

Capacity-building strategies to improve the resilience of the community to extreme hydrometeorological events: The experience of the Medellín Early Warning System

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The Aburrá Valley

Area 1100km² **Population 4 millions** **Slope >55%** **Annual precipitation 1400mm – 2500mm**

Observations and model projections suggest that extreme events are becoming more frequent in the region, increasing the level of hazard for vulnerable communities.

Doña María Stream

Santa Rita community, San Antonio de Prado, Medellín. Here is where this process started in 2015.

Population density Med 218 P/Ha **Deficient urban planning**

SATC (Community Early Warning System)

How does it work?

SIATA (Early Warning System of Medellín and Aburrá Valley)

Applied Science for Holistic Risk Management

Research **SAVE LIVES**

Scientific data for risk management

Natural Hazards: Floods, Flash floods, Landslides, Air pollution, Wildfires, Earthquakes

Sensors: Weather station, Rain gauges, Weather radar, Water speed sensors, Stream-stage sensors

Risk levels:

- N1: No risk.
- N2: Action level.
- N3: Moderate flooding.
- N4: Major flooding.

* The risk levels must be defined for each sensor site and must be revised periodically.

Doña María Stream floodplain

Hydraulic modeling for different flooding scenarios, using IBER and a Digital Elevation Model (DEM) with 1 m spatial resolution. Results are used for defining risk levels in the vulnerable community.

SATC (Community Early Warning System)

How does it work?

Phases of methodology

Phase 1: Identification

- Social groups and community leaders.
- Natural hazards.
- Strengths and weaknesses.
- Vulnerable areas.

Phase 2: Development

- Workshops.
- Installation of warning system.

Phase 3: Evaluation

- Evacuation drills with the communities and rescue/relief agencies.

Lessons learned

- The methodologies and strategies must be adapted to each group.
- Articulation between SIATA and local agencies of risk management is key for an effective response.
- Communities empowered with the risk management of their neighborhood.
- The most effective processes are those requested by the community.

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