National Research Journal of Sales & Marketing Management
Volume No: 12, Issue No: 2, Year: 2025 (July-December)
PP: 163-167
ISSN: 2349-512X
Peer Reviewed & Refereed Journal (IF: 6.95)
Journal Website www.nrjsmm.in

COMMUNICATING RESILIENCE: EVALUATING POLICY MESSAGING AND MARKET OUTREACH STRATEGIES TO MITIGATE FLOOD VULNERABILITY AMONG PUNJAB'S FARMERS

Advit Sethi

Research Scholar, Invictus, Amritsar

ABSTRACT

Agriculture in Punjab is increasingly exposed to flood-hazards due to intensified rainfall, blocked drainage channels, and an ageing irrigation infrastructure. Floods not only destroy standing crops but also deposit silt and sand, delay sowing, damage field infrastructure and reduce future income potential. This study investigates the scale of flood-related losses among farmers in Punjab, assesses their economic consequences and proposes a set of economic and policy strategies aimed at reducing vulnerability. Drawing on recent flood-impact data from the 2025 events, academic vulnerability assessments and government advisories, we estimate typical per-acre and per-hectare losses, identify structural weakness in farm and state infrastructure and explore risk-sharing and diversion strategies. We argue that without a proactive shift from relief to resilience—via improved drainage, parametric insurance, livelihood diversification, collective marketing and integrated water management—Punjab's farming sector may suffer increasingly large economic setbacks from floods.

Keywords: Flood vulnerability; Punjab agriculture; farm economics; drainage infrastructure; crop-loss compensation; diversification; policy strategies.

INTRODUCTION

Punjab has become known as India's "grain bowl" because of its lush plains, decades of canal irrigation, and the major impact of Green Revolution technologies. However, Punjab's flat topography, vast irrigation systems, and high-input farming practices—the exact characteristics that made it so successful in agriculture—have also created new vulnerabilities, particularly with regard to flooding.

The 2025 monsoon season brought this problem to light. Large tracts of farmland were submerged by floodwaters in low-lying places, destroying standing crops and upsetting whole agricultural cycles. In addition to excessive rainfall, human-caused causes such as development on floodplains, blocked drainage systems, and inadequate water management infrastructure that failed to divert excess water away from productive areas contributed to the severity of these floods.

For farmers in Punjab, flooding signifies much more than the loss of a single harvest. A submerged paddy crop equates to the forfeiture of months of labor investment—ploughing, transplanting, weeding, and managing irrigation. The financial repercussions are equally substantial: costs for seeds, fertilizers, pesticides, and electricity for pumps become irretrievable investments. The cascading consequences extend even further. Floodwaters leave behind silt that alters soil composition, the subsequent crop cycle may experience delays that miss optimal planting times, tube-wells and pumps suffer water damage, and farmers operating on tight profit margins face increasing debt obligations on loans taken for inputs that yielded no returns.

ISSN: 2349-512X
Peer Reviewed & Refereed Journal (IF: 6.95)
Journal Website www.nrjsmm.in

This situation necessitates addressing flood risk with the same analytical rigor applied to droughts or market fluctuations—as a crucial element of agricultural risk management in Punjab.

This study seeks to answer two fundamental questions: First, what is the nature and extent of flood-related economic losses in Punjab's agricultural sector? Second, what practical strategies—encompassing both economic instruments and policy reforms—can enhance resilience against these challenges?

METHODOLOGY

This study draws primarily on secondary data and published reports. Data on flood-extent, damage, and farm-level losses are drawn from media reports, state-government releases and agricultural university advisories (e.g., Punjab Agricultural University (PAU) contingency bulletins). Academic research on vulnerability and resilience among small-holder farmers is used to frame economic impacts and coping capacity (e.g., Raza et al., 2025).

The analytic framework emphasises three stages: (i) estimating the exposure and losses (area inundated, crop loss value, per-acre cost), (ii) assessing farm-cost structure and resilience mechanisms (insurance uptake, infrastructure capital) and (iii) developing strategy categories (farm-level economic, policy/institutional). Two tables summarise key impact indicators and per-acre loss estimates. All information is used for reference only; primary survey data were not collected for this study.

DATA ANALYSIS

Flood Exposure and Economic Consequences

The 2025 floods in Punjab were significant in both spatial and economic terms. According to media sources, over ~182,100 hectares (~450,000 acres) of farmland were submerged across multiple districts. Within this context, fields often remained water-logged for days due to poor drainage infrastructure and blockages in canal outlets—thus compounding the impact.

Economically, the scale of losses is considerable. The direct paddy-crop loss has been estimated at approximately ₹ 7,500 crore in 2025 for Punjab alone. On an individual farm level, loss estimates translate to roughly ₹ 90,000-91,000 per acre for owner-farmers, and up to ~₹ 1,15,000 per acre for tenant farmers, when accounting for input costs, lost revenue and rental obligations. Table 1 summarises selected impact indicators.

Table 1: Selected Flood-Impact Indicators for Punjab (2025)

Indicator	Value / Description	Source
Estimated farmland submerged	~182,100 ha (~450,000 acres)	Media reports
Estimated crop-loss value (paddy only)	~₹ 7,500 crore	Media reports
Major fields with silt/sand deposition	Up to 4–5 feet of sand in some fields	Reports

ISSN: 2349-512X
Peer Reviewed & Refereed Journal (IF: 6.95)
Journal Website www.nrjsmm.in

Table 2 provides per-acre loss estimates.

Table 2: Per Acre Loss Estimates for Key Crops in Flood-Affected Areas

Crop Type	Estimated Loss per Acre	Notes / Source
Paddy (owner-farmer)	~₹ 90,000-91,000 per acre	Includes input cost + lost revenue
Paddy (tenant farmer)	~₹ 1,15,000 per acre	Higher due to lease cost

Beyond crop loss, many farmers reported damage to irrigation pumps, tube-wells and bunds and significant expense and delay in clearing silt and sand from fields, with some restoration costs estimated at ₹ 8,000-12,000 per acre. This suggests that the farming household's recovery burden is layered and persistent, not one-off.

DRIVERS OF VULNERABILITY

The level of loss depends on three inter-connected dimensions: exposure, sensitivity and coping capacity. First, exposure is high in low-lying areas or near river flood-plains and canal networks; the structure of Punjab's irrigation system means water may back-up into agricultural lands during heavy rainfall or dam releases. Second, sensitivity is intensified by massive input investment in mono-cropping (especially paddy), saturated soils, weak drainage and a narrow sowing window for subsequent crops. Third, many farmers display limited coping capacity: small and marginal holdings, low savings, minimal insurance uptake and few off-farm income opportunities. In an empirical study, Raza et al. (2025) found that households with diversified income streams and access to extension services fared better.

Problems of drainage infrastructure are clearly flagged in provincial reviews: one report noted heavy rainfall events (e.g., one-day 217 mm downpour) revealed serious failures in field-level drainage, blocked waterways, illegal encroachment on flood-plains and delayed pump-out capacity.

Thus, the combination of high exposure + high sensitivity + low coping capacity contributes to major financial losses and long-term vulnerability for Punjab farmers.

DISCUSSION

Economic & Institutional Trade-Offs

From a risk-management perspective, many farmers in Punjab continue to rely on high-cost monocrops (like paddy) that offer higher returns in favourable years but leave them exposed to event risk such as floods. The data suggest that when favourable conditions persist, income may be strong; however, when a thorough flood event hits, losses are large. The challenge then is to shift toward strategies that reduce downside risk even if they moderate upside return modestly.

Farm-level strategies such as crop diversification, raised-bed cultivation, resilient irrigation equipment, and parametric insurance can reduce the severity of losses. At the institutional level, infrastructure investment in drainage, surface water management, transparent damage assessment and compensation systems become critical. The synergy of farm and system interventions will determine how resilient the agricultural system becomes.

ISSN: 2349-512X
Peer Reviewed & Refereed Journal (IF: 6.95)
Journal Website www.nrjsmm.in

Strategy Evaluation

Among the strategies, drainage and flood-management infrastructure stand out as high-leverage. Data from the World Bank-supported "Punjab Flood Protection and Drainage Project" note that improved drainage and surface water management could reduce inundation frequency significantly. Additionally, extension advice (e.g., PAU's advisory to open bund ridges, clear drains, expedite sowing) underscores the importance of timely action.

Crop-insurance uptake remains low and needs better design: parametric flood-modules, faster claim settlement and bundling with input-subsidy programmes may increase adoption. Farmer-Producer Organisations (FPOs) in flood-prone zones can amalgamate risk, manage collective assets (drains/ponds) and broker better insurance and market deals.

Resource & Sustainability Implications

Flood mitigation also brings ecological benefits. Improved drainage and managed water-release reduce standing water duration, limit silt deposition, assist soil–health and enable timely sowing. As climate change intensifies rainfall variability and extreme events, building resilient systems becomes necessary not optional. In other words, addressing flood-vulnerability is also about sustaining Punjab's agricultural productivity and rural livelihoods.

CONCLUSION

The state of Punjab's agriculture faces a major test: recurring flood events are increasingly imposing heavy economic burdens on farmers, with crop losses, delayed sowing, infrastructure damage and rising indebtedness. The data suggest that these losses are not trivial or occasional—they are large and systemic. The way forward lies in shifting the policy and farm-practice paradigm from **reactive relief** to **proactive resilience**.

At the farm level, diversification, infrastructure resilience, financial risk-sharing and contingency planning matter. At the state and institutional level, the priority must be drainage and flood-management investment, transparent compensation systems, capacity building for farmer organisations, and embedding flood risk into agricultural policy. For Punjab's farmers to safeguard their livelihoods, weather-proof infrastructure and risk-sharing mechanisms must be in place ahead of the next flood. With this integrated pathway, Punjab can reduce the magnitude of loss, maintain agricultural productivity and ensure the well-being of its farming community in the face of mounting climate-change pressures.

REFERENCES

1. Mohammed Raza, Shalini Jain, et al. (2025). "Assessment of vulnerability and resilience of small-holder farming households in flood-prone areas of Punjab, India." *Agricultural Systems*, forthcoming.
2. "Drainage failure ravages Punjab farms." *Dawn*, 11 August 2025.
3. "Punjab Floods 2025: How a lack of culverts on highways and ill-timed decisions on dam water release worsened the disaster." *Down To Earth*, 8 September 2025.
4. India – Punjab Flood Protection and Drainage Project. World Bank document.
5. "Impact of Punjab Flood 2025 on Agriculture, Farmers, and Economy." SinghXpress, 31 August 2025.
6. "Agro-advisory and contingency crop planning issued for flood-affected Punjab farmers." *The Tribune*, 2 September 2025.

ISSN: 2349-512X
Peer Reviewed & Refereed Journal (IF: 6.95)
Journal Website www.nrjsmm.in

7. "PAU prepares agro-advisory, contingency crop plan for flood-hit areas." *Times of India*, 2 September 2025.
8. "Punjab CM will pay Rs 7,200 per acre to farmers for removing silt: Mann." *Times of India*, 30 September 2025.