

BETWEEN THE RIPPLES: Mapping the lived narratives of the 2025 Punjab floods

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Floods are among the most recurring and devastating disasters in India, causing widespread damage and disruption. The state of Punjab, traversed by the Sutlej, Beas, and Ravi rivers, has endured repeated seasonal floods over the years, triggered by heavy monsoons, snowmelt from the Himalayas, and the worsening effects of climate change. The 2025 Punjab flood was one such high-impact disaster that affected all 23 districts of the state, displacing nearly 20 lakh people, submerging over 1.76 lakh hectares of farmland, and causing widespread damage to infrastructure, agriculture, and livestock, primarily in rural areas.

This exhibit aims to capture the human stories and lived experiences of 2025 Punjab flood-affected individuals to reveal the disaster's impact and local dimensions at the grassroots level. The narratives were captured through interviews with individuals from five villages in Amritsar district in Punjab. Using insights from 21 semi-structured interviews, secondary research, and comparative analysis of the 1988 and 2025 floods, the cognitive, administrative, and informational dimensions of the flood experience were mapped.

Typically, the conventional flood research largely focuses on data collection from administrative and economic perspectives, including hydrological risk, satellite imagery of destruction, statistical data on casualties, displacement, infrastructure damage, and recovery and rehabilitation costs. This needs to be augmented by psychological and cultural dimensions of flood experience, including decision-making heuristics, intergenerational flood memory, and the role of emotions, which remain underexplored. The present exhibit identifies that learnings from flood memories of past events can actively shape present perceptions and decision-making. It further recognizes the importance of the underlying mechanism through which every system functions - information, and how it can degrade due to the multiplicity and duplicity (the broken telephone

effect). It also demonstrates the power dynamics within the system that deepen the community's vulnerability.

The gigamap synthesises these findings across all dimensions and highlights the need to bridge the gap between traditional methods of recording disaster impacts and local knowledge to understand destruction and formulate recovery strategies at the grassroots level.

KEYWORDS: disaster response, floods, lived narratives, flood memory, Punjab floods, local knowledge, synthesis map, gigamapping, systemic design

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Context

Disasters, despite causing widespread destruction, are often reduced to statistics. Whether it is satellite imagery of the destruction or statistical data on casualties, displacement, infrastructure damage, or recovery and rehabilitation costs, everything could end up being recorded from an economic perspective. While most disasters are natural, they emerge from natural hazards when socially produced vulnerabilities have a detrimental effect on physical events (Blaikie et al., 2004). Floods are among the most recurrent of such hazards, severely impacting communities around the world and their vulnerabilities. These vulnerabilities are often a result of socio-economic factors, such as class, gender, and ethnicity. They determine who has access to safe housing, early warning signs, and recovery resources, leading to unequal exposure risks and making some communities more vulnerable than others (Cannon, 1994). Conventional loss assessment tools and damage metrics document large-scale physically observable damage and homogenise vulnerability, often overlooking informal livelihoods, broken social connectivity, power imbalances, and the loss of culture and community strength (Bankoff et al., 2004). The experiences of the flood-affected communities are

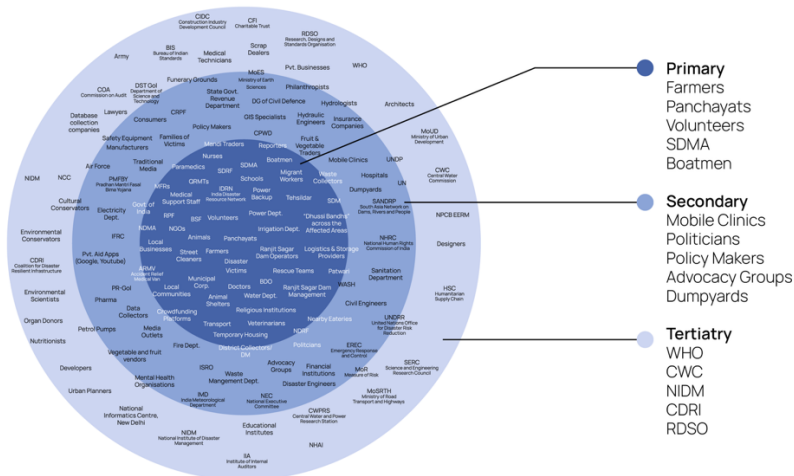


Figure 1. Stakeholder map.

systematically underrepresented, and their local knowledge may remain absent from formal disaster response frameworks, creating a systemic gap.

Concept

Flood response has historically been measured in a standardised way, using technical knowledge. This deepens the vulnerability with each passing flood due to the gap between local knowledge and the power to act. A pluralistic systemic design approach not only incorporates community voices into the response system but also enables different types of knowledge to coexist and enrich one another.

The central theme of the map revolves around an old man stuck in the 2025 Punjab floods, encountering the reflection of his younger self from the 1988 Punjab floods. The former is the overwhelming present, while the latter is his “flood memory” (Bandyopadhyay et al., 2024) passed down from previous flood experiences as well as knowledge from elders. The ripples in the water portrayed themes that emerged from the interviews with flood-affected individuals. A comprehensive timeline capturing the key events, their scale of impact, the dominant emotions of stakeholders during the event, the status of flood memory, and their operating cognitive system was mapped. The map also visualises the power-knowledge relationship of the stakeholders. Farmers, despite having high knowledge, have very little power to impact the response system.

The gigamap ties the primary and secondary information together, navigating through the 2025 Punjab floods as a system of information and memory pool.

Creative Process

Through the combination of systemic design tools, field studies, and secondary sources, comprehensive research on the 2025 Punjab floods, decision-making, and memory pool was conducted to dive into the local dimensions of floods. The study began with observing the areas affected by the floods in Punjab and understanding the sequence of events that took place during August and September 2025. The next step was to map out the stakeholders engaging with the system at various levels and categorise them into primary, secondary and tertiary based on their impact and engagement. Upon identifying the stakeholders, the hierarchy of rural administration of Punjab, from the State Government to wards was charted along with their roles across three disaster phases.

The study then moved to field research, for which a defined boundary was established. Semi-structured interviews were conducted with flood-affected individuals from five villages in the Amritsar district in Punjab - Kakkar, Dujowal, Ramdas, Pachhia, and Ghonewala. 21 participants, ranging from homemakers to farmers, to mandi traders, were selected using snowball sampling with the help of different referrals. Interviews were conducted in Punjabi after obtaining informed consent from all the participants. The study received ethical clearance from the Institute Ethics Committee (IEC Communication Number: IITK/IEC/2025-26/I/83). Given the sensitive and potentially distressing nature of recounting flood experiences, each participant was briefed on the purpose of the study and their right to withdraw from the study prior to the interviews. To protect participant identity, all interviewees were anonymised and are referred to by participant codes (P1–P21) throughout the analysis and gigamap; while the five surveyed villages are named for geographic and contextual clarity, no individual names are disclosed at any stage of the research or in the resulting outputs. The results were translated into English by the lead author, a native of Punjab. Retaining the contextual, emotional and cultural meaning of participant responses was prioritised over literal, word-for-word translation. Therefore, the gigamap or the paper do not represent verbatim or quotation-marked excerpts. Insights from the interviews were instead synthesised and presented thematically. Translation accuracy was informally cross-

checked with a second native Punjabi speaker familiar with regional dialects, with all data anonymised beforehand. A formal back-translation procedure was not conducted, which the authors acknowledge as a limitation. Naturalistic observations of structural damage, rehabilitation efforts, and sand residue were also recorded during the field visits, wherever possible. Keyword and thematic analyses were conducted on the collected dataset, revealing 44 recurring keywords and 7 recurring themes, respectively. Reference to the 1988 floods emerged as a crucial narrative in the analysis, making the interview data the primary evidence of flood memory. Therefore, a comparison of differences, similarities, and lessons from both floods was charted. The learnings and experiences from the 1988 flood led to the community's self-reliance and quick responses during the 2025 floods. It is important to note that a substantial share of the synthesised data, including the 1988–2025 comparison, the emotional and cognitive dimensions of the timeline, and the thematic narrative content, is derived entirely from participant memory and interview accounts and is treated as subjective, lived testimony rather than verified fact.

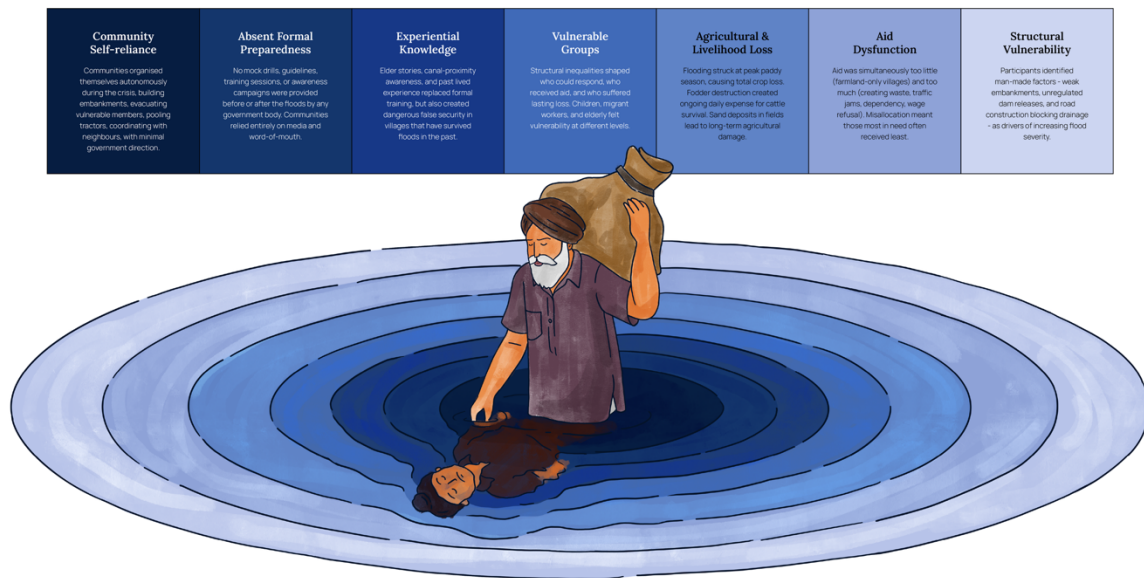


Figure 2. Flood memory and ripples as a metaphor for the system and the interview themes.

On the other hand, the quantitative figures referenced on the map and the paper, such as the number of people affected, the level of water, etc., are drawn from independently verified secondary sources, including news reports and the Sphere India Secondary Data Analysis Report (2025). The gigamap is thus a synthesis map that brings

the two categories of information into a shared visual system. The next step was to understand human decision-making and psychological states during disasters. Aspects such as two cognitive systems (Kahneman, 2011), decision-making heuristics (Tversky & Kahneman, 1974), psychological responses across disaster phases (Math et al., 2015), and the role of emotions in decision-making (Chawla et al., 2025) were mapped onto the gigamap. Further, the basis for a smooth functioning of any system was explored - information. Information comes from various sources during the different phases of the disasters and supports different actions. From news channels to rumours, information from every source can make or break important decisions. This information can be divided into two broad categories: statistical and narrative; both have their own set of limitations. In many cases, it degrades due to the broken telephone effect and leaves a detrimental impact on the receiver. Other limitations include a cost-based approach vs an emotion-based approach, incomplete information, language barriers, and fragmented collection. After mapping the entire system, patterns, connections, and relationships - both direct and indirect - between different elements were identified. This approach aided in identifying key leverage points in the system for targeted interventions. The insights from the gigamap were formalised in a synthesis map.



Figure 3. Synthesis map of lived narratives of the flood-affected individuals in the 2025 Punjab floods.

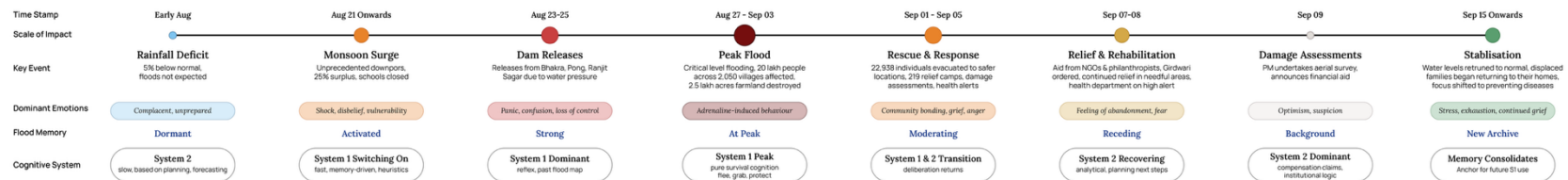


Figure 4. Chronological timeline of key events.

Reflection

Mapping the 2025 Punjab floods as a system revealed dimensions that neither the secondary research nor the interviews alone could have formalised. The gigamap helped to understand the individual narratives as well as patterns at systemic levels - connecting memory, administrative hierarchies, information flows, and emotional responses within a single framework. Studying these elements cohesively helped recognise the gap between technical and local knowledge and the importance of their working together. The flood had already been mapping itself with every cycle in the memories and words of those who survived it. We, as systemic designers, simply need to learn to read these signs.

Conclusion

“Between the Ripples” highlights the local dimensions of the 2025 floods that conventional disaster documentation typically overlooks. Communities came together before the relief arrived. Elders carried flood memory that no damage assessment captured. The gigamap holds these plural ways of knowing in coexistence from a design perspective. The interpretations and themes presented in the gigamap and the paper reflect the authors' analysis of the interview data and have not yet been validated with participants or community representatives. Future iterations of this work could incorporate participant verification within the surveyed villages to further ensure that the synthesis map accurately reflects lived experiences. Building on the identified leverage points, future work could focus on translating them into actionable interventions and creating flood preparedness that formally incorporates local and intergenerational knowledge.

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