

# Community-Led Adaptation and Early Warning in Vulnerable Urban Areas

*Pre-formed Panel Discussion Theme: Climate Resilience and Urban Health: Addressing Heat, Floods, and Air Pollution in South-east Asian Cities*

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# The Community-Led initiatives

Despite challenges, they are not passive victims. They are leading locally adapted solutions to build resilience from the ground up.





# Community-Led Adaptation: Why it Matters

Community-led adaptation transforms at-risk populations into first responders and co-architects of urban climate resilience.



- ❑ **Urban hazards are rising:** floods, heatwaves, vector-borne outbreaks, and extreme weather increasingly impact South and Southeast Asian cities.
- ❑ **High-risk communities:** Low-income urban populations, especially those living in slums, face heightened exposure to flooding, heat, and disease.
- ❑ **Meaningful participation builds Community action matters:** Local knowledge enables scalable resilience through neighborhood drainage, heat alerts, and community-led emergency response.
- ❑ **Participation strengthens outcomes:** Inclusive engagement builds trust, equity, and ensures early-warning systems reach women, youth, and marginalized groups.

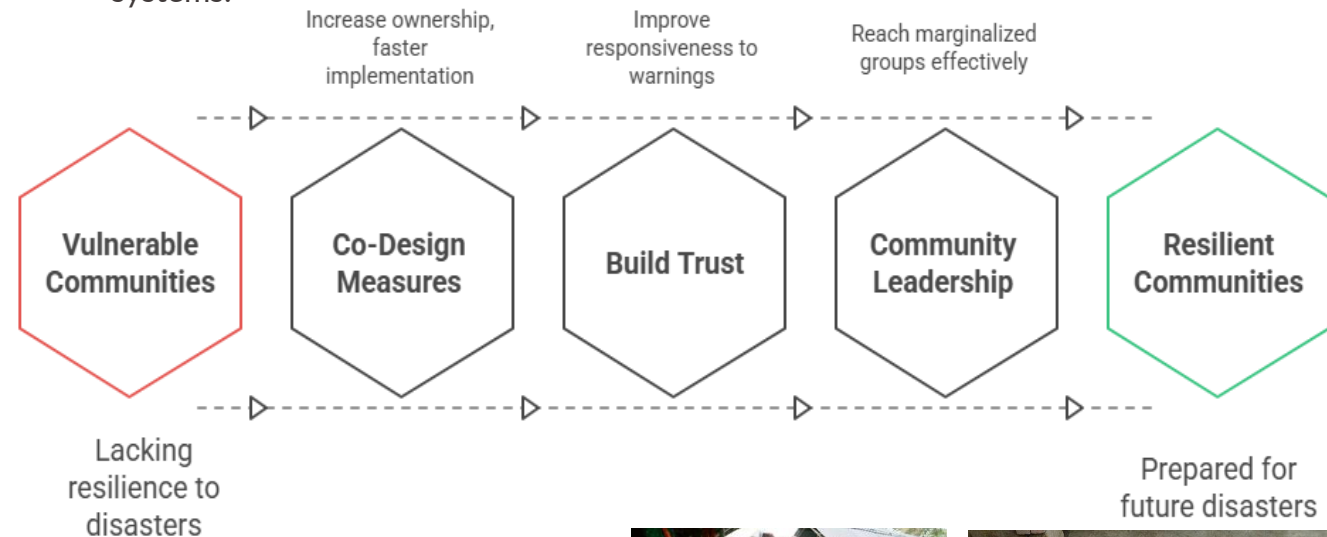
1. IPCC AR6, 2022: <https://www.ipcc.ch/report/ar6/wg2/>; 2. UN-Habitat Urban Vulnerability Report: <https://unhabitat.org/regional-assessment-on-urban-vulnerability-and-resilience-in-southern-african-development-community>; 3. UNDRR Community Resilience Guidelines: [https://www.undrr.org/organization/making-cities-resilient-2030-mcr2030#:~:text=About%20Making%20Cities%20Resilient%202030&text=Does%20its%20resilience%20help%20its,Resilient%20Campaign%20\(2010%2D2020\)?](https://www.undrr.org/organization/making-cities-resilient-2030-mcr2030#:~:text=About%20Making%20Cities%20Resilient%202030&text=Does%20its%20resilience%20help%20its,Resilient%20Campaign%20(2010%2D2020)?); 4. WHO

Health & Climate Engagement Framework: <https://www.who.int/publications/i/item/9789240039859>

# Power of Participation



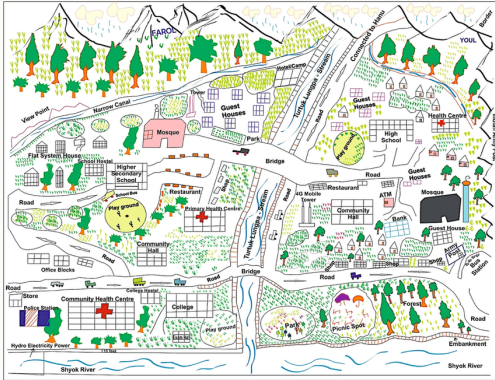
- ❑ Communities possess hyperlocal risk knowledge (waterlogging points, drainage blocks, heat hotspots)
- ❑ Locally co-designed measures → greater ownership and faster implementation
- ❑ Trust in early warning systems increases responsiveness
- ❑ Community leadership reaches marginalized groups better than top-down systems.





# Community Led Initiatives

## Participatory Mapping



### Participatory mapping

empowers communities to manage **water and ecological resources**, tackling issues like flooding and river erosion.

## Nature-Based Solutions



Communities are using **nature-based solutions** such as **rain gardens** to absorb stormwater and reduce flooding, and **green roofs** to lower indoor temperatures by up to 15 °C.

## Community-Led Adaptation



Locals take direct action to adapt their environment by pooling resources to **raise houses above flood levels**, **build community flood barriers**, and **improve drainage** through clearing and upgrading channels.

## Social Organization

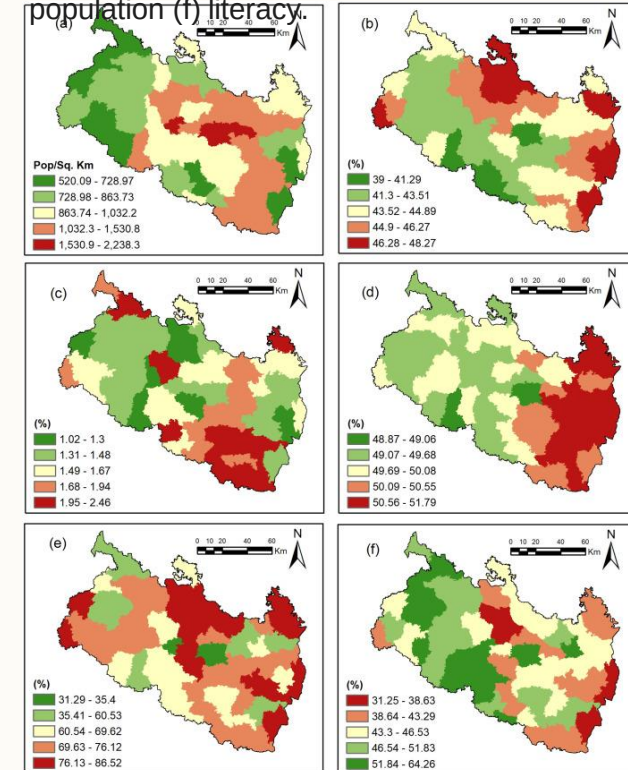


The communities strengthen **safety nets** through **savings groups for emergencies and adaptation**, **cooperative projects** for shared upgrades, and diverse income sources to reduce livelihood vulnerability.

# Participatory Risk Mapping A Proven Tool

- ❑ Communities map real-time risks—flood-prone lanes, blocked drains, heat hotspots, vulnerable households—providing granular data often missed by city authorities.
- ❑ Enhances accuracy of municipal planning, enabling targeted allocation of sandbags, emergency shelters, mobile clinics, and vector control.
- ❑ Strengthens local ownership as residents co-identify hazards and co-design solutions, improving long-term maintenance of drainage and public spaces.
- ❑ Improves equity, ensuring visibility of high-risk groups (elderly, disabled, female-headed households) often excluded from formal assessments.

Fig. Social vulnerability indicator layers (a) population density (b) dependent population (c) disabled population (d) female population (e) agriculture dependent population (f) literacy.



<https://doi.org/10.1016/j.nhres.2023.09.012>

# Case Study: Bangladesh



## Women at the Forefront

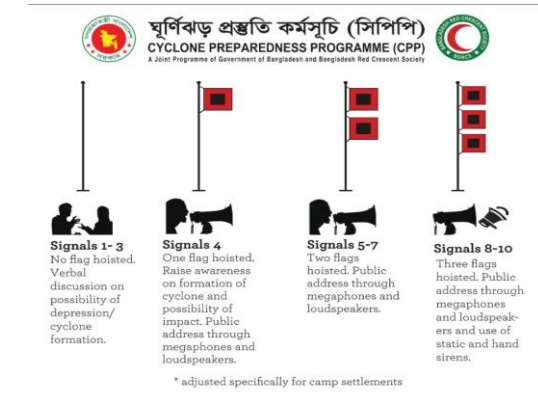
Projects like the **Gender-responsive Coastal Adaptation (GCA)** are unique in putting women at the center of climate action.

Women are trained in diverse, climate-resilient livelihoods like poly fish culture, rice cultivation, and vegetable production, empowering them economically and socially.



## Water Access Transformed

The **LoGIC (Local Government Initiative on Climate Change)** project shows the power of community-managed technology. A community-run Water Treatment Plant now serves ~400 families. It uses smart cards for equitable access to fresh water, saving women and girls hours of daily labor.



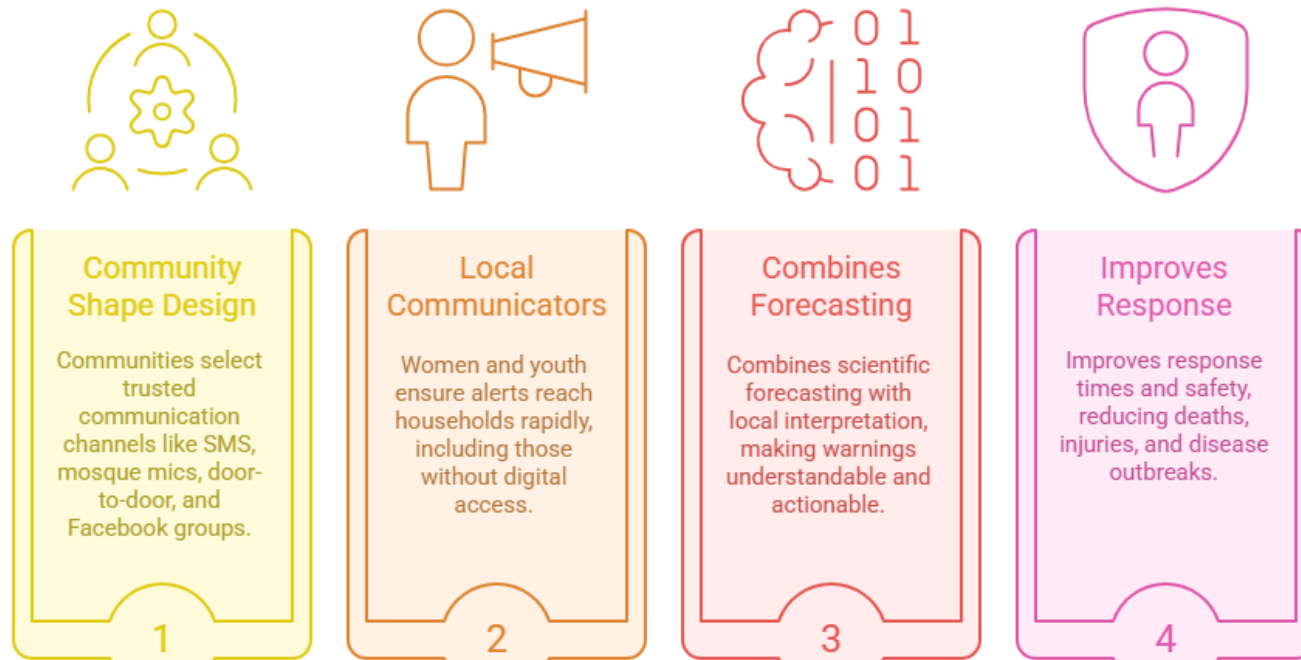
## The Cyclone Preparedness Program (CPP)

The **CPP** is a world-class example of a community-based EWS. It is powered by over 76,000 local volunteers. They go door-to-door with megaphones and flags, a trusted method that ensures the warning reaches the "last mile" and is acted upon immediately.

1. <https://www.undp.org/bangladesh/blog/community-led-initiative-climate-resilience-lessons-Bangladesh>; 2. <https://www.undp.org/bangladesh/blog/community-led-initiative-climate-resilience-lessons-Bangladesh>; 3. [https://prddsgofilestorage.blob.core.windows.net/api/sitreps/2/RCRC\\_Feedback\\_Bulletin\\_Cyclone\\_Preparedness.pdf](https://prddsgofilestorage.blob.core.windows.net/api/sitreps/2/RCRC_Feedback_Bulletin_Cyclone_Preparedness.pdf); 4. <https://bdracs.org/cyclone-preparedness-programm-cpp/>



## Co-Designed Early Warning Systems



## Empowering Women, Youth & Local Leaders

- ❑ **Women lead household and community preparedness:** Key in heat protection, water management, and health outreach.
- ❑ **Youth drive digital resilience:** supporting risk mapping, app-based reporting, and rapid alert dissemination.
- ❑ **Local leaders build trust:** Linking informal settlements and municipal authorities to accelerate coordinated response.
- ❑ **Empowerment ensures equity:** strengthens social cohesion and ensures climate-health strategies benefit those most at risk and remain sustainable.



# Key Lessons from Bangladesh

Community ownership accelerates adaptation—when people lead the process, solutions become faster, cheaper, and scalable.

Informal settlements innovate out of necessity, producing practical, context-grounded risk solutions with immediate impact.

Co-designed systems build trust, increasing participation, accuracy, and last-mile uptake of warnings and preparedness measures.

Women and youth are catalytic change agents, driving behavior change, mobilizing networks, and sustaining local resilience.

Localization strengthens equity, ensuring marginalized groups are reached and no one is left behind in climate and health preparedness.



# Policy & Investment Implications

- ❑ **Prioritize funding for community-led adaptation**—empowering local actors to design and implement context-specific resilience solutions.
- ❑ **Integrate climate and health systems**, investing in climate-resilient health infrastructure and real-time surveillance in vulnerable urban areas.
- ❑ **Scale participatory early warning systems** that combine scientific forecasting with community knowledge for timely, trusted alerts.
- ❑ **Support gender- and youth-inclusive programming** to harness the full potential of frontline change agents in urban resilience.
- ❑ **Foster multi-sector partnerships**—linking communities, NGOs, governments, and academia for sustainable, equitable urban climate-health outcomes.
- ❑ **Commit to long-term investments** in informal settlement upgrading, green infrastructure, and social protection to reduce systemic vulnerabilities.

## Urban Resilience Strategies



### Community-Led Adaptation

Prioritize funding for local actors to design resilience solutions.



### Climate-Health Integration

Invest in climate-resilient health infrastructure and surveillance.



### Participatory Early Warning

Combine scientific forecasting with community knowledge for alerts.



### Inclusive Programming

Support gender- and youth-inclusive programming for urban resilience.



### Multi-Sector Partnerships

Link communities, NGOs, governments, and academia for outcomes.



### Long-Term Investments

Commit to investments in upgrading, infrastructure, and protection.



# Thank You



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