



# Attitude and flood preparedness of households in Thirunelveli, Thoothukudi, Thiruchendur

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**Abstract.** Thoothukudi, Thiruchendur, thirunelveli is a city that is often impacted by the rainfall floods resulting in the displacement of a large number of households as well as damages to crops, livestock and properties. The flood is occurrence that necessitates the community to prevent loss of lives and extensive property damage; however, previous studies have found that communities are unprepared to face flood disasters, especially southern districts in tamilnadu. Thus this study aims to determine the relationship between attitude towards flood preparedness and the level of flood preparedness of households Thoothukudi, Thiruchendur, thirunelveli in tamilnadu. A total of 110 respondents from 5 villages were selected with the assistance of the District Office to ensure the selection of villages with experience of flood or is flood-prone. Descriptive analysis was conducted to determine the level of attitude and flood preparedness. Results from the analysis found that the attitude and preparedness level was moderate. Therefore, it is suggested that the community's attitude and preparedness level can be further enhanced with the assistance of the responding agencies and local authorities to empower a more resilient community.

**Key Words:** *Rainfall Flood, preparedness, households, flood-prone*

## Introduction

The state of Tamil Nadu in Southern District frequently floods due to its location and climate. Every year during the monsoon season, heavy rains in various parts of the state result in flooding and other issues. The state has experienced catastrophic floods in the past, which have claimed lives and property. This article will discuss the causes, consequences, and preventative measures of floods in Tamil Nadu. More topics like this to help with exam preparation are available on our Tamil Nadu GK page.

A flood occurs when water overflows into dry land from a lake, river, or the ocean. Rising sea levels can result in flooding, and they are primarily caused by storms that occur near the coast, snowmelt, and excessive

precipitation. Floods that move quickly or slowly can still be very dangerous to people and property. In addition to destroying property, floods put people's lives in danger and drive them from their homes. Flooding is one of the most common and frequent natural disasters.

### **Literature Review**

One of the strategies for disaster risk reduction identified by the United Nations International Strategy for Disaster Risk Reduction (UNISDR) through the enhancement of community-based disaster risk management is for a community that experiences frequent flooding to be expected to be more resilient against disasters. The residents, local authorities, and responding agencies engage in activities and extensive role-playing as part of this approach that combines top-down and bottom-up methods. Increasing community awareness of flood risk, safe routes, flood warning message types, and emergency response protocols are some of the activities that fall under this category. As a top priority and a guiding principle of the Sendai Framework for Disaster Risk Reduction, community-based disaster risk management is promoted. This framework aims to reduce risk at all levels.

Since the community needs to be well-prepared since Southern District is frequently affected by floods, especially during the northeast monsoon, their attitude towards flood disasters reflects the community's preparedness. Previous studies have found that attitude was key determinant of disaster preparedness. Attitude is a potential habitual tendency towards a psychological matter with favorableness or un-favorableness. The Theory of Reasoned Action (TRA) explains the process of belief, which changes overtime and how belief influences the attitude through the Fish be in expectancy-value model. Thus, the attitude towards flood in this study can be described as the potential tendency to take preparedness measures for flood disasters. Subsequently, preparedness is being in a state of readiness to respond to a disaster or emergency.

Its main goal is to keep the community viable by safeguarding people's lives and property. To be saved, a person needs to be independent and self-sufficient for the first seventy-two hours after the calamity. A variety of self-defense techniques and preparatory actions, such as packing clothing and other necessities for an evacuation, arranging furniture in a way that minimises damage, and determining safe evacuation routes and evacuation facilities, are all part of being self-prepared. During disasters, these preparedness steps may lessen property damage, casualties, and loss of life. Research from the past has shown that even with great effort, people who are exposed to risks do not become prepared. Thus, the purpose of this study is to determine the community's level of readiness and attitude towards flood catastrophes in the Tamilnadu district of Thoothukudi.

### **1. Method**

The study employed a multi-stage sampling method to select respondents through flood evacuees data 2023 obtained from NADMA. Through the data obtained one state from each of the four zones (central, north, south and east coast) in southern districts in Tamilnadu was selected based on the highest number of evacuees within the zone. Thoothukudi, Thiruchendur, Thirunelveli was selected to represent the southern districts. Subsequently, the district of Thoothukudi, Thirunelveli was then selected as it recorded one of the highest numbers of evacuees in the state year 2023. The selection of the villages was made with the recommendation of the Thoothukudi, Thirunelveli district to select the villages (Table1) that experienced evacuation during a flood.

**Table 1**  
**List of villages selected.**

District	Population(N)	Villages
Thoothukudi Thirunelveli	16,530	Morapanadu, Alwarkarkulam , Agaram, Vallanadu, Naanalkadu Srivaikundam

Next, the households were selected with assistance from the head of the village. The head of the household was selected as the respondent; however, if the head of household was not present or unavailable, the spouse was selected. A total of 110 respondents were obtained during the data collection process. The data collection was carried out during December 2023 using self-administered questionnaires distributed to the respondents. Three sections were included in the questionnaire consisting of the demographic background of the respondents, attitude towards flood and flood preparedness.

Items in the demographic background include age, gender, education background, income level and working status. The attitude variable was adopted from one author and consisted of eight statements Using a Likert-type scale ranging from 1(strongly disagree) to 5(strongly agree). The measurement was selected as it represented the attitude of the respondent towards preparing for a flood disaster. Items in the measurement consisted of positive (No.2, No.3, No.5 and No.6) and negative statements (No.1, No.4, No.7 and No.8) as tabulated in Table2. Prior to the analysis, the data was re-coded using Statistical Package for Social Sciences (SPSS) in order to prepare the data for analysis and report an accurate level of attitude.

**Table 2**  
**Items to measure attitude**

S.No	Items
1	Preparing for Rainfall Flood is inconvenient for me.
2	Preparing for Rainfall Flood will significantly reduce damage to my home.
3	Preparing for Rainfall Flood will improve my everyday living conditions.
4	It is unnecessary to prepare for Rainfall Flood as assistance will be provided by
5	Preparing for Rainfall Flood will improve my ability to deal with disruption to
6	Preparing for Rainfall Flood will save lives.
7	I don't know how I can prepare for at Rainfall Flood.
8	It's difficult to prepare for a Rainfall Flood.

As for flood preparedness, a total of 23 statements were adopted were listed down using 'Yes' or 'No' statements. The items consists of statements related to preparation measures such as placing latches on cabinets or wardrobes, financial preparedness, identifying safe routes and evacuation centres. All the items used to measure preparedness were adapted from various sources in order to ensure suitability for this study and a sample of the statements are tabulated in Table 3.

S.No	Statements
1	Stock pile drinking water for a three days' supply
2	I have an emergency savings of at-least 3 months of my salary
3	Have a first aid kit
4	I have gathered important documents (e.g. insurance policies, deeds etc.) in one place that is easy to retrieve
5	I have purchased additional insurance that cover damages caused by disaster
6	I have planned to bring spare clothes If I need to evacuate
7	I know where the nearest evacuation centre to my house
8	I have identified a safe place to keep my car in case of flood

Before the survey, a pre-test was conducted among communities in flood-prone areas. A total of 20 respondents were selected to participate in the pre-test survey to test the reliability of the attitude variable. The attitude towards flood was found to have an alpha score higher than 0.6. The self-administered questionnaire was then distributed to the respondents. However, an interview mode was used for the respondents that unable to read or had difficulty reading. A token of appreciation was given to the respondents when the completed questionnaire was returned. Statistical Package for Social Science (SPSS) was used to analyze the descriptive data, determine the levels of attitude and preparedness as well as to identify the relationship between attitude and preparedness.

### Results and Discussion

The descriptive analysis of the socio-demographic shows that more than half of the respondents were male (69%) with an average age of 50 years old. At least half of the respondents reported secondary school as the highest education level (62%). They had an average household income of RM1,067.00, much lower than Kelantan's average household income (RM4,214). Most of the respondents' livelihood depended on subsistence work (47%) and operating their own business (21%).

<b>Socio-demographic</b>			
<b>Background</b>	<b>N=220</b>	<b>Average</b>	<b>Percentage (%)</b>
<b>Gender</b>			
Male	152		69
Female	68		31
<b>Age</b>		50	
<b>Highest education level</b>			
Did not attend school	27		12
Primary School	34		16
Secondary School	135		62
Tertiary level	23		10
<b>House hold income</b>		RM1,067.00	
<b>Working status</b>			
Government Sector	6		3
Private Sector	9		4
Entrepreneur	47		21
Subsistence work	103		47

Not-working	35	16
Retired	20	9

Results from the analysis depicted in Table 5 show that the respondents reported a moderate attitude towards flood (51%), and only a handful reported a high level of attitude (20%). The item with the highest mean was that respondents believe flood preparedness saves lives, reduces property damage, and improves their daily lives. These results suggest that the respondents believe that taking precautionary measures can reduce the impact of the flood. However, the average mean was below 4, demonstrating room for improvement in the community's attitude towards floods as they often experience floods during the monsoon season.

**Table 5**  
**Attitude level**

Level of attitude	Frequency(N)	Percentage (%)
Low	64	29
Moderate	112	51
High	44	20

Next, the level of preparedness obtained from the analysis, as illustrated in Table 6, found that the respondents had a moderate level of flood preparedness (44%). Not many had a high level of preparedness (23%). Among the preparedness measures taken by the respondents was safekeeping of essential documents, planning the placement of their furniture to avoid damage and identifying the nearest evacuation centres. However, in terms of financial preparedness, more than half of the respondents were unable to save at least three months of their income, purchase life insurance or additional car and house insurance policy to cover damages caused by disasters. Additionally, at least half of the respondents had no first aid kit and no knowledge of conducting Cardiopulmonary Resuscitation (CPR). It is suggested that the respondents had difficulty purchasing insurance or could have at least three months of savings due to their average household income reported in this survey which is below the average household income in southern district.

**Table 6**  
**Flood preparedness level**

Level of preparedness	Frequency(N)	Percentage (%)
Low	73	33
Moderate	96	44
High	50	23

### Conclusion

Results obtained from this study indicate that the community's attitude in Tamilnadu can be further improved as they experience frequent floods, especially during the northeast monsoon season. The community believes that preparing can save lives and reduces the damage to their property if they take the necessary precautionary measures; however, the results suggest they also depend on the government agencies for assistance. Subsequently, the results also indicate that the community's level of preparedness was at a moderate level, which can be further enhanced with the help of the local authority and responding agencies. The community could participate in disaster risk management activities with the aid of the local agencies as ineffective programs are caused by the lack of community participation. Moreover, financial assistance from the

government through an affordable insurance plan could reduce the community's financial burden within the lower-income group who are more vulnerable to disasters. Awareness programs that promote community-based disaster preparedness can be further developed with assistance from the local government and related agencies to cultivate a more resilient community towards flood disasters. Hence, a collaborative effort from all stakeholders such as the local community, local government and local responding agencies, specifically in an area susceptible to frequent floods, is imperative to strengthen their resilience towards floods.

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