



**Sphere India**

National Coalition of Humanitarian Agencies in India



**Building Resilience from Local to Global**

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**Integrating Indigenous and  
Local Knowledge Systems  
for Risk Reduction**



## Building Resilience from Local to Global: Integrating Indigenous and Local Knowledge Systems for Risk Reduction

### INTRODUCTION

Sphere India organized a series of sessions on Harnessing Indigenous Knowledge for Effective Disaster Management, bringing together diverse perspectives from across India's varied geographies and contexts. These sessions highlighted the significance of indigenous practices, traditional wisdom, and community-driven approaches in building resilience against disasters. By exploring region-specific strategies, the initiative aimed to integrate local knowledge into modern disaster management frameworks, fostering sustainable and inclusive solutions tailored to the unique needs of communities across the country.



The primary objectives of the sessions were to:

- Empower local communities and first responders with disaster risk reduction (DRR) training in their native languages, ensuring inclusivity and accessibility.
- Document and showcase Indigenous practices for disaster resilience, highlighting their integration with contemporary DRR approaches.
- Establish a network that unites Indigenous communities, civil society, and disaster management professionals to collaborate and share knowledge.

Incorporating Indigenous knowledge is vital for developing holistic, sustainable, and community-centred DRR strategies. By blending traditional practices with modern approaches, this Ignite stage seeks to enhance resilience at both local and global levels, contributing to more effective disaster preparedness and response. Through knowledge sharing, training, and documentation, it underscores the importance of preserving Indigenous wisdom and integrating it into broader DRR frameworks for a more resilient future.





## SESSION SUMMARIES

### 1. Harnessing Indigenous Knowledge for Effective Disaster Management in India | 19th September 2024

#### Key Indigenous Practices

- **Natural disaster prediction:** Indigenous communities use natural indicators like animal behaviour and environmental changes to predict disasters.
- **Traditional architectural methods:** Building houses on stilts in flood-prone areas and resilient construction techniques such as floating cultivation used in Assam and the Himalayas.
- **Flood-resistant crops:** Cultivating crops that can withstand flood conditions, as practiced by communities in Assam.
- **Terrace farming and rainwater harvesting:** Sustainable agricultural techniques that manage land and water resources effectively to reduce disaster risks.
- **Controlled burning:** An age-old method of managing forests to prevent large wildfires, particularly used in forested regions.
- **Traditional food preservation:** Techniques like smoking or pickling food to ensure survival during disaster periods, particularly in regions prone to flooding or food scarcity.
- **Early warning systems:** Communities use traditional methods for early warning, such as observing environmental and ecological signals.

#### Community Resilience Strategies

- **Coping mechanisms for floods:** Communities in flood-prone areas have adapted by building elevated homes, cultivating flood-resistant crops, and preserving food for emergencies.
- **Sustainable land and water management:** Practices like terrace farming and rainwater harvesting reduce the impact of droughts and floods, contributing to long-term resilience.
- **Indigenous first responders:** Indigenous communities often act as the first responders during disasters, especially in remote areas, offering immediate aid before formal disaster management agencies arrive.
- **Documentation and knowledge sharing:** Emphasis on collecting, preserving, and scientifically studying indigenous knowledge to inform disaster preparedness strategies.
- **Integration of traditional knowledge:** Blending indigenous practices with modern disaster management frameworks to enhance community resilience, especially in rural and remote areas.
- **Community governance and collaboration:** Indigenous people advocate for self-determined disaster management systems and collective resource management, which ensures sustainable practices and stronger social bonds.
- **Traditional food systems:** Preserving traditional food systems, which contribute to community health, disaster preparedness, and recovery, particularly by promoting food security during disasters.

#### Challenges Faced and Outcomes

- **Lack of policy frameworks:** There is insufficient support for integrating indigenous knowledge into formal disaster management policies, resulting in underutilization of valuable local wisdom.





- **Erosion of traditional practices:** Modernization and the lack of documentation threaten the preservation of indigenous knowledge, as younger generations may move away from traditional ways.
- **Limited representation in global negotiations:** Indigenous communities are often excluded from global discussions on climate change and disaster resilience, limiting their ability to influence disaster management strategies.
- **Intellectual property rights:** Indigenous knowledge is often used without equitable benefit-sharing or recognition of intellectual property rights, leading to exploitation.
- **Cultural challenges:** Indigenous communities face cultural pressures that threaten the transmission of knowledge, with modernization contributing to the loss of traditional skills and practices.
- **Outcomes of resilience strategies:** Communities that maintain traditional practices, like flood-resistant crops and early warning systems, often experience higher resilience and faster recovery from disasters.





## 2. Lessons from Nagaland's Indigenous Disaster Preparedness

| 29th January 2024

### Key Indigenous Practices

- **Fire Management:** Nagaland communities use controlled burning and firebreaks to manage slash-and-burn (jhum) cultivation, and young village guards protect villages from fire.
- **Water Management:** Tree preservation around water sources prevents drying up of streams and ponds, and rainwater harvesting systems are installed by households.
- **Agricultural Practices:** Traditional agricultural practices include crop diversification and seed saving to ensure food security against climate variability.
- **Building Techniques:** Traditional construction methods make structures more resistant to seismic activities.
- **Herbal Medicine:** Use of local traditional herbal medicines to treat health issues, reducing reliance on external aid.
- **Early Warning Systems:** Communities use natural indicators such as animal behaviour, changes in the sky's colour, and plant behaviour to predict natural disasters.
- **Traditional Cultivation Patterns:** Jhum (shifting) cultivation maintains soil fertility and prevents soil erosion.
- **Sacred Groves:** Protecting forest areas for biodiversity and resource conservation.
- **Traditional Building Practices:** Using resilient materials and techniques for disaster-resistant homes.
- **Medicinal Plant Knowledge:** Applying traditional plant-based medicine during disasters.

### Community Resilience Strategies

- **Community Awareness and Education:** Village councils actively advise communities on disaster preparedness, including preservation of natural resources and traditional practices.
- **Community Wells:** Communities maintain and protect wells to ensure a steady water supply during droughts.
- **Food Storage Practices:** Traditional methods are used to preserve food for long-term storage, ensuring food security during disasters.
- **Community Shelters:** Shelters are built based on traditional designs for collective safety during disasters.
- **Local Warning Systems:** The use of drums, conch shells, and other traditional means for alerting communities of impending disasters.
- **Afforestation Practices:** Raising community awareness and taking collective initiatives to maintain forest cover for water conservation.

### Challenges Faced and Outcomes

- **Documentation Risk:** The transmission of Indigenous Knowledge is increasingly at risk of being lost as it traditionally passes down orally through generations.
- **Disasters Affecting Communities:** Frequent natural disasters such as earthquakes, landslides, floods, fires, and high-speed winds impact community infrastructure and agriculture.
- **Forest Fires:** Fines imposed for improper fire management aim to prevent harmful practices.
- **Human-Wildlife Conflict:** Wild elephants destroy crops and pose threats to safety in some areas.





- **Water Scarcity:** Communities face periodic droughts due to irregular rainfall, necessitating preservation of water resources and rainwater harvesting.
- **Individual Land Ownership:** Managing forest cover is complicated by individual land ownership, which can challenge collective conservation efforts.





### 3. Promoting Inclusive Climate Action and Resilience Building in South Asia: A Panel Discussion on Intersectional Perspectives on Mainstreaming Gender, Disability, Indigenous and Local Knowledge Systems in Climate Action | November 23, 2023

#### *Key Indigenous Practices*

- **Use of local plants and herbs:** Indigenous communities utilize local flora for medicinal purposes, leveraging traditional knowledge to treat ailments.
- **Agro ecological farming:** Employing traditional agricultural methods that promote biodiversity and sustainable land use, enhancing soil health and crop resilience.
- **Water management techniques:** Indigenous practices include rainwater harvesting and traditional irrigation systems, ensuring efficient use of water resources.
- **Cultural rituals and ceremonies:** Rituals are performed to honour nature and maintain spiritual connections, fostering community cohesion and environmental stewardship.
- **Seasonal migration:** Some communities practice seasonal migration based on ecological changes, optimizing resource use throughout the year.

#### *Community Resilience Strategies*

- **Knowledge sharing:** Communities share indigenous knowledge and practices among members to strengthen collective resilience.
- **Intergenerational learning:** Elders pass down knowledge to younger generations, ensuring the continuity of traditional practices.
- **Community governance:** Indigenous governance systems promote self-determination and decision-making, enhancing adaptive capacity.
- **Collaborative resource management:** Communities engage in collective resource management, ensuring sustainable practices that benefit all members.
- **Integration of traditional and scientific knowledge:** Blending indigenous knowledge with modern science fosters innovative solutions to environmental challenges.

#### *Challenges Faced and Outcomes*

- **Land rights issues:** Indigenous communities often face legal challenges regarding land ownership and access, impacting their ability to practice traditional methods.
- **Cultural erosion:** Modernization and external influences threaten the preservation of indigenous cultures and practices.
- **Environmental degradation:** Climate change and industrial development lead to loss of biodiversity and traditional lands, diminishing resources for indigenous practices.
- **Health disparities:** Access to healthcare and nutrition may be limited, resulting in poorer health outcomes for indigenous populations.
- **Resistance to traditional practices:** Younger generations may prioritize modern practices over traditional ones, leading to a decline in indigenous knowledge transmission.





## 4. Indigenous Wisdom and Approaches to Disaster Preparedness: A Glimpse from Assam | 20th November 2023

### Key Indigenous Practices

- **Early Warning Indicators from Nature:**
  - **Cattle Behavior:** Observations of cattle's reluctance to move or abnormal behaviors signal impending floods.
  - **Animal Behavior:** Persistent howling of foxes or crows indicates prolonged dry spells or floods; ants moving their eggs to higher ground signify imminent flooding.
  - **Flora Indicators:** Specific flowering patterns can signal potential floods or soil productivity.
- **Architectural Adaptations:**
  - **Chang Ghar (Stilt Houses):** Elevated stilt houses built by the Mising community provide protection against flooding.
  - **Elevated Granaries:** Granaries constructed on stilts keep food and essentials safe from floodwaters.
- **Community Preparedness and Resource Management:**
  - **Boat Ownership and Construction:** Families maintain boats or community-made rafts for mobility during floods.
  - **Water Management:** Raised platforms for wells ensure access to clean water during flooding.
  - **Floating Gardens:** Vegetables grown on bamboo-made floating gardens secure food availability.
- **Innovative Practices:**
  - **Vegetable Planting in Bags:** Vegetables planted in bags keep them above floodwaters, providing a sustainable nutrition source.
  - **Portable Cooking Solutions:** Fire sticks made from cow dung and portable stoves are utilized for cooking during disasters.
  - **Raised Platforms for Livestock:** Platforms built to protect cattle from flooding.
- **Integration of Modern and Traditional Practices:**
  - **Eco Bricks:** Use of eco-bricks (plastic bottles filled with single-use plastics) in constructing rafts enhances buoyancy and durability.
  - **Government Policies:** Incorporation of traditional architectural designs into modern construction enhances resilience to local disaster risks.

### Community Resilience Strategies

- **Knowledge Sharing:** Facilitating platforms for indigenous voices to be heard in disaster management decision-making.
- **Partnerships:** Building collaborations between indigenous communities, organizations, and stakeholders in disaster management.
- **Resource Management:** Implementing community-driven resource management practices to ensure sustainability during disasters.







### **Challenges Faced and Outcomes**

- **Limited Recognition:** Indigenous knowledge often goes unrecognized and is not integrated into mainstream disaster management strategies.
- **Communication Gap:** Difficulty in effectively conveying traditional knowledge to external agencies hinders collaboration.
- **Technological Disparities:** Challenges in balancing traditional practices with modern technology lead to integration issues.
- **Environmental Changes:** Climate change and habitat loss affect the reliability of traditional indicators.
- **Policy Barriers:** Existing policies may not align with the dynamic nature of indigenous practices, limiting their effectiveness.

**Documentation Issues:** There is a risk of losing traditional knowledge if it is not adequately documented and preserved.





## 5. Indigenous Perspectives on Disaster Resilience: Integrating Traditional Knowledge- International Day of the World's Indigenous People | 19<sup>th</sup> August 2023

### Key Indigenous Practices

- **Inherent DRR Practices:** Indigenous communities naturally integrate disaster risk reduction (DRR) into their lifestyle through centuries-old practices.
- **Religious Faith and Nature:** Indigenous people's religious beliefs tie closely to nature, with elements such as rivers, trees, and mountains considered sacred, influencing their disaster mitigation strategies.
- **Rituals and Beliefs:** Communities like the Kurumbas perform rituals to influence weather patterns, demonstrating their connection to and reliance on natural elements for disaster awareness.
- **Environmental Observation:** Indigenous communities are skilled at observing natural changes (e.g., river colour, animal behaviour) to predict disasters.
- **Community Leadership:** Elder leaders like the "Moopan" use their knowledge of natural signs to guide communities to safety.
- **Environmental Conservation:** Indigenous people protect vital trees and plants for ecological balance and actively conserve medicinal and nutritional plants.
- **Sustainable Coexistence with Wildlife:** They employ traditional methods to reduce human-wildlife conflicts, particularly with elephants, fostering peaceful coexistence.

### Community Resilience Strategies

- **Disaster Prediction by Elders:** The wisdom of elder leaders is crucial in predicting natural disasters and guiding the community in response.
- **Conservation of Biodiversity:** Preserving vital flora and fauna helps maintain ecological balance, contributing to disaster resilience.
- **Sustainable Agriculture and Nutrition:** The promotion of native crops and sustainable agricultural practices supports food security during crises.
- **Community-Based Disaster Education:** Passing traditional knowledge to younger generations helps to strengthen resilience through continuity.
- **Documenting Indigenous Knowledge:** There is an ongoing effort to document and preserve this knowledge for future generations, ensuring that valuable insights aren't lost.

### Challenges Faced and Outcomes

- **Preservation of Knowledge:** As modern civilization advances, there is a risk that traditional knowledge may be overshadowed, requiring documentation efforts to safeguard it.
- **Commercial Use of Indigenous Knowledge:** Ensuring that indigenous communities receive benefits and royalties from the commercialization of their knowledge is an ongoing challenge.
- **Limited Integration with Modern Systems:** The lack of cultural sensitivity in mainstream disaster management strategies can lead to the underutilization of indigenous practices.
- **Human-Wildlife Conflicts:** Although indigenous communities have effective strategies, external pressures such as deforestation and encroachment can disrupt this harmony.





## COMMON THEMES

### Integration of Traditional Knowledge with Modern DRR Strategies

- **Blending Indigenous and Modern Practices:** Multiple sessions emphasized the necessity of incorporating indigenous methods, such as early warning systems and sustainable agricultural practices, into contemporary disaster management frameworks. This integration enhances the effectiveness and cultural relevance of DRR strategies.
- **Documentation and Scientific Study:** There is a strong focus on documenting traditional knowledge through community involvement and scientific research. This ensures that valuable indigenous insights are preserved and can inform future disaster preparedness and response initiatives.
- **Policy Inclusion:** Advocating for policies that recognize and incorporate indigenous knowledge is a common theme. This includes developing frameworks that support equitable benefit-sharing and protect indigenous intellectual property rights.

### Community-Driven Resilience

- **Active Community Participation:** Indigenous communities are portrayed as active agents in disaster preparedness and response. Their involvement ranges from constructing resilient infrastructure to acting as first responders during emergencies.
- **Community Governance and Collaboration:** Indigenous governance systems promote self-determination and collective decision-making, which are crucial for adaptive capacity and sustainable resource management.
- **Intergenerational Knowledge Transfer:** Elders play a pivotal role in passing down traditional practices to younger generations, ensuring the continuity and resilience of indigenous knowledge.

### Sustainable Practices and Environmental Stewardship

- **Water and Resource Management:** Indigenous practices such as rainwater harvesting, raised platforms for water sources, and traditional irrigation systems are highlighted as effective methods for managing water resources and mitigating disaster risks.
- **Sustainable Agriculture:** Techniques like crop diversification, terrace farming, and seed saving not only ensure food security but also enhance soil health and resilience against climate variability.
- **Resilient Construction Methods:** Traditional architectural practices, including building stilt houses and using resilient materials, are essential for protecting communities from floods, earthquakes, and other natural hazards.
- **Environmental Conservation:** Protecting sacred groves, preserving biodiversity, and maintaining sustainable coexistence with wildlife are integral to maintaining ecological balance and reducing disaster vulnerabilities.

### Documentation and Preservation of Indigenous Knowledge

- **Preservation Efforts:** There is an ongoing effort to document and preserve indigenous knowledge to prevent its erosion due to modernization and external influences. This includes creating digital archives and conducting interviews with community elders.





- **Educational Initiatives:** Community-based disaster education programs aim to empower younger generations with traditional knowledge, ensuring its transmission and application in future disaster scenarios.

### Challenges Faced by Indigenous Communities

- **Policy and Recognition Gaps:** Indigenous knowledge often lacks formal recognition and integration into mainstream disaster management systems. This results in underutilization and marginalization of valuable local practices.
- **Cultural Erosion and Modernization:** The encroachment of modern lifestyles threatens the preservation of traditional practices and cultural heritage, leading to a decline in indigenous knowledge transmission.
- **Intellectual Property Rights:** Ensuring that indigenous communities receive fair benefits and royalties from the commercialization of their knowledge remains a significant challenge.
- **Environmental Degradation:** Climate change, deforestation, and habitat loss disrupt traditional practices and reduce the availability of natural resources essential for indigenous resilience strategies.

### Enhancing Representation and Advocacy

- **Inclusive Decision-Making:** There is a need for greater representation of indigenous communities in global and national climate change negotiations and disaster resilience planning.
- **Advocacy for Rights and Equity:** Emphasizing the importance of upholding the rights of indigenous peoples, promoting equality, and empowering communities to voice their concerns effectively in policy-making processes.





## KEY TAKEAWAYS

### Integration of Indigenous Knowledge with the contemporary DRR Strategies

Indigenous knowledge, passed down through generations, has long supported community resilience against disasters. Rooted in local ecosystems and traditions, these practices offer sustainable solutions for risk management. In today's rapidly changing climate and disaster landscape, it is crucial to modernize and integrate Indigenous practices into contemporary Disaster Risk Reduction (DRR) strategies.

By blending traditional wisdom with modern technology, we can create more resilient and comprehensive DRR systems. Modernizing Indigenous practices ensures their relevance to today's challenges, including climate change, urbanization, and global interconnectedness. This integration aligns with the Sendai Framework's call for using local knowledge to build resilience, ensuring DRR strategies are inclusive and community driven.

### Recommendations for Integration

**Research and Documentation:** Indigenous practices should be systematically documented and researched to assess their applicability in modern contexts. Collaborative efforts between Indigenous communities, researchers, and policymakers can ensure that these practices are preserved and adapted effectively.

**Capacity Building:** Training programs that combine Indigenous knowledge with contemporary DRR tools (e.g., GIS mapping, early warning systems, and risk assessment models) should be developed for both Indigenous communities and DRR practitioners. This will enhance mutual understanding and bridge the gap between traditional and modern approaches.

**Policy Inclusion:** Governments and DRR agencies should institutionalize Indigenous knowledge by integrating it into disaster management policies at local, regional, and national levels. Ensuring that Indigenous practices are recognized alongside modern approaches will enrich the overall strategy for disaster resilience.

**Technological Synergy:** Modern technology, such as satellite imagery, drones, and predictive models, can enhance the efficiency of Indigenous practices. These tools can be used to scale up traditional methods and make them more adaptable to current disaster scenarios, ensuring broader application and effectiveness.

## CONCLUSION

A successful contemporary DRR framework must recognize the value of Indigenous practices. These practices provide localized, adaptable solutions, grounded in generations of experience. However, by modernizing and integrating them with technological advancements, their potential can be expanded. For example, blending traditional agricultural techniques with climate-smart innovations or merging Indigenous Forest management systems with digital monitoring tools can create stronger, more dynamic systems for managing disaster risk.

Crucially, integrating Indigenous knowledge into DRR frameworks empowers communities, promotes sustainability, and fosters resilience. By elevating these practices, we not only preserve cultural heritage but also enhance the adaptability and efficacy of DRR efforts on a global scale.

