HOUSEHOLD BASED FLOOD RISK PREPAREDNESS; POLICY PROPOSAL

M.H. Rihan[1], M.G. Mohamed Thariq[1*]
Department of Biosystems Technology, Faculty of Technology, South Eastern University of Sri Lanka, Oluvil.

[1*]mgmthariq@seu.ac.lk

1. INTRODUCTION

A flood is defined by the Oxford Reference Dictionary (ORD) as an overflow or inflow of water beyond its usual bounds. When the volume of water in a water body or water channel is over its carrying capacity, the water overflows beyond the water body's normal bounds, causing flooding. Preparing for a flood allows the communities to react is connected dangers more efficiently (Adams, 2018). Household pre-flood preparedness encompasses all steps and policies implemented before an occurrence for the purposes of preparedness mitigation, and prevention is all important factors to consider. Planning, coordinating, learning, equipping, practicing, evaluating, and developing the capacity to prevent, react to, rebound from, and mitigate the effects of flood disasters are all part of the preparation cycle. Designing warning systems, planning for evacuation and reallocation, storing food and water, constructing makeshift shelters, devising management plans, and modeling disasters are all part of disaster preparedness. Preparedness and planning for post-risk response and recovery include contingency planning as well. According to a recent policy on household preparedness, improving community preparedness is the key to reducing Flooding disaster risk is connected to economic position and knowledge because top-down programs that do not engage communities seldom reach people who are most disaster-affected people and may potentially render them more vulnerable (Egli, 2005). As a result, the goal of this study was to analyze the flood risk preparation of Sri Lankan households.

1.1 Method of flood risk preparedness at the household level

The action of household-based flood risk preparation method can be divided into two ways these are physical household-based flood risk prepared and non-physical household-based flood risk prepared methods. The action of the physical method contains two parts these are permanent actions and temporary actions. Non-physical methods are normally temporary actions that like preparing the things those are using for living purpose such as food and dresses and the power source such as battery during the flood condition period and the awareness also include this non-physical method.

1.2 Physical household-based flood risk prepared method

Landscape design: Appropriate site drainage and controlling surface water runoff can reduce a property's flood risk by changing the region and the dangers that encircle the building. This might include the practice of greening the surrounding areas to improve subsurface drainage. Changes to the landscape design are often permanent and expensive for the entire society.

Building on elevated land: This is another method of avoiding flooding. This may be done successfully while new constructions are being built. As a result, landscape design must be considered throughout the new development planning process (Egli, 2015).

Elevation: Elevating a structure above flood level is a long-term and effective way to lessen flood risk. It is possible if the entire house is lifted or if a newly raised level within the house is built (Fema, 2014). A structure must first be detached from its base before it may be raised retroactively. After that, piers, columns or piles, posts, continue walls are used to build a new foundation or an expansion of the existing foundation (Aerts, 2014)

Barriers; Water infiltration into individual structures or greater swaths of land are divided can be stopped by permanent and/or moveable barriers (BMNT, 2014) Barriers include prevent logs, floodwalls, bunds, seawalls, and flood gates, as well as other semi-permanent structures. However, barriers must be maintained, and local drainage systems may be damaged to the point that flood issues for nearby structures are exacerbated (Fema, 2014). Commonly three types of barriers are used to the flood risk these are freestanding barriers (Stop logs), Floodwalls, and External flood doors.

Tubes (air and water-filled): Temporary barriers are made of geomembranes or reinforced polyvinyl chloride (PVC) tubes. Tubes can be filled with air or water, with the former requiring anchoring pins or weighted skirts and the latter relying on a dead load of water. Both types of barriers are impermeable and need pumping. (Ogunyoye *et al.*, 2011).

Containers that have been filled with water or aggregates (permeable and impermeable): Water or aggregates might be used to fill these temporary barriers. The deadweight of the containers acts as a stabilizing component, and they are either porous or impermeable. Geotextiles or geosynthetic fabrics are used to create permeable barriers. To keep them stable, wire meshes, pins, and frames are employed. The materials used to fill the containers also affect the waterproofness of the measures. Sandbags are a frequent example of this type (Poussin *et al.*, 2015). Sandbags, on the other hand, have a poor level of efficacy and are susceptible to collapsing or being overtopped during floods (Poussin *et al.*, 2015). Furthermore, filling sandbags takes a long time and requires a lot of effort. Because sandbags are non-reusable and may frequently retain toxins from sewage after floods, they create major disposal issues (Reeve and Badr, 2003).

Dry flood-proofing: Floodproofing that is not wet is used to keep water out of a structure that is at risk of flooding. In many circumstances, the solutions are ineffective against high-magnitude dynamic flooding and are consequently limited to up to 1 m of water depth The water pressure may then become too great for the walls of the structure to bear (Lasage *et al.*,2014). Furthermore, various procedures must be maintained on a regular basis, and they do not completely eliminate the need to escape in the event of a storm, as there is still a possibility of flooding. Furthermore, certain retrofitting may require invasive implementation (Fema, 2014). Examples of dry flood proofing are Flood proof basement windows, Sealed light shafts, Window and door guards, a Bitumen sealant is used to waterproof the cellar (black tank), Drainage, and watertight concrete is used to create a waterproof cellar (white tank).

1.3 Non-Physical household-based flood risk prepared method

Improving risk awareness: For a society to properly adapt to a flood danger, awareness is an essential component. When appropriate information is sparse or memories of earlier experiences or events disappear, awareness is diminished, according to this theory. Awareness

can be raised by focusing on local difficulties, providing basic flood-reduction measures, and continuing such efforts on a regular basis (Poortinga, *et al.,* 2011).

Financial preparedness and resilience: Cannon, 1994, Argues, that knowing about flood catastrophe risks and vulnerabilities is unless paired with an understanding of other economic systems, it is ineffective in limiting their consequences and people's financial capabilities to resist and recover from disasters, as well as this financial preparedness's assistance in purchasing and storing goods. During the data collection period, households were considered prepared if they had 11 items in their flood preparedness emergency kit. Emergency heat and housing, meals, instruments, water, training, battery-powered, developing an interconnection plan for evacuation where to go and whom to call, individual hygiene, battery-powered radio and/or mobile phone, first-aid kit, and important documentation wewasmong the 11 items in the emergency kit during the data collection process.

2. DISCUSSION

In this study, physical and non-physical household-based flood risk preparedness is depending on the individual house-holders economy and financial level. It was shown that households with a higher monthly income were more prepared than lower-income households (Phillips, 2005). Another research confirmed this, revealing that families this association might be an explanation for the increase, in order to lessen vulnerability and instability, greater knowledge, skills, and access to more information are needed. Which adds to household flood preparation. Human factors also including for the flood conditions such as building sited on waterways, poor drainage systems, development of slums, dumping trash down drains, and destroying vegetation those are should be controlled for avoiding flood conditions. Increased length of floods, which causes significant damage, might be one explanation, and it could improve a person's understanding of future threats and preventive methods. Above mentioned physical methods are suitable for particular places but non-physical methods are suitable for all times for household-based flood risk preparedness.

3. CONCLUSION

Flood condition is a serious socio-economic issue in Sri Lanka because this situation is destroying the people living places and also croplands. The goal of this initiative was to prepare household-based flood risk to protect people's lives and property. That physical and non-physical preparedness are could be an effective solution to overcome the household flood risk.

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