

A Study of Awareness of Flood Response among Flood Victims

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Abstract. Natural disasters pose significant threats to the modern society. In particular, local downpours of the several past years cost residents in flood-prone areas increasing human casualties and property damage. Yet, the disaster response measures in place at the moment go only as far as informing residents of applicable code of conducts or insufficient disaster information, failing to enable proper responses to disasters. In a survey conducted on floods in response to such trend, it was found that the residents in the flood-prone areas were not sufficiently prepared for potential floods in terms of their awareness and counter-disaster training or emergency response system. As a result, this study aims to suggest a set of guidelines for flood control system by analyzing the awareness of flood response system among applicable residents.

Keywords: Shelter, Evacuation Routes, Flood, Water Disaster, Consciousness Respond

1 Introduction

1.1 Background and objective

Recently, climate changes, which are the subject of public attention worldwide, are resulting in changes in precipitation pattern involving local deluge of 100mm/h and exposing the modern society to the risks of natural disasters. In addition, the number of localized torrential rain is expected to increase from 2.7 days in 2010 to 3.6 days by 2020 and 4.5 days by 2050 [1]. Preceding studies have already emphasized the im-

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portance of flood control capabilities including hydraulic engineering facilities, evacuation strategies, and disaster relief activities, etc. [2]. As recent floods are characterized by localized discharge of rainwater resulting in accelerated flooding, it is essential to develop a safe and responsive evacuation strategy on the assumption that flood-prone areas are always exposed to the risks of flood. Therefore, this study surveyed the residents of flood-affected towns in Nogok-dong, Buk-gu, Daegu who were hit by two consecutive floods in a year in a bid to examine actual operating practices of disaster response system. Based upon the experience of the flood victims found in the survey, attempts were made to contribute to overhauling flood control system and reduce human casualties.

1.2 Scope and methodology

This study conducted a survey of the residents who suffered floods in Nogok-dong, Buk-gu, Daegu on the flood control system and disaster relief supplies. As Nogok-dong was flooded two consecutive times in July and August 2010, the district was deemed to be a suitable candidate for a survey on the awareness of flood control system among local residents. The survey covered various items related to flood control system. To be more specific, awareness of evacuation shelter and path, their accessibility, satisfaction with relief supplies among the flood victims, and supplies preferred by them were surveyed.

2 Survey of Flood Victims on Disaster Control System

2.1 Overview of Guideline and Relief Supplies for Flooded Area

The disaster safety headquarters of Buk-gu, Daegu City install signs indicating evacuation guidelines, shelter locations and paths for residents in response to disasters (Figure 1). Nogok-dong was flooded consecutively in July and August, 2010 as localized torrential rain of 75mm/h overloaded the dust catcher and jammed the flood control screen with impurities [3]. 62 buildings and 118 vehicles were flooded and 14 people injured in the wake of the first flood, 82 buildings and 48 vehicles were flooded and 8 people injured in the second [4].



Fig. 1. Residents disaster preparedness actions signs in Nogokdong, Buk-gu, Daegu

2.2 Status of Evacuation Shelters and Paths in the Flooded Area

Rooms of three houses (owned by Messrs Kim, Lee, and Cho) are used as evacuation shelters in Nogok-dong, Buk-gu, Daegu City now. Table 1 below shows the capacity, area, and location of those shelters whereas Figure 2 above illustrates the status of such shelters and paths leading to them.

Table 1. Designation of shelter in Nogokdong

Classification	Owned by Kim	Owned by Cho	Owned by Lee
capacity	about 100 person	about 30 person	about 40 person
area	1,101.00 ^m ²	464.00 ^m ²	182.00 ^m ²
location	altitude 48m	altitude 43m	altitude 42m

* onnara land and building basic information

3 Survey Covering the Flooded Area

3.1 survey overview

The survey consisted of 18 questions covering awareness of evacuation shelters and paths and their accessibility, satisfaction with relief supplies, and emergency communication system. Nogok-dong was selected as the targeted area and 30 residents were chosen at random. Men accounted for about 63% of the respondents and women 37%, male respondents outnumbering female ones. In terms of age group, those aged 51~60

years accounted for the highest share of 43% and others aged 65 years or older amounted to 33%.

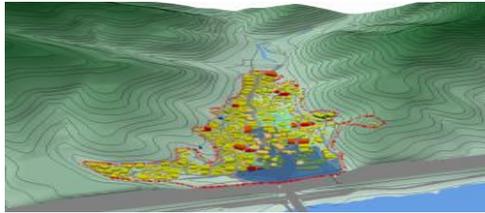


Fig. 3. Topography and flooding simulations in nogokdong [2]

As Nogok-dong covered in this study is vulnerable to flooding both from outside and within, it is designated as one of the chronically flood-prone area. Nogok-dong is more vulnerable to flooding attributable to sources within itself and adjacent to Kum-hogang River managed by the central government and Shincheon, Donghwacheon, and Palgeocheon, all of which are streams managed by the local government [2] (See Figure 3).

3.2 Awareness of Flood Control System among the Residents

Table 2. Water disaster experience of shelters recognition

Classification		yes	no
Have you ever experienced of flooding?		28	2
If the flood experience did you evacuate to shelters?		1	27

Classification	reason	result
1	Accessibility of Shelters	8
2	Residence of Inundation Before Refuge	13
3	Flooded path occurred en route to refuge shelters.	3
4	elderly and disabilities is uncomfortable accessibility	1
5	Careless attitude towards the evacuation broadcasting	2

According to the survey, only two out of 30 respondents said no when asked whether they experienced flooding. In addition, only one out of 28 who experienced flooding took refuge in one of the shelters. Table 2 shows the reasons why the rest of the people could not access the shelters. The primary reason was found to be that they were already isolated by flood even before they set off to the shelters. Furthermore, the shelters were not accessible enough physically or the paths leading to them were flooded in many cases.

4 Conclusion

This study surveyed the awareness of flood control arrangement among the residents of Nogok-dong, Buk-gu, Daegu City who suffered consecutive flood damages in July and August, 2010. The survey consisted of three categories of questions relating to evacuation shelters and paths, their accessibility, satisfaction with and preference for relief supplies, and disaster communication tools. This paper deals only with the survey findings on evacuation shelters, access paths, and their accessibility. It was found in the survey that the shelters were not sufficient in quantity and many residents were not even aware of their availability. Accordingly, this study is designed to provide inputs to subsequent studies to develop quantitative disaster control criteria governing evacuation paths, relief supplies, and disaster communication tools.

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