meaning with resilience. By this point, if we take a look at the community level, actually they have actions and can strengthen their own capacity. Moreover, community can be

very resilient to disaster because they have social system which usually called 'preparedness' (Cutter et al. 2008). There are some preparedness strategy that always conducted by Minangkabau people, especially women to revamp their livelihood and minimizing the impact of disaster, those strategies are called *Badoncek* and *Mamagang Sawah*.

### 3. *Badoncek* System to Improve Livelihood in Padang Pariaman

Padang Pariaman District is one of the areas in West Sumatra that situated in lowland with total area 1.328 km<sup>2</sup> and coastline for about 4.211 km, this district is very vulnerable to earthquake and tsunami. A big earthquake was hit West Sumatra in September 2009, and Padang Pariaman was the district that got the tremendous impact. More than 1.000 people were killed and more than 130.000 buildings were destroyed, and based on the findings of JEN (2010) the biggest damage was due to collapsed houses and landslides. Additionally, the latest hazard map which established by West Sumatra Disaster Management Agency in 2013 showed that Padang Pariaman district still become the district that is very prone to earthquake and tsunami with the estimation of magnitude more than 7 Richter scale.

Because of many destructions happened in Padang Pariaman on that earthquake, many stakeholders put their attention, not only government, private sector, NGOs and academician, but the Minangkabau people who became wanderers (*perantau*) in big cities also sent the aid to their hometown. The aid which distributed to Padang Pariaman could be given in many ways, and the common system used by Padang Pariaman people in circulating those aids is called *badoncek*.

The tradition of *badoncek* has been rooted in Padang Pariaman since centuries ago. This tradition usually conducted in social or public events like marriage, adat ceremonies and building the mosque or house (Pradipta, 2014). This *badoncek* comes from the word 'doncek' that have a similar meaning with throw. *Badoncek* could be defined as the 'tradition of giving' to others, and this is the symbol of togetherness. This indigenous tradition has the essential meaning, especially in social movement which can boost the collective action that directly coming from the bottom or community itself (Friedmann, 1987). Based on the in-depth-interview that has been conducted in 2014, Pak Amri (67 years-old), one of the adat leaders in Padang Pariaman, stated that:

*"The badoncek tradition is still used until today because it's a part of adat norm. Our*

*ancestors said we cannot live alone; we have to help each other, especially if we have big events such as baralek (wedding party) and build the house, for worse condition (poverty and disaster) the wisdom like this has to be strengthened. Everything that will be utilized by community, have to be conducted by the community themselves"*

As mentioned by the Adat leaders, *badoncek* is very crucial at post-disaster situation, because by building community at the same time we may achieve the safer environment. Arguably, at this point men and women have to be involved actively. In *badoncek*, men tend to collect money, gold or even livestock. While men collect those materials, women have 'heavier' task. Usually women persuade or provoked the community to collect the money, gold or even livestock. Women are appointed to do the 'provocation', because she has a wide connection in Nagari and people knew her position as Bundo Kandung. Women will never stop persuade until all the aid or donations has collected in a proper amount.

This culture has to be acknowledged as the social capital in Minangkabau community. And at the same time, this action could also support the weaknesses of *Desa Tangguh*<sup>1</sup> program that launched by Indonesian government. For example, when government (BNPB) tried to establish disaster preparedness community or KSB (Komunitas Siaga Bencana), they just gave the technical assistance, aids and other donations to community, but unfortunately they did not consider about the sustainability of the program. Government just forgot that community has their own wisdom to reduce the impact of disaster risk. Surely, *badoncek*' as a local wisdom is crucially needed because it guarantees the sustainability of social capital and also improves the livelihood of people who became the victims of disaster.

### 4. Organizing Paddy Field or Mamagang Sawah in Solok District

In many countries, rice is one of the important agricultural products. Just like in other regions, rice has become the staple food for Minangkabau people. As one of the province which played a crucial role for national self-sufficiency in rice, West Sumatra has a massive rice production since 1980s. This condition is due to the favorable climate and progressive development of farmer initiative and government

<sup>1</sup> *Desa Tangguh* (Resilience Village) is a program that has been launched by Indonesian government (BNPB) to create an independent and resilience villages in disaster-prone areas. This program has established in 2012 and focused in 924 villages.

assistance (Ambler, 1988). This massive rice-production lies in highland area of West Sumatra, especially in Solok district. This district covers an area of 3,738 km<sup>2</sup> and divided into 14 sub-districts. In Solok, agriculture becomes the main livelihood and mostly contributes to local income. The recent report from Regional Development Agencies of West Sumatra showed that rice is still become the promising commodity in this province, and rice that produced in this district supplies not only in West Sumatra province but also in its three neighbors provinces; Jambi, Bengkulu and Riau province. Based on the latest statistical data, Solok may produce 351.256 tons of rice (Central Bureau of Statistics, Solok District 2014).

Paddy field is a crucial capital in West Sumatra, particularly in Solok. When people decided to have paddy field, they put high responsibility to maintain the growing or planting season, irrigation system, as well as ensuring the harvest will be utilized for surrounding's welfare (Tresno et al, 2019). In Solok district, most people organize their own paddy field, started from seeding, harvesting until the storing process. For the storing process, they usually have a system for post-harvest distribution, two thirds of the harvest was distributed among the family-members, and one third was transferred to the storehouse, which called Rangkiang<sup>2</sup>. The discussion about this storehouse is ever discussed by Dutch scholar (Maretin, 1961), but at that time, he just focused on Minangkabau's clan and marriage relations, and did not provide a deeper discussion on the function of Rangkiang as mitigation philosophy.

In particular, women hold a very crucial role to organize everything related to paddy field. The paddy field is the economic symbol for Minangkabau tribe, and its utilization is given to women. But it does not mean men do not have the contribution, men have such responsibility to take control of the field because of their role as the breadwinner of the family. At the same time, women are managing the economic sphere by storing the harvest of paddy fields. The coordination of working in the field between men and women is actually happened in Minangkabau since ancient time<sup>3</sup>.

Furthermore, in the last two decades Solok district got threats from big floods, and this situation also recorded by National Agency for

Disaster Management in DIBI<sup>4</sup> (2016). And along with the increasing numbers of floods that occurred in Solok, UNDP with Disaster Management Agency of Solok District have initiated the community-based disaster risk reduction program in 2011. This program is not only focused on technical practice and socialization about disaster to community. But it has more advance solution, this program persuaded community to establish disaster preparedness community or KSB (Komunitas Siaga Bencana). The involvement from men and women are very crucial in KSB, because they have equal participation in establishing the contingency plan, conducting the mitigation process, disaster simulation and creating the action plan. The KSB is involved in mitigation process when the recent flood was happened on January 2016. This flood has caused many loss and damages in community; there are 42 houses were inundated and many people were evacuated. And of course, this flood is directly impacted on community, especially women.

When flood attacked, women in Solok have the coping strategies to survive at pre, during or post-flood period. They survived by applying their local practice such as mamagang sawah, which makes them resilient during the disaster phase. Mamagang sawah could be defined as 'swap' or 'barter' in economic term. Swap or barter is the act of exchanging goods or objects that are equally profitable to both parties. The object of this swap could be lands, paddy fields, gardens, money and gold. The party who pawned or mortgaged their lands or paddy fields is called manggadai, and the party who gave the money or gold is called mamagang. For the payment, there is no specific deadline. The agreement will be terminated when the party who receives money or gold has been returned what they have borrowed, and at the same time they got their lands or paddy fields back. According to some economic experts, this system has contributed in improving the fraternal relations between communities. It could be a solution that can be counted when a person is in poverty or economic crush. And subsequently, this system also has an impact on a person's spirit to get back the property that has been pawned or mortgaged.

At the disaster phase, the condition has changed. The harvest of mamagang sawah is no longer accumulated as money or gold. But will be accumulated from how much rice that can be harvested. This decision has made by Adat leaders because they thought rice is the primary needs and when disaster happened, people would not think about their money or gold, but

<sup>2</sup> Rangkiang, a traditional storehouse in Minangkabau and usually located in the front yard of the Rumah Gadang (big house).

<sup>3</sup> Though *Minangkabau* tribes persist with *Matrilineal* context which referred to mother blood – line, and women become the center, but the equality between men and women are really considered in *Minangkabau* (as told by the '*Tambo*' or *Minangkabau* ancient stories).

<sup>4</sup> DIBI (Data dan Informasi Bencana Indonesia) or the information and database of disaster in Indonesia (this source of information is provided by BNPB through <http://dibi.bnppb.go.id/>)

tend to think about their 'stomach'. As stated by Buk Marni (53 years-old):

*"If galodo or flash floods attacked, we never ever think about our capital. We even do not remember about money or gold. The most important thing, all family could eat rice, not indomie (noodles) because our community must eat rice to be strong and survived"*.

From Buk Marni, it may conclude that rice is more important than any other capital. When floods attacked, people cannot eat money or gold, but they can eat rice. Eating rice is really undeniable became the culture of Minangkabau people. *Alun makan kalau alun makan nasi, which means that "...it feels like they eat nothing, if they do not eat rice"*.

Furthermore, women know everything about rice management. They stored the rice in houses and they tried not to utilize all rice. Women combined staple foods, not only rice, but also potato, yam and cassava. The storing rice will be used if the family trapped in difficult situation such as attacked by drought and disaster or when the worst possibilities coming through their life (lack of food sources). This strategy undeniably could be assumed as a 'disaster preparedness' strategy which has been taught from Minangkabau ancestors from generation to generation. Besides, it also indicates that women are having 'provident' character to anticipate unpredictable situation in the future. Thus, by applying this system on their daily life, women can secure their source of food, and the most important thing, at post-floods period; they can use their own food-resources and can be independent without hoping the aid from donors or government.

#### D. CONCLUSION

Cultural aspects hold a very crucial role, especially to identify the capacity of society. Despite of many transformation occurred in community, but culture is remained strong. The cultural aspects help individual or even society to strengthen their values and livelihood. Moreover, integrating culture with disaster risk reduction is seemed useless if there is no such involvement of women. The issue of disaster is not only about macro issue such as damaged houses, but also 'feeding'. Women in Minangkabau cannot be passive during disaster situation. They hold an important role in disaster. They have power to provoke and influence people to collect donations in house reconstruction at post-earthquake, and at the other time they have managerial role. They manage food for all families and ensure that

during disaster, they did not consume innutritious food such as noodles. At this point, it showed that by involving women and practicing those local practices, community could be more resilient to disaster and livelihood will be recovered. To sum up, hopefully in the future the similar studies regarding to women and resilient will give greater contribution to the development of disaster risk reduction issue.

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