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Flash Floods in Upper Assam: Socio-economic Impacts, Disaster Response and Policy Lessons from Sivasagar, Charaideo and Jorhat Districts

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Abstract

Floods have long been recognised as one of the most frequent and destructive natural hazards in Assam. While the State has traditionally experienced seasonal riverine floods caused by the Brahmaputra and its tributaries, the recent flash floods in the districts of Sivasagar, Charaideo and Jorhat represent a distinctly different form of disaster. Unlike conventional floods that generally provide some lead time for preparedness and evacuation, the recent flash floods developed rapidly following intense rainfall, leaving communities with little opportunity to respond. The sudden inundation resulted in significant human casualties, widespread destruction of houses and public infrastructure, extensive losses of livestock and agricultural assets, and severe disruption of rural livelihoods. The disaster also exposed limitations in existing early warning systems and emergency response mechanisms, particularly in areas with limited previous experience of flash floods.

This article examines the socio-economic consequences of the recent flash floods, analyses the immediate response of the Government of Assam and local communities, and identifies the major challenges encountered during rescue and relief operations. It further discusses how changing climatic conditions and extreme rainfall events are altering the flood risk profile of Upper Assam. Drawing upon secondary literature, government reports and observations from the affected region, the paper proposes policy measures aimed at strengthening disaster preparedness, improving early warning systems, enhancing community resilience and minimising future losses. The study argues that disaster management strategies in Assam must evolve beyond conventional riverine flood management and incorporate comprehensive preparedness plans specifically designed to address the increasing occurrence of flash floods.

Keywords: Flash floods, Riverine floods, Assam, Disaster management, Socio-economic impacts, Climate change, Community resilience

1. Introduction

Assam has long been recognised as one of India's most flood-prone states because of its location in the Brahmaputra basin. Every monsoon, the Brahmaputra and its tributaries overflow, inundating agricultural fields, villages and towns. Over time, local communities have learned to

live with these seasonal floods by adopting traditional coping measures such as building raised houses, storing food, moving livestock to safer places and following flood warnings. Although these floods continue to cause significant economic and social losses, they have become a recurring part of life across much of the state.

The recent flash floods in the districts of Sivasagar, Charaideo and Jorhat, however, were markedly different from the usual monsoon floods. Triggered by extremely heavy rainfall within a short period, water levels rose suddenly and inundated areas within hours. Many residents had little warning, leaving them with almost no time to safeguard their families, livestock or household belongings.

The disaster caused widespread human and economic losses. Several people lost their lives, many went missing, and thousands of families suffered damage to their homes and livelihoods. Agricultural land, livestock, fisheries and other productive assets were severely affected, while roads, bridges, schools and public utilities were damaged, disrupting daily life and delaying relief operations.

In response, the Government of Assam initiated rescue operations, distributed relief materials and announced financial assistance for affected families and beneficiaries of welfare schemes. At the same time, voluntary organisations, youth groups and local communities came together to provide food, clothing, medicines and financial support, reflecting Assam's strong tradition of collective action during disasters.

Despite these efforts, the event exposed important gaps in disaster preparedness. Existing flood management systems are largely designed for predictable riverine floods, whereas flash floods demand rapid forecasting, real-time warning systems, swift evacuation and specialised emergency response. The growing occurrence of extreme rainfall linked to climate variability highlights the urgent need to strengthen institutional capacity and community resilience.

Against this background, this paper examines the causes and impacts of the recent flash floods in Upper Assam, evaluates government and community responses, and recommends policy measures to reduce future disaster risks. By distinguishing flash floods from conventional riverine floods, the study contributes to a better understanding of climate-induced disasters and the need for more effective disaster management strategies in flood-prone regions.

2. Flash Floods versus Conventional Riverine Floods

Flash Floods vs. Conventional Riverine Floods

Although floods are generally viewed as a single natural hazard, they differ greatly in their causes, behaviour, duration and impacts. Recognising these differences is essential for developing effective disaster management and reducing future risks.

In Assam, **riverine floods** are the most common type of flooding. They occur when continuous monsoon rainfall causes the Brahmaputra and its tributaries to overflow their banks. Water levels usually rise gradually over several days, giving weather agencies and disaster management authorities enough time to issue warnings and organise evacuations. This advance notice allows people to move livestock, protect household belongings, store essential supplies

and shift vulnerable family members to safer places. While these floods may last for weeks and cause widespread damage, their slow onset provides valuable time for preparation and response.

Flash floods, on the other hand, develop suddenly after intense rainfall, cloudburst-like events or local drainage failure. Water levels can rise within a few hours, leaving communities with little or no time to respond. The fast-moving floodwaters cause severe damage to houses, roads, bridges and public utilities, while also making rescue operations more difficult due to the rapid breakdown of transport and communication networks.

The recent flash floods in **Sivasagar, Charaideo and Jorhat** clearly illustrated these challenges. Many villages were inundated within hours, catching residents completely off guard. Unlike the recurring Brahmaputra floods, several of the affected areas had not previously been considered highly flood-prone, resulting in lower levels of preparedness and greater vulnerability.

The economic impacts of the two flood types also differ. Riverine floods mainly cause long-term losses through waterlogging, soil erosion and delayed agricultural activities. Flash floods, however, bring immediate destruction by washing away homes, livestock, stored food, crops and other productive assets in a very short time. As a result, families often face prolonged financial hardship despite the shorter duration of flooding.

With climate change increasing the frequency of extreme rainfall across South Asia, flash floods are becoming more common, even in regions traditionally affected only by riverine floods. This emerging pattern calls for stronger disaster management strategies, including improved weather forecasting, real-time early warning systems, resilient infrastructure, community preparedness and faster emergency response mechanisms.

3. Overview of the Recent Flash Floods in Sivasagar, Charaideo and Jorhat Districts

Recent Flash Floods in Upper Assam

The recent flash floods in **Sivasagar, Charaideo and Jorhat** were among the most severe disasters witnessed in Upper Assam in recent years. Unlike the familiar Brahmaputra floods that develop gradually, these floods struck suddenly after intense rainfall, inundating villages, farmland and roads within a few hours. Many residents had never experienced such rapid flooding, leaving little time to protect lives, livestock or household property.

The disaster caused significant human and economic losses. Several people lost their lives, many families were displaced, and agriculture, livestock, fisheries and other rural livelihoods suffered extensive damage. Roads, bridges, schools, health centres and communication networks were also affected, making rescue and relief operations more challenging.

The **Government of Assam**, with support from the **SDRF, NDRF, district administration and local volunteers**, launched rescue operations, established relief camps and provided food, medical care and financial assistance to affected families. Civil society organisations, youth groups and local communities also played a vital role by distributing relief materials and assisting in rescue and rehabilitation efforts.

These flash floods highlight the growing impact of climate variability and the increasing risk of extreme rainfall events in Assam. They demonstrate that disaster management strategies must move beyond conventional riverine flood planning and focus on real-time forecasting, early warning systems, resilient infrastructure and stronger community preparedness to reduce future disaster risks.

4. Socio-economic Impacts, Government Response and Community Participation

4.1 Socio-economic Impacts of the Flash Floods

The recent flash floods in Sivasagar, Charaideo and Jorhat caused widespread socio-economic disruption, affecting almost every aspect of rural life. The sudden rise in floodwaters left families with little time to protect their homes, livestock or livelihoods, resulting in extensive damage to property, agriculture and public infrastructure.

The most tragic consequence was the loss of 61 human lives, while 7 people were reported missing, leaving many families devastated. Every casualty represented not only the loss of a loved one but also the loss of a breadwinner and an active member of the community. Children, widows and elderly family members were left particularly vulnerable, and many survivors continue to suffer from emotional trauma and uncertainty about the future. In recognition of these losses, the Government of Assam announced an ex gratia assistance of ₹4 lakh under disaster relief norms, along with an additional ₹5 lakh from the Chief Minister's Relief Fund, ensuring a total compensation of ₹9 lakh for the families of each deceased victim. The government also announced that eligible families of those reported missing would receive compensation in accordance with the prescribed government guidelines once the necessary legal procedures are completed.

Housing was another major area of loss. Hundreds of houses were either completely destroyed or severely damaged, while furniture, household appliances, stored food grains, clothing and important documents were washed away. For economically weaker families, rebuilding these assets will require considerable time and financial support.

Agriculture, the backbone of the local economy, suffered extensive damage. Standing paddy, vegetable and horticultural crops were submerged within hours, causing heavy financial losses to farmers who had already invested in seeds, fertilisers and labour. Small and marginal farmers, who depend primarily on seasonal agricultural income, were among the worst affected.

The livestock sector also experienced severe losses. Cattle, pigs, goats, poultry, ducks and fisheries, which provide both household income and nutritional security, were swept away before many owners could move them to safer places. Rebuilding these productive assets will be essential for restoring rural livelihoods.

Beyond agriculture, the floods disrupted the entire rural economy. Agricultural labourers lost employment, small traders and transport operators experienced a sharp decline in income, and local markets remained closed because of damaged roads and disrupted transportation. Educational institutions were also affected as school buildings, books and learning materials were damaged, interrupting the education of thousands of students. In addition, contaminated

drinking water, poor sanitation and limited access to healthcare increased the risk of water-borne diseases, particularly among children, elderly people and other vulnerable groups.

Overall, the flash floods demonstrated that their impacts extended far beyond immediate physical destruction, creating long-term social, economic and psychological challenges for affected communities and highlighting the need for more resilient disaster management and recovery strategies.

4.2 Government Response and Relief Measures

The **Government of Assam** responded swiftly by launching rescue, relief and rehabilitation operations. District administrations, together with the **State Disaster Response Force (SDRF), National Disaster Response Force (NDRF), police, fire and emergency services, health departments and local volunteers**, worked tirelessly to rescue stranded people and provide immediate assistance. Relief camps were established to provide food, safe drinking water, clothing, medical care and temporary shelter to displaced families.

The flash floods resulted in the loss of several lives and caused widespread hardship for thousands of families. To support the affected population, the State Government announced **₹15,000 as immediate financial assistance for each flood-affected household**. In addition, **Orunodoi beneficiaries** in the affected districts were provided an **additional ₹2,500** to help meet their essential needs. Recognising the disruption to education, the Government also announced **₹1,000 for each Higher Secondary student, ₹3,000 for undergraduate students and ₹5,000 for postgraduate students** to enable them to replace books and other educational materials lost in the floods. For families who lost loved ones, the Government announced **₹4 lakh as ex gratia assistance under disaster relief norms, along with an additional ₹5 lakh from the Chief Minister's Relief Fund**, providing a total compensation of **₹9 lakh** for each human casualty. Government departments simultaneously carried out detailed assessments of damage to houses, agricultural land, livestock and public infrastructure to ensure fair and timely compensation.

Despite these prompt measures, the disaster exposed important gaps in preparedness. Early warning systems proved inadequate for rapidly developing flash floods, while damaged roads and communication networks delayed rescue operations in several remote areas. These experiences highlight the urgent need for more accurate forecasting, effective early warning systems, stronger emergency logistics and improved preparedness to reduce the impacts of future flash flood events.

4.3 Community Participation and Social Solidarity

Community participation emerged as one of the most remarkable aspects of the recent flash flood response in Assam. Even before official rescue teams reached several affected villages, local residents, youth volunteers and community groups used country boats, tractors and other locally available resources to rescue stranded families and shift them to safer locations.

One of the most encouraging features of the disaster response was the overwhelming humanitarian support extended by people **irrespective of caste, creed or religion**. Individuals, voluntary organisations, religious institutions, educational institutions, charitable trusts and

social organisations from across Assam united to provide food, safe drinking water, medicines, clothing and other essential relief materials. Community kitchens were established in several locations, while social media platforms played an important role in coordinating rescue efforts, mobilising donations and identifying families in urgent need. Women actively managed relief camps, prepared meals and cared for children, the elderly and other vulnerable groups, while youth volunteers participated in cleaning schools, restoring public facilities and distributing relief materials after the floodwaters receded.

Several prominent personalities and organisations also made significant contributions to relief and rehabilitation. **Badrudin Ajmal** announced financial assistance of **₹2.5 crore**, while **Riniki Bhuyan Sharma** contributed **₹1 crore** towards flood relief. In addition, many artists, businesspersons, social organisations and philanthropists extended financial and material support to affected communities. Local MLA **Akhil Gogoi** actively participated in rescue operations, visited affected areas and coordinated relief distribution, reflecting the collective commitment of public representatives during the crisis.

The unprecedented public response demonstrated Assam's long-standing tradition of cooperation, compassion and social solidarity. It showed that effective disaster management depends not only on government intervention but also on active citizen participation, local leadership and collective responsibility. As climate-induced disasters become more frequent, strengthening partnerships between government agencies, civil society and local communities will be essential for building resilience and ensuring sustainable recovery.

5. Disaster Management Challenges, Policy Recommendations and the Way Forward

5.1 Disaster Management Challenges

The recent flash floods in **Sivasagar, Charaideo and Jorhat** exposed important gaps in Assam's disaster management system. While the state has considerable experience in dealing with seasonal riverine floods, the sudden nature of flash floods revealed the need for faster response mechanisms, improved preparedness and stronger community resilience.

A major challenge was the lack of timely and location-specific early warning. Many families received little information before floodwaters rose rapidly, leaving them with insufficient time to evacuate or protect their belongings. Rescue operations were also hampered by submerged roads, damaged bridges and limited access to remote villages, although the coordinated efforts of the **SDRF, NDRF, district administration and local volunteers** helped save many lives.

The floods further highlighted the vulnerability of rural infrastructure, including roads, drainage systems, power supply and drinking water facilities. Agriculture and livestock-based livelihoods suffered heavy losses, increasing financial insecurity among rural households. These challenges underline the need for stronger disaster preparedness and climate-resilient development.

5.2 Policy Recommendations

To reduce future disaster risks, Assam should strengthen flash flood early warning systems using real-time weather monitoring and modern communication technologies. Community-based disaster preparedness should be promoted through village disaster management committees, awareness programmes and regular mock drills.

Investment in climate-resilient infrastructure, including stronger roads, drainage systems and multipurpose flood shelters, is equally important. Farmers and livestock owners should receive timely compensation, insurance support and easier access to credit for faster recovery. Better coordination among government agencies, scientific institutions and local communities, along with the integration of climate change into development planning, will further improve disaster resilience.

5.3 The Way Forward

The recent flash floods demonstrate that climate-related disasters in Assam are becoming more intense and unpredictable. Traditional flood management approaches must therefore be complemented with strategies designed specifically for flash floods.

Building a resilient Assam requires improved forecasting, effective governance, climate-resilient infrastructure and active community participation. By combining scientific planning with local knowledge and the strong spirit of cooperation shown during the disaster, Assam can strengthen its capacity to reduce future risks and achieve sustainable development.

6. Conclusion

The flash floods in **Sivasagar, Charaideo and Jorhat** highlighted a new and growing disaster challenge in Assam. Unlike the state's traditional riverine floods, these floods struck suddenly, causing heavy loss of lives, livelihoods and infrastructure. The swift response of the **Government of Assam**, disaster response agencies, volunteers and local communities played a vital role in rescue and relief operations, demonstrating Assam's strong spirit of social solidarity.

The disaster also revealed the need for better early warning systems, climate-resilient infrastructure and stronger community preparedness. As climate change increases the risk of extreme rainfall, disaster management must shift from emergency response to proactive risk reduction. Investing in preparedness, scientific research and resilient development will help protect lives and support sustainable growth in the future.

7. Limitations of the Study

This study is based on secondary sources, including government reports, disaster management publications, media reports and scholarly literature. Since official data may be updated during the rehabilitation process, the findings should be interpreted accordingly.

The study does not include household surveys or field investigations. Future research based on primary data can provide deeper insights into the long-term social, economic and psychological impacts of flash floods.

8. Scope for Future Research

Future studies should examine the long-term effects of flash floods on poverty, migration, agriculture and rural livelihoods. Comparative research on flash floods and riverine floods, along

with studies on climate adaptation, early warning systems, disaster economics and community-based disaster management, would contribute to more effective policies. The use of GIS, remote sensing and climate modelling can further strengthen disaster research in Assam.

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