



Disaster experiences and preparedness of the Orang Asli Families in Tasik Chini of Malaysia: A conceptual framework towards building disaster resilient community

Sumaiya Sadeka^a, Mohd Suhaimi Mohamad^a, Md. Sujahangir Kabir Sarkar^{b,c,*}

^a Center for Human and Societal Well-being, Faculty of Social Science and Humanities, Universiti Kebangsaan Malaysia, Bangi 43600, Selangor, Malaysia

^b Department of Economics and Sociology, Patuakhali Science and Technology University, Dumki, 8602 Patuakhali, Bangladesh

^c Institute for the Advanced Study of Sustainability, United Nations University, 5-53-70 Jingumae, Shibuya-ku, Tokyo 150-8925, Japan

ARTICLE INFO

Article history:

Received 5 September 2019

Received in revised form 9 February 2020

Accepted 16 February 2020

Available online 10 March 2020

Keywords:

Disaster experiences

Disaster preparedness

Disaster resilient

Community

Orang Asli

Task Chini and Malaysia

ABSTRACT

This study explores disaster experiences and preparedness of the disaster affected Orang Asli families in Tasik Chini, Malaysia. Applying a qualitative research approach, this study was collected data from 10 respondents from 10 families based on convenient sampling and in-depth interview. This study utilises thematic analysis to analyse and report the data. This study revealed that Orang Asli families faced both positive and negative experiences due to disaster. Moreover, disaster preparedness of the families was found to be low. Thus, there is need an inclusive disaster preparedness policy for the Orang Asli families towards building a disaster resilient community.

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1. Introduction

Occurrences of disasters are increasing worldwide as the climate change is now evident. Disaster induced by climate change not only damages resources and infrastructures but also affects livelihood mostly in the developing countries and regions [1]. In 2014, 344 natural disasters were happened in the world where damages and economic losses were enormous. The death of more than 19,860 people, victims 142 million and economic loss more than US\$ 100 billion are resulted due to occurrences of disasters in 2014 [2]. It is mentioned that on an average, 339 disasters took place every year which affected 240 million people from 1990 to 2012. [3]. The disasters and their associated impacts are increasing the vulnerabilities of many of the societies and communities in different countries [4]. Mwape [5] has found that disaster especially floods affect the socio-economic livelihood of the people and makes the low-income people become vulnerable. Disasters affect various types of livelihood capital and resources of poor individuals and families [6,7]. According to Dynes [8], disaster destroys all types of capital, including economic, human and social capital. Thus, disaster preparedness is crucial to address the consequences of disaster at

individual, family and community level as preparedness increases the ability to respond quickly to the consequences of a disaster and it works as one of the major components to minimize the negative impacts from disaster [9]. Orang Asli families in Tasik Chini (Lake Chini) of Malaysia are the low-income indigenous community known as Jakun who are affected by flood [10]. Food is a natural hazard which can be transformed into disaster if it interacts with vulnerability. As flood is frequently affecting that poor community and turning them into vulnerability, this study consider flood as disaster. However, it is also assumed that they have low level of disaster preparedness as supported by Najafi, et al. [11]. In such circumstances, disasters make their livelihood vulnerable as they face frequent flood in their surroundings and the sustainability of livelihood becomes hampered [12,13]. Thus, it is important to understand and explore the experience of disaster of the low-income families to reduce the impacts of disaster. As the low-income people are the most affected due to disasters, it is highly essential to identify their experiences, impacts and disaster preparedness for transforming them disaster resilient community and uplifting their socio-economic condition. Moreover, Orang Asli is an indigenous community and understanding of disaster on their local context is crucial. Local studies and local solutions are vital to address global challenges of disaster management [14]. Furthermore, Zhou et al. [15] stated that indigenous observations are significant which fill in the gaps of global disaster science and provide insights regarding local impacts and adaptations. Therefore, this

* Corresponding author at: Center for Human and Societal Well-being, Faculty of Social Science and Humanities, Universiti Kebangsaan Malaysia, Bangi 43600, Selangor, Malaysia.

E-mail addresses: skabirbau2000@gmail.com, skabir@pstu.ac.bd. (M.S.K. Sarkar).

study attempts to explore the disaster experiences and preparedness of the Orang Asli families in Tasik Chini Area of Malaysia.

2. Review of literature

Disaster is considered as an unexpected natural or man-made calamity that causes substantial loss or damage of physical property and resources, livelihood and infrastructure [16]. ISDR (International Strategy for Disaster Reduction), defines disaster that hampers or disrupt the functioning of society and causes huge physical, economic or environmental losses and creates a burden for the affected people [47]. Sometimes, hazard is mismatched with disaster. But hazard may or may not be a disaster. Hazard is also a natural or human-made event that threatens human life, property or economic activity [48]. Thus, a hazard transforms into disaster when it happens and harms people, community and their socio-economic activities and resources. This study considers flood hazard as a disaster as it affects and hampers the livelihood of the Orang Asli families in Tasik Chini, Malaysia.

The impacts of disaster are many folds as it damages many resources, livelihood and infrastructures as well as affects the individual, families, communities and even countries around the globe [1,17–19] [49]. Dixit [50] found that flood increased the socio-economic vulnerability of the people in Southern Nepal by hampering farm production. Nepal faces huge flood impacts every year in terms of death, victims, physical assets and loss of agricultural and infrastructure. The poor and marginalized population becomes more vulnerable due to disaster. Vulnerability also varies according to gender and age. Rashid [51] has identified that women and children are the most vulnerable during the occurrences of disasters. The study found that woman faced a big difficulty in access to sanitation as most of the latrines were submerged by the flood in 1998. They needed to go in a distant place or relative houses in other less affected flooded areas to use of latrines.

The impacts of flood also assessed by Mwape [5] in case of the livelihoods of Sikaunzwe community in Zambia. The study identified living of the community in the flood prone area as the primary causes of their vulnerability and found that the effect of flood transforms into one sector to another. For example, flood causes water pollution which increases health risk of the community and access to health services was affected due to damages of infrastructure (roads and bridges) by flood [5,20]. Another study also explored the health impacts of flood and suggested effective disaster management system to limit the impacts of flood [21].

Flood is a most common natural hazard that occurs in Lake Chini area where the Orang Asli community lives. It affects the sustainability of the livelihood of the Orang Asli families [10,12,13]. The Orang Asli faced two large scale floods in 2013 and 2014, and 2014 flood were most devastating compared to other floods happened in the area which severely affected indigenous villages including Melai, Cendahan and Gumum located around the lake [10]. On contrary, as a poor community, Orang Asli families are less prepared for such disaster. This situation makes them less resilient as the flood reduces their ability to adapt and recover from disaster. In such circumstances, the effects of flooding will be more devastating if the scale of the floods will be much higher. However, there is need to develop a resilient community to adapt and recover to disaster. It is also mentioned that there is a lack of comprehensive studies to make proper actions and initiatives for exploring their disaster experiences and preparedness at family level and transforming them disaster resilient. Therefore, it is crucial to assess the disaster experiences and preparedness of the Orang Asli families and to develop a conceptual framework towards building disaster resilient Asli community. To achieve this objective, this study has set the following questions in case of Orang Asli families in Tasik Chini.

1. What are the experiences of disaster among the Orang Asli families in Tasik Chini?
2. What is the type of disaster preparedness among the Orang Asli families residing Tasik Chini?

3. Methodology of the study

A qualitative research design was employed to examine disaster experiences and disaster preparedness of the Orang Asli people in Tasik Chini, Malaysia. The Tasik Chini is selected as the study area as it is one of the most affected area in Malaysia by frequent disasters and no comprehensive study regarding social capital and disaster preparedness has been associated with the location and the people living in it. Tasik Chini is a lake near the Pahang River in Pahang, a central state in Malaysia. It is the second largest freshwater lake in Malaysia where an Orang Asli tribe also known as Orang Jakun lives [12]. The population of this area is approximately 500 people. Almost all of the residents living in the Tasik Chini area are either the indigenous people or Malay. There are five villages in Tasik Chini such as Kg. Gumum, Kg. Melai, Kg. Chenahan, Kg. Ulu Gumum and Kg. Ulu Melai (Kg. = Kampung means village in Malaysia). However, Kg. Gumum was selected for this study as most of the Orang Asli people live in this village.

There are about 100 Orang Asli families live in Kg. Gumum village of Tasik Chini. Ten (10) families were purposively selected from the village to take part in the study. A family member from each family was chosen to participate in the interview. A semi-structured interview questions were used by the researcher to conduct interview session with the selected respondents. Thus, the selected respondents were interviewed using a set of questions related to disaster experiences and disaster preparedness. Disaster experiences were divided into positive and negative while disaster preparedness was categorized into five key themes such as early preparedness/safety protection, knowledge and participation, quick response, recovery and community ability (mutual trust and mutual help) as illustrated in Fig. 1.

This study utilises the qualitative data analysis technique as a process of noticing, collecting, and thinking about interesting things [22]. Among the qualitative data analysis techniques, thematic analysis was chosen by this study to examine the disaster experiences, knowledge and preparedness. The thematic analysis identifies, analyses, and reports patterns or themes within the data, and organises and describes the data set in detail [23]. The benefit of thematic analysis is its flexibility that allows for a theoretical freedom which provides a rich and detailed discussion of the data [24,25]. This study explains the major themes and their interconnection, and determines the way forwards. The methods of this study is summarised in Fig. 2.

4. Results and discussions

The study explores the disaster experiences of the Orang Asli community along with their socio-economic status and disaster preparedness. However, the results from collected data and their related discussion are presented in the following sections:

4.1. Socio-economic scenario of the Orang Asli

Orang Asli is a tribal community who lives in Malaysia. They have their own customs and traditions and culture. According to the annual report of the JAKOA (Department of Orang Asli Development) which is formerly known as the Department of Orang Asli Affairs or JHEOA, about 147,412 Orang Asli live mostly in Pahang and Perak [26]. It is estimated that about 77% of the Orang Asli population remains under the poverty line where 35% is classified as hard-core poverty, compared to 1.4% nationally [27]. However, this study has been identified some basic socio-economic characteristics of the Orang Asli which is presented in Table 1. The study reveals that all the respondents have included in the Jakun ethnic group among the recognized groups of Orang Asli in Malaysia. The Jakun are the second largest aboriginal group among the nineteen Orang Asli people groups of Peninsular Malaysia. They are closely related to the Malay people and officially called Proto-Malay [28]. Based on demographic profile, the respondent consists of five male and five female aged between 23 and 61 years. Most of the respondents were middle aged where only one was below 25 years and two was above 50 years.

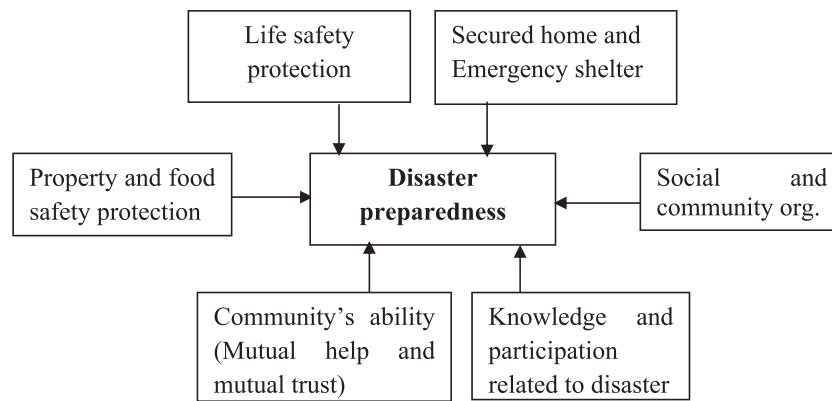


Fig. 1. Disaster preparedness of the Orang Asli families.
Source: Author.

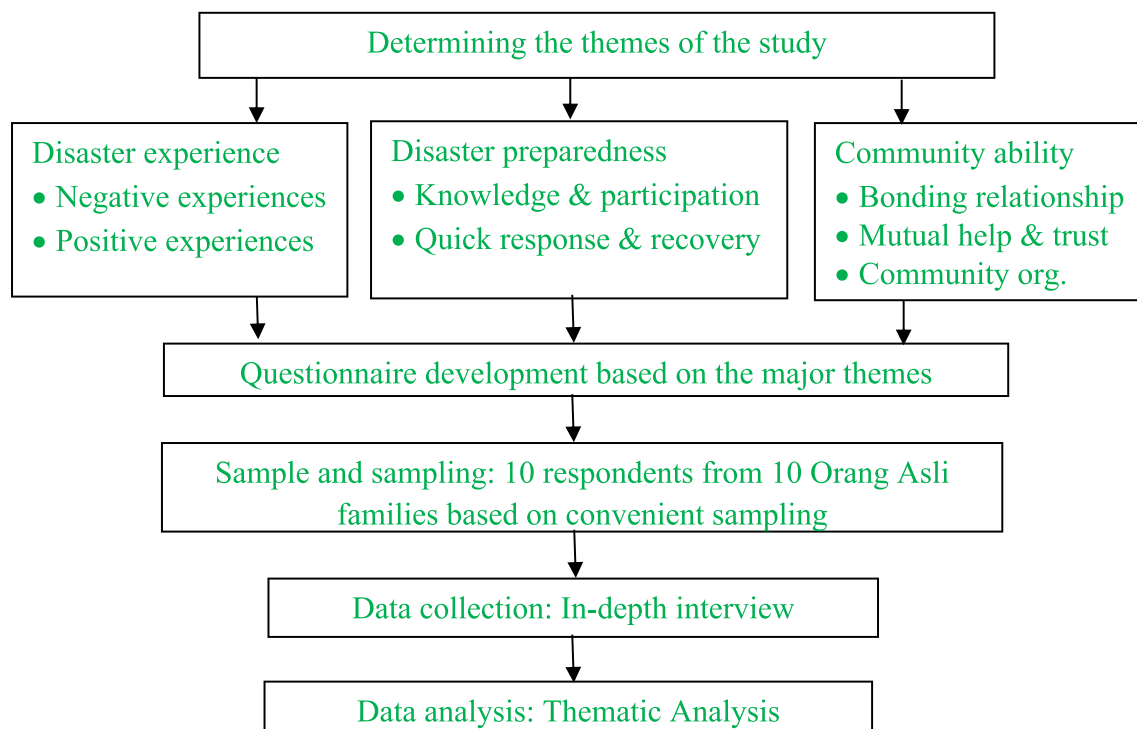


Fig. 2. Methods of the study.

The Orang Asli is an ethnic community that is still in backward position in terms of socio-economic condition. This study has attempted to determine their socioeconomic characteristics which are presented in Table 2.

Table 1
Respondent characteristics among the Orang Asli families.

Code	Age	Sex	Household head	Ethnic group
R1	51	Male	Household head	Orang Asli (Jakun)
R2	40	Female	Household member	Orang Asli (Jakun)
R3	35	Female	Household member	Orang Asli (Jakun)
R4	25	Female	Household head	Orang Asli (Jakun)
R5	25	Male	Household member	Orang Asli (Jakun)
R6	61	Male	Household head	Orang Asli (Jakun)
R7	27	Female	Household head	Orang Asli (Jakun)
R8	35	Female	Household member	Orang Asli (Jakun)
R9	27	Male	Household head	Orang Asli (Jakun)
R10	23	Male	Household head	Orang Asli (Jakun)

Note: R1-R10 = Respondent 1 to 10.

In case of education, most of the surveyed respondents (5) found in the secondary level education while three was in primary level education and two was not any schooling experience. It is mentioned that majority of the aged Orang Asli had limited educational experiences. However, it was observed during survey that orang Asli families are currently sending their children to school and the teachers are visiting the Orang Asli's house and encouraging them for sending their children to the school. Average age of the respondent was found to 35 years where the aged and young Orang Asli was included for the survey.

Occupation for the Orang Asli community has found almost homogeneous. It was found that most of the family members of the Orang Asli were employed as rubber tapper under the RISDA (Rubber Industry Smallholders Development Authority) programs. However, some are involved in self-employed such as fishing and private job.

The surveyed respondents have been categorized both male and female equally where 5 males and 5 females have been selected from the 10 Orang Asli families in Tasik Chini. The study found that the average family size of Orang Asli people was 4.9 where 3–5 and 6 family members were found in

Table 2
Socio-economic component of the Orang Asli respondent in Tasik Chini.

Characteristics	Category	Frequency (number)	Mean
Education	• No schooling	2	
	• Primary	3	
	• Secondary	5	
Occupation	• Student	1	
	• Self employed	2	
	• Private	2	
	• Rubber tapper	5	
Age (years)	• 21–40	7	35
	• 41–60	2	
	• 61–70	1	
	• Male	5	
Sex	• Female	5	
	• 3–5	6	
Family size	• 6	4	4.9
	• Yes	6	
Household head	• No	4	
	• RM100-500	7	
Monthly income	• RM501-900	3	440

six families and four families respectively. However, the special characteristic was observed that some of the Orang Asli families live together in a house. This result is slightly higher than the Mok et al. [29] study as it revealed that the average household size in Malaysia was 4.3 persons where about 56% were small size households (less than 5 person), 37% were medium size (5–7 persons) and 8% were large (8 or more persons). Most of the Orang Asli family head is the male member of that family. However, this study found two female members as the household head. Orang Asli people is a low-income community in Malaysia. The average monthly income of the surveyed respondent was estimated to RM440 where only three respondents were found monthly income more than RM500. However, monthly income of the Orang Asli families is very much lower compare to average household income (RM4585) for Malaysian in 2014 [30]. Considering the socio-economic status of the families, Orang Asli can be treated as vulnerable community. Thus, it is crucial to address their socio-economic vulnerability as they are also prone to disaster.

4.2. Disaster experience of the Orang Asli community

Disaster experiences are obtained by the people when they face disaster in their environment. People generally face negative experiences and impacts due to disaster. But, sometimes, people can gather some positive experiences from disaster including early preparedness, mutual help and patience. Thus study defines disaster experiences as the experiences including negative and positive that have acquired by the Orang Asli families from disaster happened in the past years. Orang Asli lives in Tasik Chini which is a disaster-prone area in Malaysia. Flood is a common and frequent disaster event that affecting them. This study found that most of the families of Orang Asli have faced disaster especially flood in the past years. The study explored that disaster brought some sort of bad and good experience to the Orang Asli families. Fig. 3 shows the disaster experience of the Orang Asli families in Tasik Chini.

This study found that Orang Asli families have faced a number of negative experiences and impacts due to disaster especially flood occurrences in Tasik Chini. Three families stated that they faced financial losses when they affected by flood while one members of a family was physically injured during flood. It is also noticed that four Orang Asli families claimed that they lost different asset and necessary belongings due to flood events. However, no life losses were found in the Orang Asli families due to flood occurrences. Moreover, eight respondents claimed that their families vacated houses and shifted to other places including shelter during flood event.

On the other hand, some positive experiences have gained by the Orang Asli families due to disaster. As victim of disaster, Orang Asli families have learned and observed some good lessons. Early preparedness is very crucial to minimize the impacts of disaster. Seven respondents stated their opinion that they have learned about the need of early preparedness for the

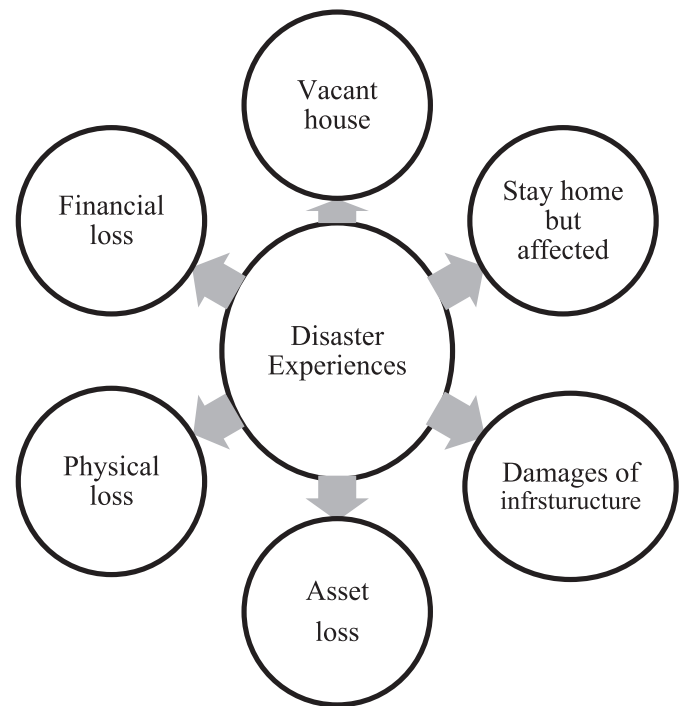


Fig. 3. Disaster experience of the Orang Asli people in Tasik Chini.

upcoming disaster where five respondents mentioned that making patience was another learning of flood. Mutual help is essential to increase the bond-age among families and to reduce the negative impacts of disasters. Three respondents agreed that mutual help was another positive experience of disaster while three respondents said that flood made them more strong and positive. The findings relating to positive experiences can be useful for minimizing the negative experience of future disaster event (Table 3).

4.3. Knowledge and participation of the Orang Asli families relating to disaster

It is crucial to know the disaster related information and participation in the awareness raising programs to reduce the impacts of disaster [31]. There is also need some early preparedness measures for minimizing the loss of disaster. Table 4 presents the results of the knowledge and participation of the Orang Asli families in Tasik Chini due to disaster.

The study observed that Orang Asli people are well known about the disaster proneness of Tasik Chini as almost all surveyed Orang Asli families stated that Tasik Chini is a disaster proneness area. Government of Malaysia has established a flood relief centre or shelter which is known as Balairaya. During the flood time, people shift them to the Balairaya. Table 4 reveals that most of the surveyed respondents (7) know about the existence of flood relief centre or shelter in their village (Kampung Gumum). A government agency is working for the development of Orang Asli community known as JAKOA (Department of Orang Asli Development) under the Ministry of Rural and Regional Development [32]. Most of the Orang Asli people are keenly aware of the existence of JAKOA. There is also a Village Development and Security Committee (JKKK) working for the betterment of the society. The study found that the majority of Orang

Table 3
Disaster experience of the Orang Asli families in Tasik Chini.

Negative experience	Positive experience
Financial loss (3) ^a	Learning for early preparedness (7)
Physically injured (1)	Patience (5)
Loss of assets and belongings (4)	Mutual help (3)
Life loss (0)	Be careful (1)
House vacant and shifted to another place (8)	Be strong and positive (3)

^a (Frequency of respondent).

Table 4
Knowledge and participation of the Orang Asli families related to disaster.

Theme	Key issues	Frequency	
		Yes	No
Knowledge	a. Disaster proneness of Tasik Chini	8	2
	b. Existence of flood relief centre or shelter (Balairaya)	7	3
	c. Existence of Government agency (JAKOA)	7	3
	d. Existence of JKK (Village Development Committee)	8	2
	e. Existence of Flood Management Committee	2	8
	f. Get warning for pending flood	5	5
	g. Get Flood information from media	5	5
Participation	a. Participated in rescue program	7	3
	b. Participated in awareness program	2	8
	c. Willingness to participated in awareness program	4	6
	d. Willingness to be a member of flood management committee	3	7

Asli people knew about the existence of JKKK. However, a flood management committee is working in the village but most of the surveyed respondents did not recognize its existence.

Participation in disaster preparedness is another crucial element for reducing the risk of disaster events. The capacity building of people at the local level requires a multi-stakeholder's involvement at the local level including community-based organisations, non-government organisations, community groups, local government organisation and the local people [33]. This study found that most of the surveyed respondent participated in the rescue program. However, their participation in other awareness programs and their willingness to participate in awareness program and flood management committee had found to low. However, knowledge for better understanding of disaster risk and participation to disaster risk reduction are found crucial to limit the negative impacts of disaster especially at local context [34,35].

4.4. Disaster preparedness of the Orang Asli families

Early preparedness is another crucial measure to reduce the risk of disaster events through protecting the health and safety of family members, vulnerable populations and community members as well [36] [52]. Disaster preparedness includes storing necessary food, clothing and first aid box, emergency shelter, training and information on safety procedures, risk assessment, and the capacity building for quick response and recovery operations [36]. Moreover, Muttarak and Pothisiri [54] identified six actions as disaster preparedness such as observation of the situation, preparation of survival kits, evacuation plan, emergency plan, inspection of house structure, and other preparations to examine the disaster preparedness. Thus, protection measures are vital for disaster preparedness that enables people to protect life, property, buildings, equipment, food and vital records [36]. A number of indicators have been considered to explore the level disaster preparedness of the Orang Asli families which is presented in Table 5. The results show that most of the Orang Asli families are lacking early preparedness measures. This study explored that only one family had life safety protection while nine respondents informed that their families had no life safety protection. Moreover, food safety protection and property safety protection was found in one family and three families respectively. Though maintaining emergency food staff for the upcoming disaster is an important measure of disaster preparedness, majority of the families did not maintain an emergency food staff for a sudden disaster. Three families had property safety protection as they built a box below the roof of the house to keep all necessary goods and services there. The study found that people were aware of protecting their important documents as six surveyed respondents opined that they become aware of protecting their important documents such as IC and grant paper. Safekeeping of household assets/personal belongings are considered as crucial elements of disaster preparedness [53]. Secure home is another vital component of disaster preparedness where three families stated that their house was secure from flood while houses of seven families were not secure from flood event.

Table 5
Disaster preparedness of the Orang Asli families in Tasik Chini.

Themes	Key components of disaster preparedness	Yes	No
Early preparedness	Family have life safety protection in the house	1	9
	Family has property safety protection	3	7
	Family store/maintain an emergency food staff	1	9
	Protection of important documents (IC, grant paper etc.)	6	4
	Do you think that your home is secure from flood?	3	4
Quick response	Willingness to conserve water/electricity due to emergency	9	1
	Shifting necessary things to Balairaya (Shelter)	5	5
	Received transport facilities during disaster	2	8
	Got food support during disaster	7	3
	Received medical facilities during disaster	3	7
Post disaster recovery	Building house by the government after disaster	1	9
	Got financial support from government agency	3	7

This study found that five families vacant their houses and shifted their necessary belongings to the Balairaya (flood relief centre).

Some coping strategies such as shifting necessary things, transport facilities, food support and medical facilities have been provided by the different agencies during flood. This study found that five families vacant their houses and shifted their necessary belongings to the Balairaya. Two respondents stated that their families received transport facilities during disaster and seven families got food support while three families received medical facilities during disaster from different organisation. The study also found that government built a house for one family which is shown in Table 5. The finding indicates that government and local agencies are working for the Orang Asli families but it reveals some missing linkage with the community connection and empowerment.

4.5. Community attributes of the Orang Asli

Community's ability is highly crucial to manage and reduce the impacts of disaster. As an ethnic community, Orang Asli people have some strength and weakness regarding the attributes of the community. Orang Asli community maintains good family bonding within and between families. Moreover, mutual trust and mutual help exist among the community members. This study found that nine respondents from the Orang Asli families stated that villagers have their willingness to help their neighbors during disaster (Table 6). Majority Orang Asli people get along each other with their neighbors and they are trusted while one respondent has expressed negative reaction in terms of trust. The study also reveals that Orang Asli people share almost similar values and culture which helps them to distribute resource and work each other during the time of disaster. A number of organisation is working in the village such as JAKOA and JKK which responds to the community need following a disaster. However, this study has explored one of the weaknesses of the community that nine out of ten respondents are not involved in the any community or social organisation. It is mentioned that most of them have the unwillingness to involve such organisation. Thus, they are detached form linking network in terms of organisational involvement and connection. Another interesting feature

Table 6
Respondent opinion about the village people and community's ability.

Issues related to community's ability	Yes	No
Good bonding within families and neighbors	8	0
Villagers have the willingness to help their neighbors	9	1
People in this neighborhood get along with each other	9	0
People in your neighborhood can be trusted	7	1
People in this neighborhood share similar values	9	0
Community distributes resources (labor/money/food) during disaster	9	1
People will work with each other during disaster/disaster recovery	8	1
Organisations and individuals are ready to respond to the community's needs following a disaster	8	2
People are involved in community organisation	1	9
Satisfied with the performance of the local government organisation	2	0

has identified that most of the respondent from the orang Asli families did not response about the performance of the local government agency. It is observed that they provide a mixed reaction on this issue. Some of them said that they are somewhat satisfied, but they expect more from the government agencies. This indicates that somehow they have lack of trust on the local government agency which requires more appropriate strategy for enhancing their trust on the government agency.

4.6. Organisational existence in the Orang Asli community

Transforming local capacity and strengthening social function are crucial for disaster risk reduction at local level [37]. This study has found that a number of organisation is working for the development of the Orang Asli community. For Example, a government agency is working for the development of Orang Asli community known as JAKOA (Department of Orang Asli Development) under the Ministry of Rural and Regional Development. The key objectives of this department are to improve the standard of living though increase their income, infrastructure facilities, social amenities empowerment of the Orang Asli people [32]. Another important committee which is also known as JKKK (Village Development and Security Committee) is actively engaged for the community development. Orang Asli community has a village head who organise them and disseminate information. The People's Volunteer Corps (RELA) is a paramilitary civil volunteer corps formed by the Malaysian government. Their main duty is to provide voluntary service during emergency situation. A village head is an honorary position in the Orang Asli community, but he is very important to different organisation such as government agency or police as the provides information to him and he passes it to the people. The summary of the organisations that are working for the Orang Asli community is presented in Table 7.

4.7. Framework for building disaster resilient community

Disaster resilient community refers a community that can manage the impacts of disaster with their own ability [38]. As the Orang Asli families are affected by disaster and they are lacking of preparedness measures, thus, it is crucial to make them disaster resilient., community based approach is considered as one of the useful tools to increase the capacity of the community to deal with disaster [19,39,40]. Moreover, social or community based organisations (CBOs) can play crucial role to reduce disaster risk at local level [41]. Resilience of the people can be accelerated through livelihood centred approach [19] and integrated approach [42]. This study provides a framework of linkage between disaster experiences and disaster preparedness for building disaster resilient Orang Asli community in Fig. 4. It is mentioned that Orang Asli community have some strengths and weaknesses. The strengths should be utilized and weaknesses should be removed for further intervention towards promoting disaster preparedness and resilience. However, as an ethnic community, Orang Asli like to protect their own culture and tradition. This intention of the Orang Asli need to be

carefully address by providing priority of their culture for taking any measure and actions. There is also need to promote Orang Asli families to participate in awareness and training programs and ensure their access to resources and support from local government agencies and NGOs (Non-government organisations). A strong community organisation should be established to enhance community empowerment. Several interventions strategies with the support from local government such as promoting multi-stakeholders approach relevant to the local context, focusing on community empowerment and engagement, local capacity and resources and socio-economic improvement are required to enhance community resilience [34,43]. Moreover, community-driven and evidence-based community intervention could be useful to build community resilience to disasters. Community resilience can be promoted by encouraging and supporting community participation and cooperation, communication, self-awareness, and local values and culture [44–46]. Therefore, this study suggests an inclusive disaster preparedness policy for the Orang Asli families which reflect their opinion and culture. The National Disaster Management Agency (NADMA) can assist to make such policy with the help of JAKOA (Department of Orang Asli Development). Finally, JAKOA can take the leading role for making a strong community organisation towards implementing all suggested interventions which would be useful to build a disaster resilient Orang Asli community.

5. Conclusion

Disaster experiences are very important that helps to promote early preparedness and quick response as well as increase the awareness of the people. Orang Asli people are very low-income community in Malaysia where majority of the families live in below poverty line. The livelihood of the Orang Asli families are also affected by disaster especially flood. Orang Asli families in Tasik Chini face a number of negative experiences and impacts while they gain some positive experiences due to disaster occurrences. The study reveals that the Orang Asli families have knowledge regarding the disaster risk in their surroundings, but majority of them had no interest for participating disaster risk reduction programs and willingness to participate in the awareness program. Moreover, Orang Asli families are lacking of disaster preparedness. However, strong bonding between families and neighbors exists in the community. As an ethnic community, they want to protect their own culture and values. This could be the basis to establish a strong community organisation which can ensure their culture and enhance the ability of the community to deal with impacts of disaster. The different organisations with support of community organisation promote the Orang Asli families to actively participate in campaign, workshop and training programs which would increase their knowledge and participation in order to reduce the disaster risk in Tasik Chini. There is also need to promote income generating activities and provide support and services from the local government agencies and NGOs to uplift their livelihood. An inclusive (Orang Asli centered) policy is highly essential to address the negative impacts of disaster and promote disaster resilient community.

This study could contribute community disaster preparedness and resilience at local context. The Department of Orang Asli Development (JAKOA) could be benefited by this study as this organisation is actively engaged in the development of the Orang Asli community in Malaysia. The findings of this study relating to disaster experiences and disaster preparedness of the Orang Asli families would be useful for this organisation towards taking proper actions and initiatives for the Orang Asli families. Moreover, this study could also be utilized by the National Disaster Management Agency (NADMA) for making appropriate policy design especially for the poor and low income community to lessen the impacts of disaster. Furthermore, this study would be useful to the national policy makers, local agency, emergency responders, and researcher and community organisation to make appropriate policy, program and priorities that will enhance disaster resilience and preparedness of the Orang Asli families in Malaysia.

Table 7
Organisation working for the Orang Asli community.

Organisations	Main responsibility
JAKOA (Department of Orang Asli Development)	Improve the standard of living though increase their income
JKKK (Village Development and Security Committee) or JKK (Village development committee)	Community development, community safety and mutual help
Department of Flood Protection	Flood risk reduction
Chini Lake Research Center, Universiti Kebangsaan Malaysia	Conduct research and policy recommendation
RELA (People's Volunteer Corps)	Volunteer service during emergency
Village Head	Organise people and disseminate information
Rubber Industry Smallholders Development Authority (RISDA)	Development of the smallholder rubber growers

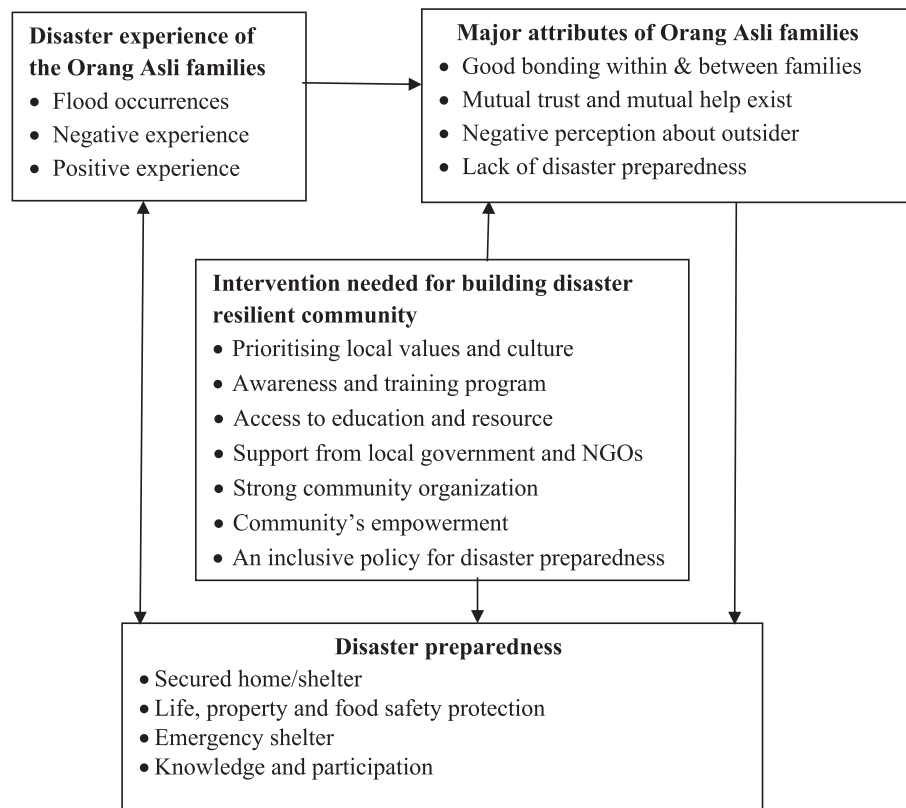


Fig. 4. Linking disaster experiences and disaster preparedness for building disaster resilient Orang Asli community.

CRedit authorship contribution statement

Sumaiya Sadeka: Conceptualization, Investigation, Writing - original draft, Writing - review & editing. **Mohd Suhaimi Mohamad:** Supervision, Methodology, Validation. **Md. Sujahangir Kabir Sarkar:** Formal analysis, Conceptualization, Writing - review & editing.

Declaration of competing interest

There is no conflict of interest to publish this manuscript.

Acknowledgment

The authors would like to thank Universiti Kebangsaan Malaysia for the financial support through the UKM Research University under the project "Equality in Education: Community Empowerment for the Orang Asli at Tasik Chini" (Code: LIV-2015-05).

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