Society of Awareness Survey To The Flood Disaster in Walennae Watershed of Indonesia

by Mukhsan 03

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ABSTRACT

In recently years, flood disaster and landslides by extreme weather are commonly in entire of the world, has been hapened seriously damaged. Based on IPCC 4th report, the increasing of disaster and global warming was effecting by extreme weather. In Japan, the degress of population in rural areas and capital cities have been happened because global warming disaster. In prosperous country, this research has been implemented in Indonesia. Beside that, Indonesia with fully attention commited to conduct of effective steps for preventing of flooding disaster. In Japan, there are two devices are used to prevented of flood namely hardware and software. In prosperous country, over handling by hardware gave problem than over handling by software with developing alertness communities and mutually in case natural disaster. Therefore, our study tried to compare the differences in characteristics of rainfall and flooding in different climate zones by conducting surveys and interviews. More details, comparing the results of a survey among the events the same question in a hard rain in Amami Oshima Japan 2010 (taietal, 2010) with the people who live in Walennae watershed district. Wajo, South Sulawesi, Indonesia. Walennae watershed is proned to floods in 2002, 2006, 2010, 2011 floods and caused seriously damaged. In this study extensive flood damage Walennae Watershed obtained from the interviews were divided into 3 regions and focused on the damage, flood behavior and community preparedness. From this study produced two major things namely firstly, In the flood prone areas in the watershed Walennae government attention is still lacking, the existing mutual aid between communities and secondly, In flood-prone areas are people doing everyday activities.

Keywords: Flood, Disaster, Walennae Watershed, Evacuation Activity

1. INTRODUCTION

Flood and sediment disasters due to abnormal weather frequently occur in all over the world, causing major damage. The 4th IPCC Assessment Report predicts that these disasters will increase with the advancement of global warming. As such, it is necessary to take measures that will reduce the risks from these hazards. In Japan, effective measures are required, both in urban and rural areas, because of an age of a shrinking and aging population and declining fertility. In many developing countries, including Indonesia, the target country of this study, little progress has been made regarding policy measures for disaster prevention and extensive damage currently occurs with each flood. While disaster prevention incorporates both "hard" and "soft" measures, the common problem in rural areas of Japan and developing countries is that it is unlikely that they can expect immediate development of "hard" measures. This is why it is essential for the rural areas to implement "soft" measures. Self- and mutual-help disaster prevention activities by the residents during disasters is a potential "soft" measure and these activities can be made more effective by enhancing the preparedness for disasters on a daily basis and strengthening local communities. In this research, oral surveys were conducted with the residents in areas with different precipitation and flood characteristics in different climate zones, corresponding to Indonesia and Japan. Surveys similar to those used by Tai et al. (2011) concerning the Amami Oshima Rainstorm in 2010 were conducted for River Cenrana'E in Indonesia.

2. STUDY METHODS

The surveyed area is District Walennae of River Cenrana"e flowing out from the Tempe Lake of Sulawesi Island, as shown in Figure 1. The district is one of the frequently flooded areas in the Cenranae, as shown in Picture 1. The Bugis Tribe, a minority group in Indonesia, lives in District Wallennae; shown in Picture 2. Flood damage in 2002, 2006, 2010, and 2011. An oral survey was conducted regarding residents' actions during floods and daily preparation as shown in Table 1.

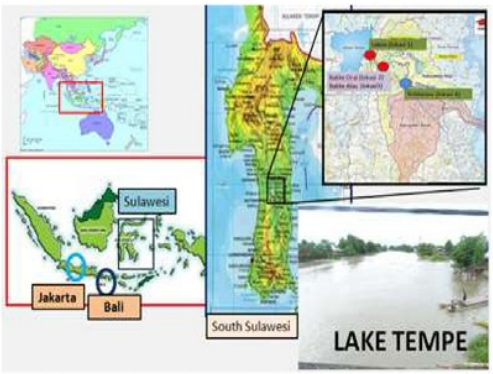
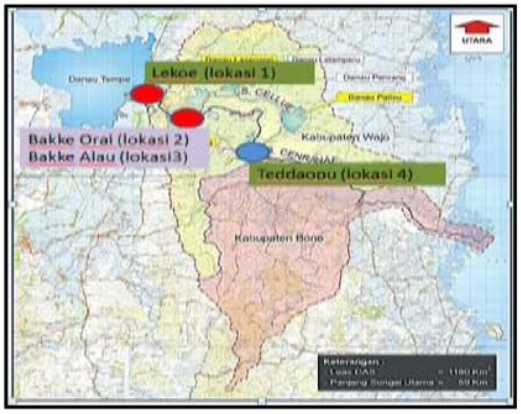


Figure 1. Tempe Lake at Sulawesi Island, Indonesia



Picture 1 The district is one of the frequently flooded areas in the Cenranae.

Picture 2 Lives in District Wallennae, The Bugis Tribe, Indonesia

Tabel 1 Actions of residents during floods and preparation before the flood

Action	Location		
	Upstream	Downstream	Area without flooding
Preparation before the flood	1. Plantation result that can pluck 2. Preparing the boat	1. Preparing the boat, reinforce home floor, and the foundation. 2. They set breakwater at the door, so water can't entering to the house.	
Flooding	Agriculture equipment saves from water (entered to the boat), and find the muster point.	1. Assembling bamboo to make road and other facilities that broken because the flood 2. When the water comes tide, evacuate some items to the higher place in the house (attic), and they can stay at the attic in their house.	Help their parents / old peoples to rescue and help other peoples to save their items.

3. RESULTS AND DISCUSSION

3.1 Results

Survey results were obtained from 18 households in the areas subjected frequent flooding and in Sengkang City, which is an evacuation destination during flood. In many cases, all family members answered the survey and the number of people surveyed is far greater than the number of households. Therefore, it is considered that the number of respondents is sufficient to assume the results are representative of the common opinion in the basin. Cenranae. selection of the survey results is shown in Figure 2.

(a). Upstream

(b). Downstream

Floods in this basin occur due to a rise in the water level of Tempe Lake. In many of the floods, the river water level rises by a few dozen centimeters per day and the time of water level rising/lowering, as well as the duration of inundation is longer than common floods in Japan. Due to these flood characteristics and absence of government evacuation procedures, locals monitor the water level and make the decision on evacuation themselves. Children and the elderly people offer suffer during floods if the evacuation timing is too late or when they venture out into unsafe conditions.

As shown in Picture 2, most of the houses in this district have a one-story hall and residential space on the second floor. The houses' structure enables residents to move important items to the attic of the second floor in the event of a flood. Many houses are equipped with an evacuation boat on the first floor **(Picture 3)**. In the event of a flood that requires people to evacuate, the water reaches the height of roof of the second floor **(Picture 4)**.

Picture 3 Houses' structure enables residents to move important items to the attic of the second floor in the event of a flood and houses are equipped with an evacuation boat on the first floor.

Picture 4 The water reaches the height of roof of the second floor.

Many of the respondents were born in this district, and as shown in Figure 2, although the district is a frequent flooding zone, most respond that they are "not particularly conscious" of the floods and they see floods not as a special thing but as a usual event.
Many of them answer to the question regarding the administrative procedures that they would like to be provided with bamboo for reconstructing houses and with food during evacuations. In addition, some respondents answered that earthwork should be implemented for the Tempe Lake as a countermeasure against flooding.

3.2 Discussion

The following section describes a comparison with a similar survey in Japan (Tai et al. 2010) and the lessons for the future.
One of the causes of damage in flood disasters in Japan is that due to rapid urbanization, levees and dams have been constructed so that people can live in in areas that are originally flood prone (Hashimoto et al. 2013). Such areas are significantly prone to floods of scales greater than anticipated in the flood control plan. On the other hand, many residents have lived in the district for generations and their lifestyle is based on their understanding that the district is a frequent flooding zone. The Indonesian survey respondents had lower expectations regarding the disaster measures implemented by the administration, compared to the expectations reported in the Japanese survey. Furthermore, residents of Sengkang City, to which people evacuate to in the event of a flood, offer protection to the evacuees as a matter of course. This is because of the deeply rooted concept of "SIPAKAIGAT" a word from the Bugis language, which means, "other people's suffering is my suffering as well." In Japan, where administrative services have been developed, people tend to depend on the administration in many cases including the times of emergency and the consciousness of self- and mutual-

protection is much less than that of the people River Cenranae in Indonesia. However, flood disasters due to the influence of climate change frequently occur in Japan. Enhancement in the personal consciousness of flooding, as exhibited by the people of River Cenranae in Indonesia, would be beneficial, especially in rural areas where construction of large-scale flood control facilities in the future is unlikely.

4. CONCLUSIONS

Oral surveys on the consciousness of flooding have been conducted with residents in the River Cenranae in Indonesia. The results have been compared with the results of similar survey conducted by Tai et al. (2011) in Japan. The major results of this study show that:

(1) due to the small contribution of the government to disaster prevention in the River Cenranae and other frequent flood zones, consciousness of self- and mutual-help in this region is very strong; and

(2) people's lifestyle in these areas is based on the premise that floods occur frequently.

In the future, intensification of disasters due to climate change is anticipated. This means that disasters beyond current projections may occur in the areas where flood control facilities are developed under the current standards. As exemplified in the case of Japan, many people living in such areas live their lives on the premise that they will not suffer from flood damage, and as such, are extremely vulnerable to flood disasters. In addition, costly measures such as flood-control dams are not likely to be implemented in rural areas in Japan. In these cases, it will be necessary to alter peoples' flood consciousness and lifestyles, and create communities with a strong in-built resistance to flooding, as described in the results of this survey with the residents of River cenranae in Indonesia.

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