

Economic and Hydrometeorological Aspects of the August Flood: Assessing Vulnerability, Impact, and Community Preparedness

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Introduction

Floods are among the most devastating natural disasters, causing widespread socio-economic disruptions and posing significant challenges to communities worldwide. The August flood, characterized by its intensity and scope, serves as a stark reminder of the multifaceted nature of flood events. Beyond the immediate hydrometeorological triggers, such as excessive rainfall, river overflow, or inadequate drainage systems, the impacts extend deeply into the socio-economic fabric of affected regions.

This study focuses on the socio-economic and hydrometeorological aspects of the August flood, with a specific emphasis on assessing vulnerability, the scale of its impact, and the level of community preparedness. Vulnerability to flooding is often determined by a combination of environmental, social, and economic factors, which influence the ability of communities to withstand and recover from such events. The hydrometeorological perspective examines the climatic and weather-related conditions that contribute to flood events, providing crucial insights into their predictability and frequency.

Furthermore, the socio-economic repercussions of floods, including displacement, loss of livelihoods, and disruption to critical infrastructure, highlight the need for robust disaster management strategies. Understanding the extent of community preparedness is equally critical, as it reflects the resilience of populations to cope with and mitigate the effects of flooding. By integrating these aspects, this research aims to offer a comprehensive evaluation of the August flood, contributing to more effective policy-making and disaster risk reduction strategies in the future.

Methodology

The study employed a mixed-method approach, beginning with a Geographic Information System (GIS) analysis to identify and map flood-prone areas, assess spatial patterns of vulnerability, and analyze the hydrometeorological factors contributing to the August flood. This spatial analysis provided a foundation for understanding the geographical distribution of flood impacts and guided the selection of study areas for further investigation. Following this, a structured questionnaire survey was conducted with 442 respondents from the affected communities to gather detailed socio-economic data, assess the impacts of the flood, and evaluate levels of preparedness and resilience. The combination of GIS-based spatial analysis and primary data from the survey allowed for a comprehensive assessment of the flood's impacts and the underlying factors influencing vulnerability and community response.

Study Area

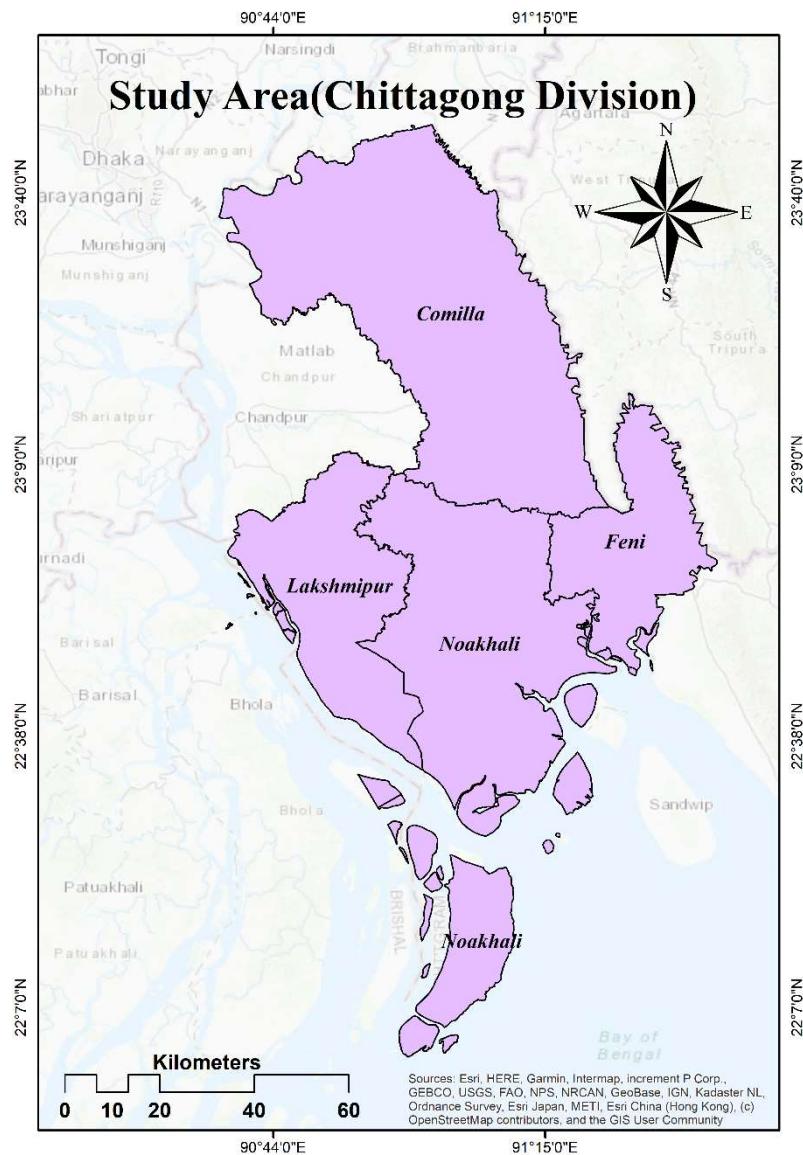


Figure 1: Flood-Affected Areas of August 2024: Survey conducted in Feni Zilla.

Result Analysis and Findings:

Demographics & Geographic

The average age of respondents is approximately **40 years**, indicating a mature population likely possessing varying levels of experience and resilience in dealing with natural disasters. The histogram reveals that the majority of respondents were aged **25 to 40**, representing a younger to middle-aged demographic. This age group may be actively involved in livelihood activities and household responsibilities, making their perspectives crucial in understanding the impact of floods and recovery challenges.

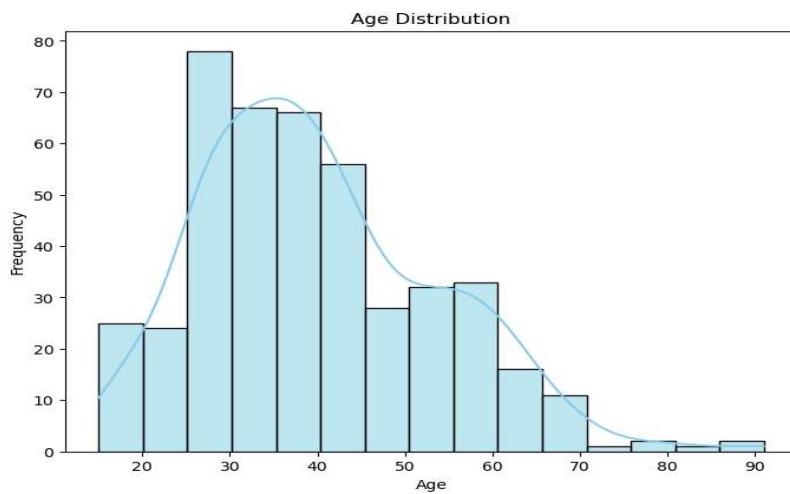


Figure 1: Age Distribution

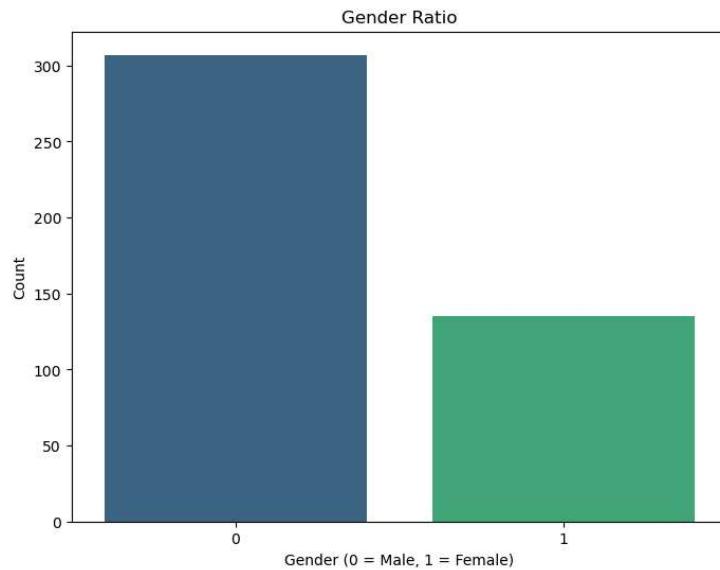


Figure 2: Gender Distribution

The survey results show a **gender distribution** skewed toward males, with **69.45% (307 respondents)** being male and **30.55% (135 respondents)** female. While this disparity might suggest that men were more accessible for the survey, it's important to recognize that floods affect men and women differently. Women often face heightened challenges during such disasters, such as caregiving responsibilities, reduced privacy in shelters, and limited access to hygiene and healthcare. Men, on the other hand, may encounter greater difficulties in recovering livelihoods, particularly in labor-intensive sectors.

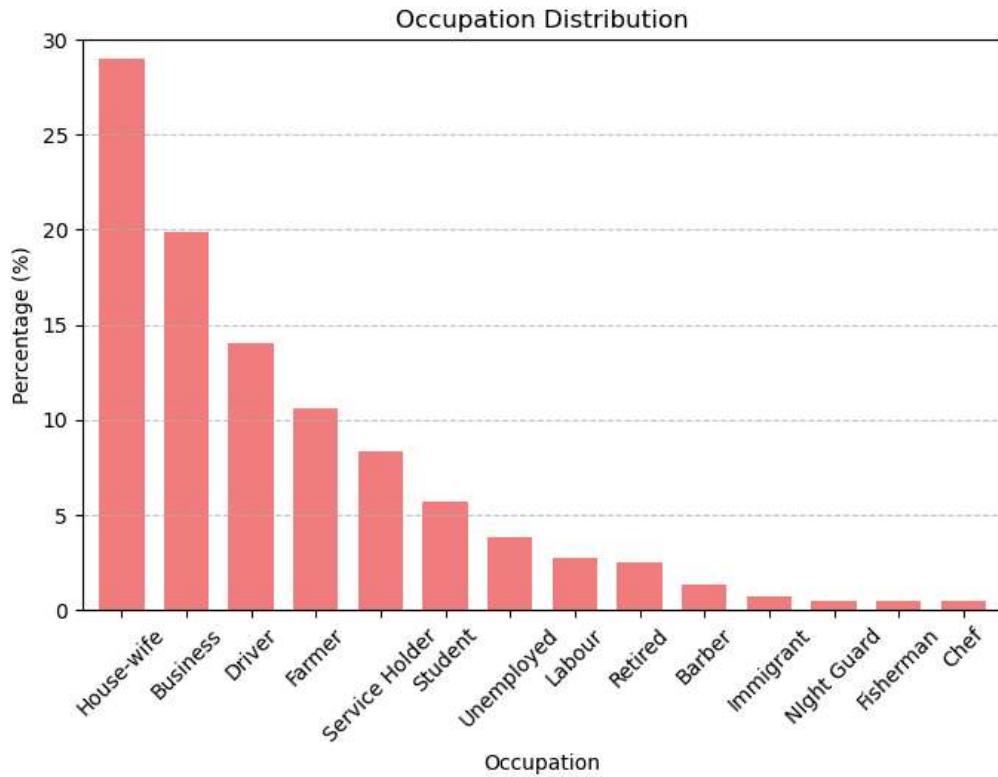


Figure 3: Occupation Distribution

The gender imbalance in the survey may also reflect a focus on **male-dominated occupations** in flood-affected regions or a bias in the availability of respondents. Occupation data highlights different vulnerabilities: men often experience significant disruptions in livelihood activities like farming, business, or manual labor, which are common in flood-prone areas. Meanwhile, women, who often shoulder household responsibilities, may face unique challenges such as accessing shelters, securing resources, or rebuilding their livelihoods post-disaster.

Engagement with Weather Forecasts

The respondents were asked about their engagement with the weather forecast and flood forecast before the August flood.

Never	30.77%
Multiple times a day	2.94%
Once a day	5.20%
Very often	5.88%
Occasionally	39.37%
In Emergency	15.84%

Table 1: Frequency of Weather Forecast Access

The survey revealed varying levels of engagement with weather forecasts. A significant proportion of respondents (30.77%) reported never watching or listening to forecasts, while the majority (39.37%) accessed them occasionally. A smaller segment monitored forecasts in emergencies (15.84%), with limited respondents checking them once daily (5.20%) or very often (5.88%). Only 2.94% of respondents reported engaging with forecasts multiple times a day.

This data highlights a general lack of proactive weather monitoring across the surveyed population. The high percentage of individuals who either never or only occasionally follow weather forecasts underscores gaps in awareness or accessibility. This lack of engagement could lead to delayed actions and insufficient preparedness in flood-prone regions.

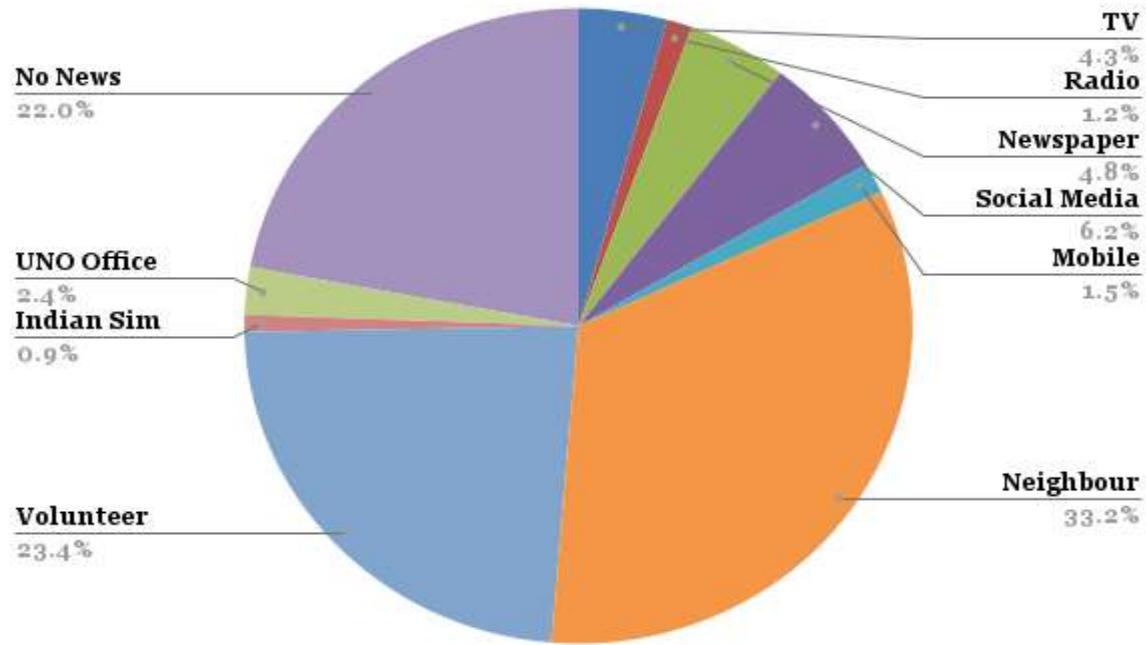


Figure 4: Source of flood updates

The chart highlights that neighbors (33.2%) and volunteers (23.4%) are the most trusted sources for flood updates, reflecting a preference for localized, personal information. A significant 22% of respondents report receiving no news, which points to potential gaps in communication infrastructure. While social media (6.2%) has some influence, traditional media sources like TV (4.3%) and newspapers (4.8%) are less relied upon, indicating a shift away from formal news channels. Mobile phones (1.5%) and radio (1.2%) also have minimal use, suggesting that people may not be using digital or broadcast platforms for immediate updates. Lack of electricity plays a role in the less use of Television, Radio or mobile phones. The UNO office (2.4%) and Indian SIM cards (0.9%) contribute very little, showing limited engagement with governmental and cross-border sources. Overall, this data reflects a strong reliance on community-based information, but also highlights significant communication challenges during emergencies like floods.

Initial Response

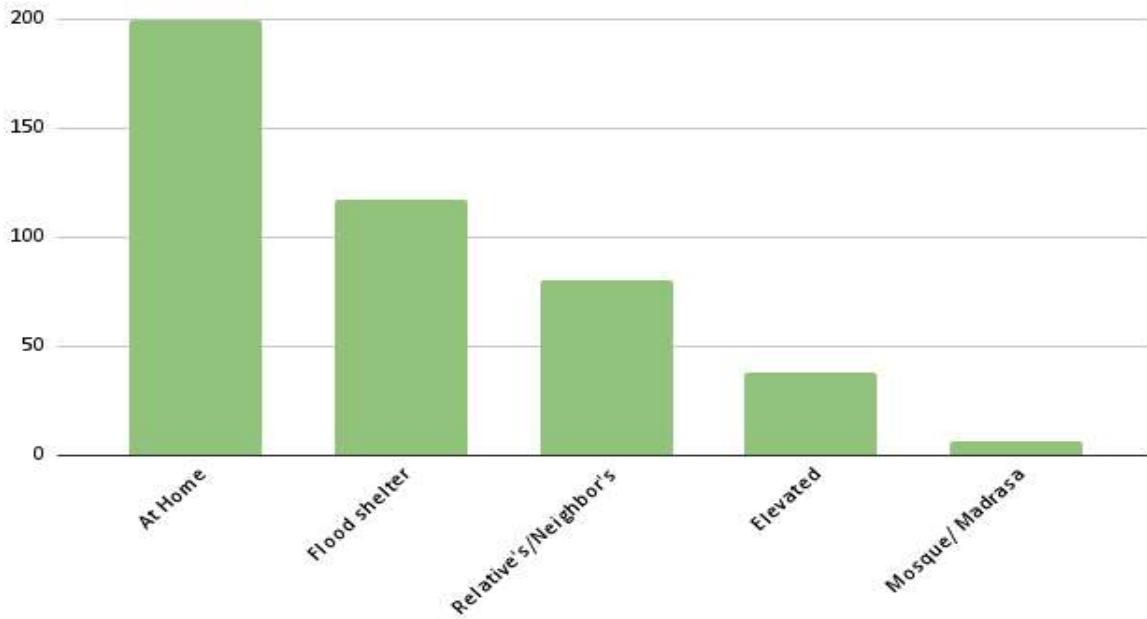


Figure 5: Shelter during flood

When asked, a significant portion of people, nearly half of the respondents, answered that they stayed at home during the flood. This suggests that their houses were likely elevated enough to withstand the severity of the flooding. On the other hand, the remaining half had to leave their homes and seek shelter elsewhere. Among those who evacuated, the majority took refuge in designated flood shelters, which are often equipped to accommodate displaced individuals during such crises.

A smaller number of people sought refuge in mosques or madrasas, utilizing these community spaces as temporary shelters. Others relocated to elevated areas, likely seeking safety from rising waters. These findings highlight the varied strategies people adopt during floods, driven by accessibility, resources, and the severity of the disaster in their locality.

Immediately after the warning	7
After the roads were flooded	36
When water started entering the house	120
After the house was submerged	58

Table 2: Time of departure

A small number of individuals acted promptly upon receiving a warning about the flood. This indicates a level of awareness and preparedness among a few respondents, suggesting that they had access to timely information and were able to respond quickly.

A larger group waited until the roads were flooded before seeking shelter. This suggests that these individuals may have underestimated the severity of the situation or were caught off guard by the rapid onset of flooding.

The majority of respondents (120) moved to shelters only when water began to enter their homes. This indicates a reactive approach to the flooding, where individuals waited until they were directly affected before taking action. It highlights a potential lack of preparedness or awareness of the flood risks.

A significant number of respondents (58) sought shelter only after their homes were submerged. This reflects a critical situation where individuals may have lost valuable time and resources, and it underscores the urgency of improving flood preparedness and response strategies.

Enough Accommodation	99
Unhygienic	88
Sanitation	102
Food	323
Water	329
Separate Accommodation	57

Table 3: Issues faced during flood

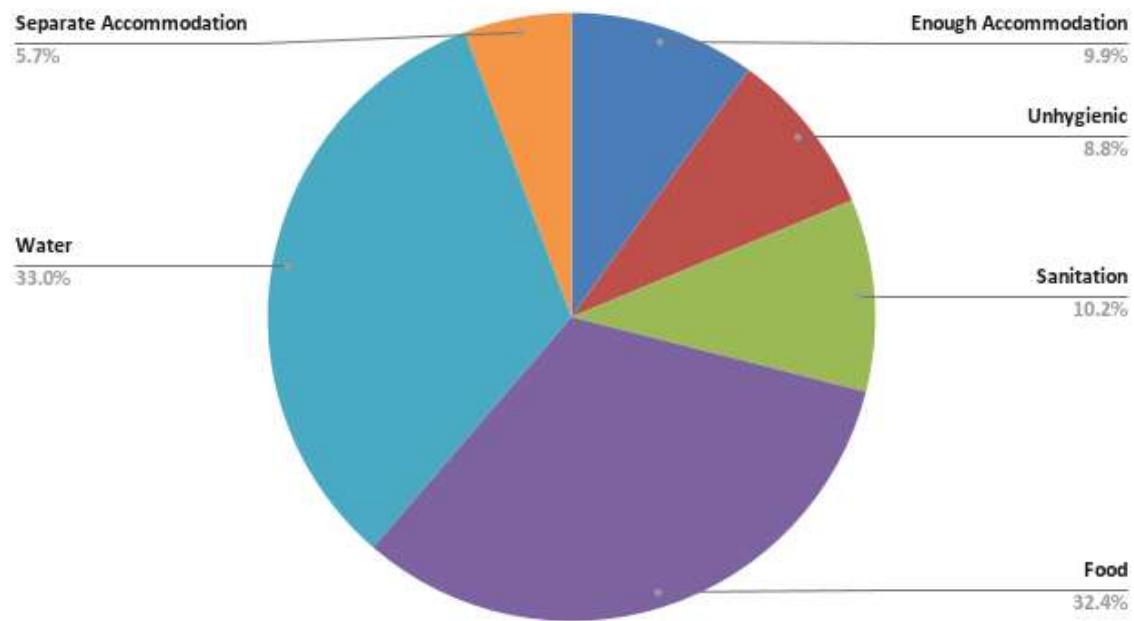


Figure 6: Issues faced during flood

Food and Water Security: The high number of respondents reporting issues with food (323) and water (329) underscores the vulnerability of communities during flood events. Access to basic necessities is crucial for survival, and disruptions in food and water supply can lead to severe health and safety risks.

Health Risks: The significant number of respondents facing sanitation issues (102) highlights the potential for health crises following floods. Poor sanitation can lead to outbreaks of waterborne diseases. The survey revealed a total of 229 respondents, or their family members, experienced waterborne diseases during or after the flood.

Accommodation Challenges: The accommodation issues faced by 159 respondents indicate that many individuals may have struggled to find safe and adequate shelter during the flood. This lack of proper housing forces many to endure overcrowded or unsanitary conditions, increasing their vulnerability to both physical and mental health challenges. The stress of displacement, particularly for families with children, pregnant women, or elderly individuals, can lead to heightened anxiety and a sense of insecurity.

Impact

Household damage:

No damage occurred	81
Partial/minor damage	84
Completely collapsed	99
The column collapsed	41
The foundation was destroyed	118

Table 4: Level of household damage

A small number of respondents(81) reported that their homes sustained no damage during the flood. This suggests that these individuals may have been fortunate, possibly due to their homes' location, construction quality, or effective flood preparedness measures. A moderate number of respondents(84) indicated that their homes experienced partial or minor damage. This could include issues such as water intrusion, damage to furniture, or minor structural issues.

A concerning number of respondents (99) reported that their homes completely collapsed during the flood. This indicates a severe level of destruction, likely resulting in the loss of shelter and necessitating immediate assistance and relocation for these families. Some respondents (41) experienced the collapse of structural columns in their homes. This type of damage can compromise the integrity of the building, making it unsafe for habitation and requiring extensive repairs. A significant number of respondents (118) reported that the foundation of their homes was destroyed. This level of damage is critical, as a compromised foundation can render a home uninhabitable and necessitate complete rebuilding.

Water Level Rise:

The average water level rise during the flood was recorded at approximately 4.44 feet. This substantial increase in water level likely contributed to the extent of household damage reported. The higher the water level, the greater the potential for severe flooding, which leads to more significant structural damage to homes.

Severity of Impact: The fact that 99 respondents reported complete collapse of their homes indicates a severe impact on the community. This level of destruction not only affects the immediate safety and shelter of families but also has long-term implications for recovery and rebuilding efforts. The high number of respondents (118) reporting foundation destruction highlights the vulnerability of homes to flooding, particularly when water levels rise significantly. A compromised foundation can lead to extensive repair costs and prolonged displacement for affected families.

Livestock Damage

Very Low	56
Low	37
Moderate	61
High	71
Very High	181

Table 5: Level of Livestock damage

A small number (56 respondents) reported very low damage, indicating better preparedness or favorable circumstances that protected their animals. Slightly more respondents (37) experienced low levels of damage, with manageable losses suggesting partial protective measures or limited exposure to flood risks. Moderate damage was reported by 61 respondents, reflecting a more significant impact on their livestock that could lead to economic strain, particularly for households dependent on livestock for income or sustenance.

A considerable number of respondents (62%) reported high levels of livestock damage, which is likely to cause substantial financial hardship, particularly for farmers who rely on livestock for both economic stability and food security. The most alarming figure is the 181 respondents who experienced very high levels of livestock damage. For these individuals, the loss of livestock represents a devastating blow to their livelihoods, as livestock serve as a primary source of income, sustenance, and cultural value. This widespread loss highlights the urgent need for targeted support to help these individuals recover and rebuild their livelihoods.

Livelihood damage:

Very Low	37
Low	27
Moderate	45
High	82
Very High	233

Table 7: Level of Livelihood damage

16% of the respondents reported very low damage to their livelihoods, suggesting they may have been less reliant on agriculture or had alternative income sources. A few respondents (12%) experienced low levels of livelihood damage, indicating that while they faced some challenges, their overall economic situation remained relatively stable. A moderate percentage (20%) experienced moderate damage, reflecting the flood's impact on their ability to work or generate income.

A significant portion of respondents (36%) reported high levels of livelihood damage, indicating serious economic challenges due to the flood. However, the most alarming statistic is the 29% of respondents (233 individuals) who reported very high livelihood damage. This level of loss points to widespread economic distress within the community. For many individuals, the flood caused a complete loss of their primary income sources, particularly through agriculture and related activities. The scale of this damage underscores the urgent need for immediate and comprehensive recovery support to help these individuals rebuild their livelihoods and restore economic stability.

Educational Activities damage of the children:

Very Low	39
Low	18
Moderate	39
High	68
Very High	257

Table 8: Level of Educational damage

A significant number of respondents reported a high level of disruption to educational activities, indicating that many children faced considerable challenges in continuing their education due to the flood. These challenges likely included school closures, displacement, and a lack of essential resources such as textbooks, uniforms, and safe learning environments. In many cases, the flood's immediate impact forced families to prioritize survival, leaving education on hold for a significant period.

The most concerning statistic is that 257 respondents reported a very high impact on educational activities. This reflects widespread and severe disruption, with many children unable to attend school or engage in any form of learning due to the devastating effects of the flood. For many families, the loss of educational opportunities could have long-term consequences on children's development and future prospects. The scale of this impact underscores the urgent need for interventions to ensure that education is not only resumed but also adapted to meet the needs of affected communities, such as providing mobile schools, online learning solutions, and resources to mitigate the long-term effects of the disruption.

Assistance and Aid

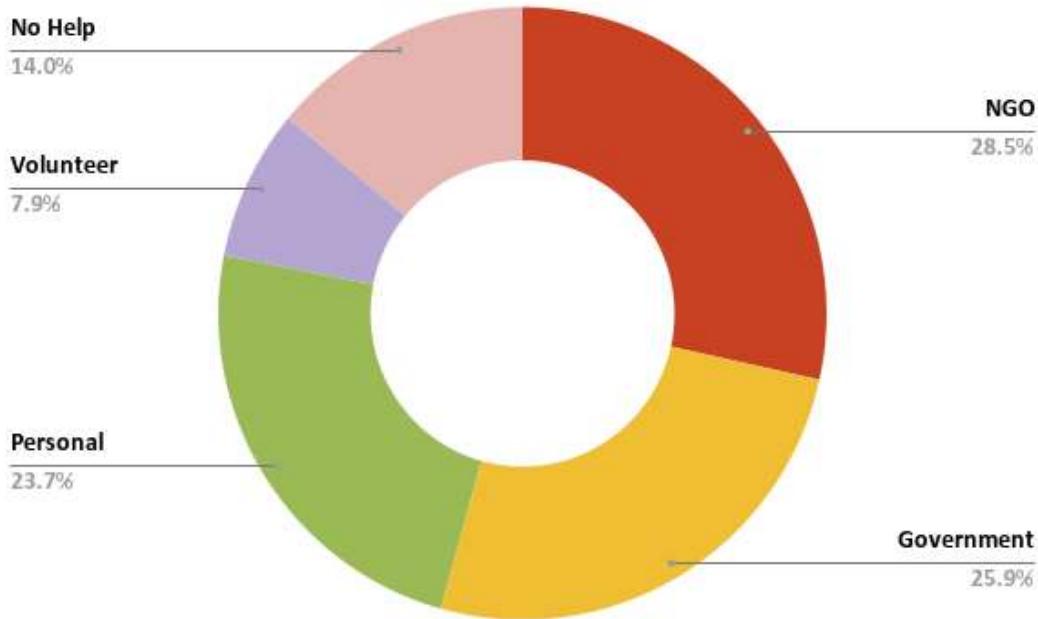


Figure 7: Help source

The pie chart illustrates the distribution of help sources in a particular situation, divided into five categories. NGOs provide the largest share of assistance (28.5%), followed by the government (25.9%) and personal networks (23.7%), highlighting the critical roles of institutional and community-based support. A smaller proportion comes from volunteers (7.9%), indicating potential for increased engagement, while 14% of individuals reported receiving no help.

The chart highlights the critical roles of NGOs and government initiatives, which together provide over half of the total assistance, underscoring their significance in addressing needs. Personal support also plays a substantial role, reflecting the importance of community networks and interpersonal relationships in delivering aid. However, the minimal contribution from volunteers (7.9%) points to an opportunity for greater mobilization and engagement in this area. Alarmingly, 14% of individuals reported receiving no assistance, revealing significant gaps in accessibility and support systems. While NGOs and government efforts are vital, there is a clear need to enhance volunteer involvement and bridge the gap for those currently left unsupported.

Hydrometeorological Aspects

Temporary house (made of mud, straw, tin)	217
Semi-permanent house	125
Permanent house	100

Table 9: Type of house

The data reveals that most respondents live in vulnerable housing conditions, with the majority residing in temporary houses made of mud, straw, or tin (217 respondents), followed by semi-permanent houses (125 respondents), and a smaller number in permanent houses (100 respondents). This indicates a significant reliance on non-durable housing types that are likely less resilient to environmental challenges.

Very bad	8
Bad	7
Moderate	100
Good	164
Very good	157

Table 10: Opinion on flood resistant housing

When it comes to perceptions of flood-resistant housing, the community generally holds a positive view. A combined total of 321 respondents consider such houses to be "Good" or "Very good," reflecting broad awareness of their benefits. However, a smaller group rates them as "Moderate" (100 respondents), and a minority perceives them as "Bad" (7 respondents) or "Very bad" (8 respondents). This suggests there is room to improve community awareness or address specific concerns regarding flood-resistant construction. Overall, the data highlights both the urgent need for more resilient housing solutions and the importance of continued education and engagement to build stronger acceptance and understanding of flood-resistant housing benefits.

Evaluation of Forecasting System

Very Unsatisfied	147
Unsatisfied	160
Neutral	89
Satisfied	31
Very Satisfied	0

Table 11: Opinion on flood forecast

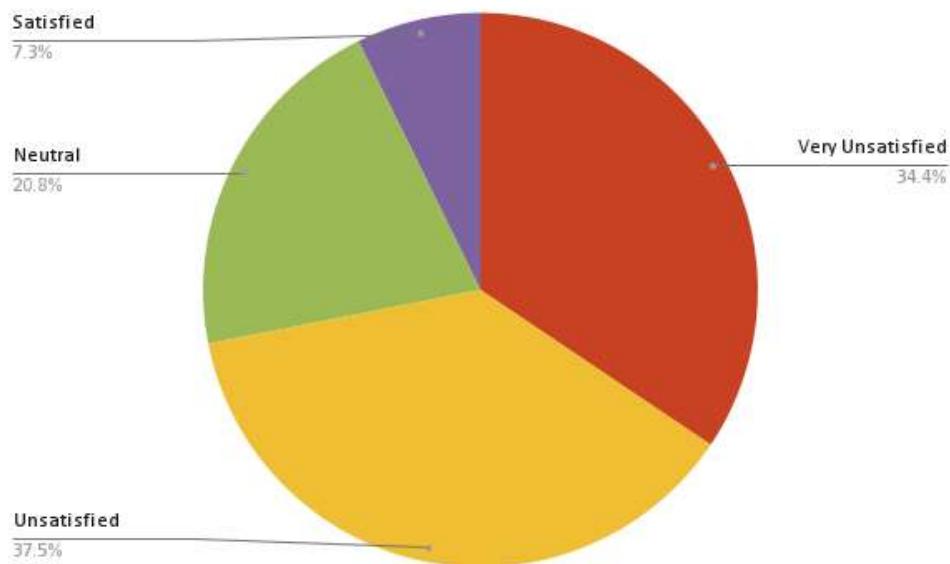


Figure 10: Opinion on Flood forecast

The data indicates a significant lack of satisfaction with the early forecast for the August 2024 flood among the respondents. Nearly **71.9%** of respondents expressed dissatisfaction, with **37.5%** marking themselves as "Unsatisfied" and **34.4%** as "Very Unsatisfied." This overwhelming majority reflects a widespread perception that the forecast did not meet expectations, likely due to issues such as inaccuracy, lack of timeliness, or poor communication.

Furthermore, only **7.3%** of respondents were "Satisfied," and there were no "Very Satisfied" responses (**0%**). This stark disparity highlights the need for significant improvements in early flood forecasting. To rebuild trust and improve community preparedness, efforts should focus on enhancing the accuracy, reliability, and accessibility of forecasts, as well as improving how critical information is communicated to the public.

Very Unsatisfied	126
Unsatisfied	182
Neutral	89
Satisfied	24
Very Satisfied	1

Table 12: Effectiveness of Flood forecast

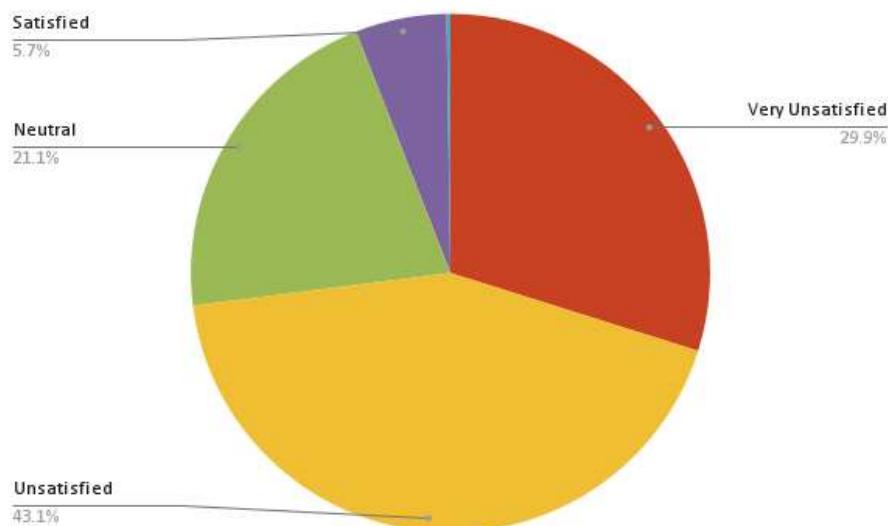


Figure 11: Effectiveness of Flood forecast

This question yielded responses that indicate a significant dissatisfaction with the local weather forecasting. A combined **73%** of respondents rated the forecast negatively, with **43.1%** being "Unsatisfied" (182 people) and **29.9%** being "Very Unsatisfied" (126 people). Only **5.7%** of respondents were "Satisfied" (24 people), and an almost negligible **0.2%** were "Very Satisfied" (1 person).

This overwhelming dissatisfaction suggests that the local weather forecast was perceived as largely ineffective in accurately predicting the severity of the flood. The high proportion of negative feedback highlights potential issues with the accuracy of the forecast, its timeliness, or the clarity and accessibility of the information provided. It also indicates a failure to meet the expectations of the affected community during a critical time when accurate forecasts are crucial for preparedness and response.

In summary, the data suggests that the community was highly dissatisfied with both the early flood forecast and the local weather forecast's ability to predict the severity of the actual flood

event. This dissatisfaction was compounded by the limited access to updates during the flood itself.

The breaches directly led to massive flooding	392
Only certain areas were affected by the breaches.	192
The embankments caused Less Impact	22
Caused No Impact	3

Table 12: impact of the breached flood control embankments

The data highlights the significant impact of breached flood control embankments along the Muhuri, Kahua, and Silonia rivers during the flood event. A substantial majority of respondents (392 people, 64.4%) reported that the breaches directly led to massive flooding, emphasizing the critical role these embankments play in flood prevention.

Another 31.5% of respondents (192 people) indicated that the breaches affected only certain areas, suggesting that while the impact was localized in some regions, it was still considerable.

In contrast, only a small proportion of respondents felt that the breaches caused less impact (22 people, 3.6%) or no impact at all (3 people, 0.5%). This indicates that the overwhelming perception is that the embankment failures significantly exacerbated the flood situation.

The data underscores the vulnerability of flood-prone areas to infrastructure failures and highlights the urgent need for strengthened flood control embankments. Addressing the structural weaknesses in these embankments and improving maintenance could help mitigate the risk of similar devastating floods in the future. Additionally, planning for localized impacts in less affected areas could enhance preparedness and response efforts during such events.

Reason For Severity Flood

No Comments	35
Dam Released	246
Dam Collapsed	197
Poor River Management	85
Unplanned Settlements	27
Inefficient Drainage System	75
Heavy Rainfall	211

Table 13: Possible Reason For Severity Flood

The data points to a complex interplay of natural and human factors that contributed to the flood's severity. Dam-related issues—specifically water releases and dam collapses—account for

the majority of responses, underscoring the urgent need for improved dam management, including timely maintenance, better operational protocols, and disaster preparedness plans to prevent similar outcomes in the future.

Heavy rainfall also played a critical role, indicating that extreme weather events are becoming increasingly significant drivers of severe flooding. Human-induced factors, such as poor river management, inefficient drainage systems, and unplanned settlements, highlight systemic challenges in managing flood risks. Addressing these issues requires coordinated efforts to improve infrastructure, enforce land-use regulations, and implement sustainable river basin management strategies.

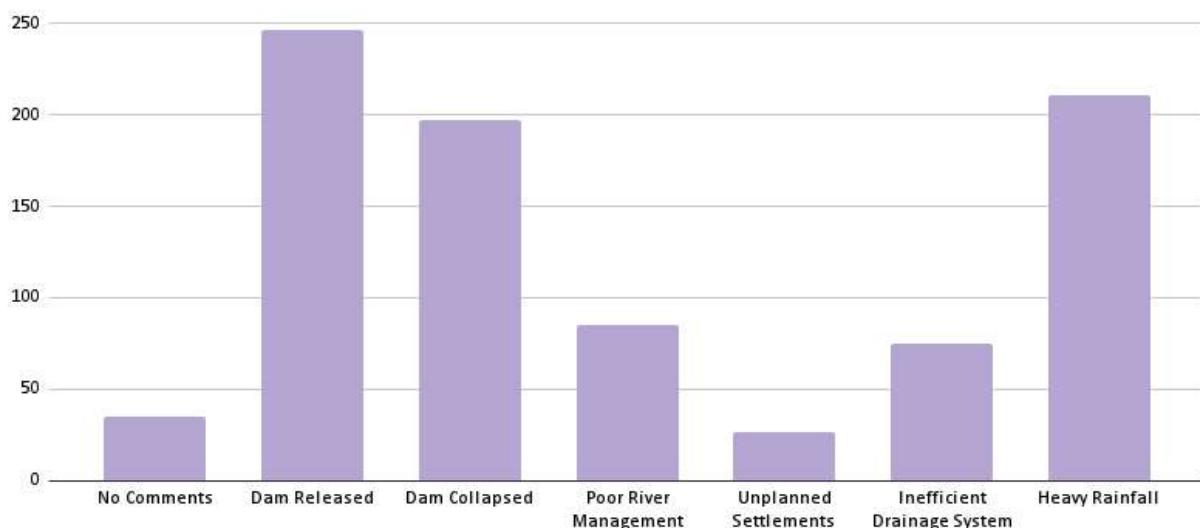


Table 12: Possible Reason For Severity Flood

Future Preparedness

Safe Shelter	212
House Construction Assistance	253
House Repair Assistance	250
Financial Assistance	369
Food Assistance	254
Psychological Counseling	40
Low Interest Loans	138
Agri Support	182
Medical Aid	186

Table 14 : Types of assistance

The data highlights the diverse needs of the community during the August flood, reflecting both immediate and long-term assistance requirements. The most pressing need identified was financial assistance, with 369 respondents indicating its importance. This suggests that many families faced significant economic challenges during and after the flood, requiring direct financial support to recover and rebuild their lives.

Housing-related assistance, including house construction (253 respondents) and repair assistance (250 respondents), was also a high priority, showing the widespread damage to homes and the need for long-term rebuilding efforts. Combined with the demand for safe shelter (212 respondents), this emphasizes the critical importance of secure and sustainable housing solutions during and after the flood.

Basic survival needs like food assistance (254 respondents) and medical aid (186 respondents) were also seen as essential, reflecting the challenges people faced in accessing necessities during the crisis. Additionally, agricultural support (182 respondents) highlights the significant impact of the flood on livelihoods, particularly for those dependent on farming, and the need for targeted recovery measures to support economic stability.

Some respondents also recognized the need for systemic support, such as low-interest loans (138 respondents), which could help flood-affected individuals and businesses recover more effectively.

Lastly, the relatively lower demand for psychological counseling (40 respondents) might suggest that mental health needs are less openly acknowledged, even though they are often significant after such disasters. This indicates an opportunity to raise awareness about the importance of mental health support in disaster recovery.

Elevate House	314
Improve Infrastructure	271
Store Food	211
Plant Trees	100
No Plan	28

Table 15: Self-preparation

The data reveals a range of strategies that people are considering to better prepare for future floods, with a strong focus on practical, proactive measures to reduce vulnerability. The most frequently mentioned step was elevating houses, with 314 respondents indicating this as a priority. This suggests that many individuals recognize the importance of structural changes to protect their homes from rising floodwaters, reflecting a shift toward long-term resilience at the household level.

Improving community-wide infrastructure was the second most common response, cited by 271 respondents. This indicates a shared awareness of the need for better roads, drainage systems, and flood defenses to mitigate the impact of future floods. Such improvements require collective effort and government support, emphasizing the importance of investing in public infrastructure.

Storing food was identified by 211 respondents, showing that many people are preparing for potential disruptions to food supply during flood events. This reflects a focus on basic survival strategies, ensuring access to essentials during emergencies.

Responses also highlighted the importance of planting trees, with 100 individuals recognizing this as a flood prevention strategy. Tree planting can reduce soil erosion, improve water absorption, and contribute to long-term environmental resilience. However, this approach requires time and collective effort to yield significant results.

Notably, 28 respondents reported having no plan for future floods. This small but concerning number indicates a need for greater awareness and education about flood preparedness, as a lack of planning leaves individuals more vulnerable during disasters.

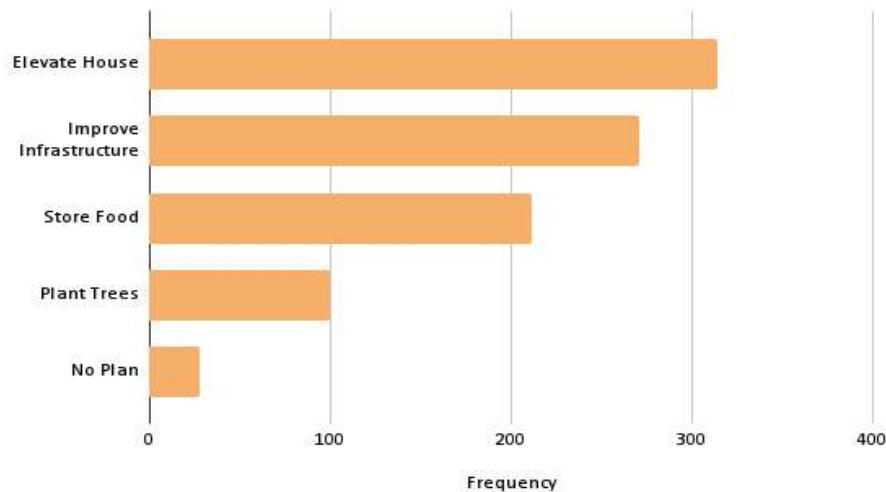


Figure 13: Self-preparation

Awareness and Precaution	344
Training Capacity Building	211
Clean Water Sanitation	196
Communication Coordination	215
Flood Control Infrastructure	235
Collective Embankment Construction	229
River Widening	71

Table 16: Community-preparations

The data highlights a range of initiatives that respondents believe are necessary to reduce future flood damage, reflecting a combination of preventive, structural, and community-focused approaches. The most commonly identified need was for awareness and precaution, with 344 respondents emphasizing the importance of educating communities about flood risks and promoting proactive behavior. This underscores the critical role of public awareness campaigns in preparing people to take timely and effective action before and during floods.

Flood control infrastructure (235 respondents) and collective embankment construction (229 respondents) also emerged as key priorities. These responses highlight the urgent need for robust, large-scale engineering solutions to protect vulnerable areas from floodwaters. Investments in flood barriers, embankments, and drainage systems are seen as essential to reducing physical damage and safeguarding lives.

Improving communication and coordination was cited by 215 respondents, pointing to the need for better systems to disseminate information and coordinate responses during flood events. Timely warnings, clear communication channels, and organized disaster response teams can significantly improve outcomes during emergencies.

Training and capacity building, identified by 211 respondents, reflects the community's interest in learning skills to better prepare for and respond to floods. This includes training in disaster management, emergency response, and first aid, empowering individuals and communities to take action during crises.

Clean water and sanitation, with 196 respondents highlighting its importance, emphasizes the need to address secondary challenges that arise during floods, such as waterborne diseases and lack of access to safe drinking water. This suggests that disaster response must also focus on ensuring basic needs are met.

While river widening was mentioned by fewer respondents (71), it still represents a critical environmental solution. By increasing the capacity of rivers to handle higher water volumes, this initiative could reduce the risk of flooding in certain areas. However, it requires significant planning and resources, as well as balancing ecological considerations.

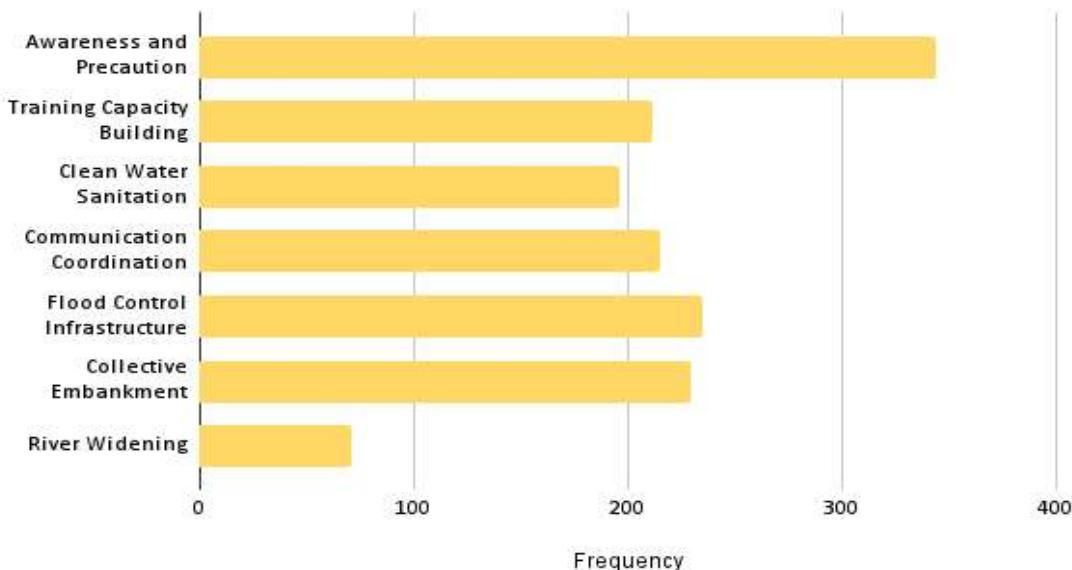


Figure 14: Community-preparations

Recommendations:

Based on the survey responses, it is clear that improving flood preparedness and response will require enhanced technology and infrastructure. Key recommendations include expanding mobile network coverage to ensure strong communication during floods, as well as utilizing mobile alerts and apps to provide timely flood warnings. Strengthening flood forecasting systems and broadcasting updates through various channels, including TV, radio, and social media, would help communities stay informed.

It is also crucial to ensure that essential services like electricity and internet remain operational during floods. More engine-powered boats and effective logistics are needed for swift rescue and relief operations. Investment in modern infrastructure, such as dams, drainage systems, and flood-resistant crops, will help mitigate the damage.

Additionally, raising awareness and providing training on the use of new technologies will empower communities to better prepare for floods. By integrating these technological solutions and improving infrastructure, we can better equip communities to manage future floods and minimize their impact.

The responses suggest several key measures for improving the flood forecasting system so that everyone gets to know the emergency weather updates. A significant number of respondents emphasize the importance of stronger dam construction to prevent overflow during floods,

alongside reinforcing existing dams for additional security. There is also a consistent call for the construction of robust embankments and improvements in drainage systems to manage excess water more effectively.

To improve flood response, many suggested enhancing communication networks, particularly during floods when mobile and internet connections often fail. Strengthening mobile networks and ensuring uninterrupted service is critical for timely flood alerts. Miking systems are also recommended for direct communication with local communities, alongside mobile SMS alerts and TV broadcasts to ensure people receive warnings in real-time.

On the community awareness front, there is a strong push for increasing public education on flood preparedness through various channels, such as radio, TV, and social media. Additionally, volunteers should be adequately trained and deployed to help with rescue and evacuation efforts. The need for more frequent weather forecasts and precise predictions for heavy rainfall, along with early warning systems, was also highlighted as a priority.

Lastly, there is recognition of the importance of collaboration between governmental and private organizations to ensure that all flood response measures, from infrastructure improvements to communication systems, are efficiently implemented.