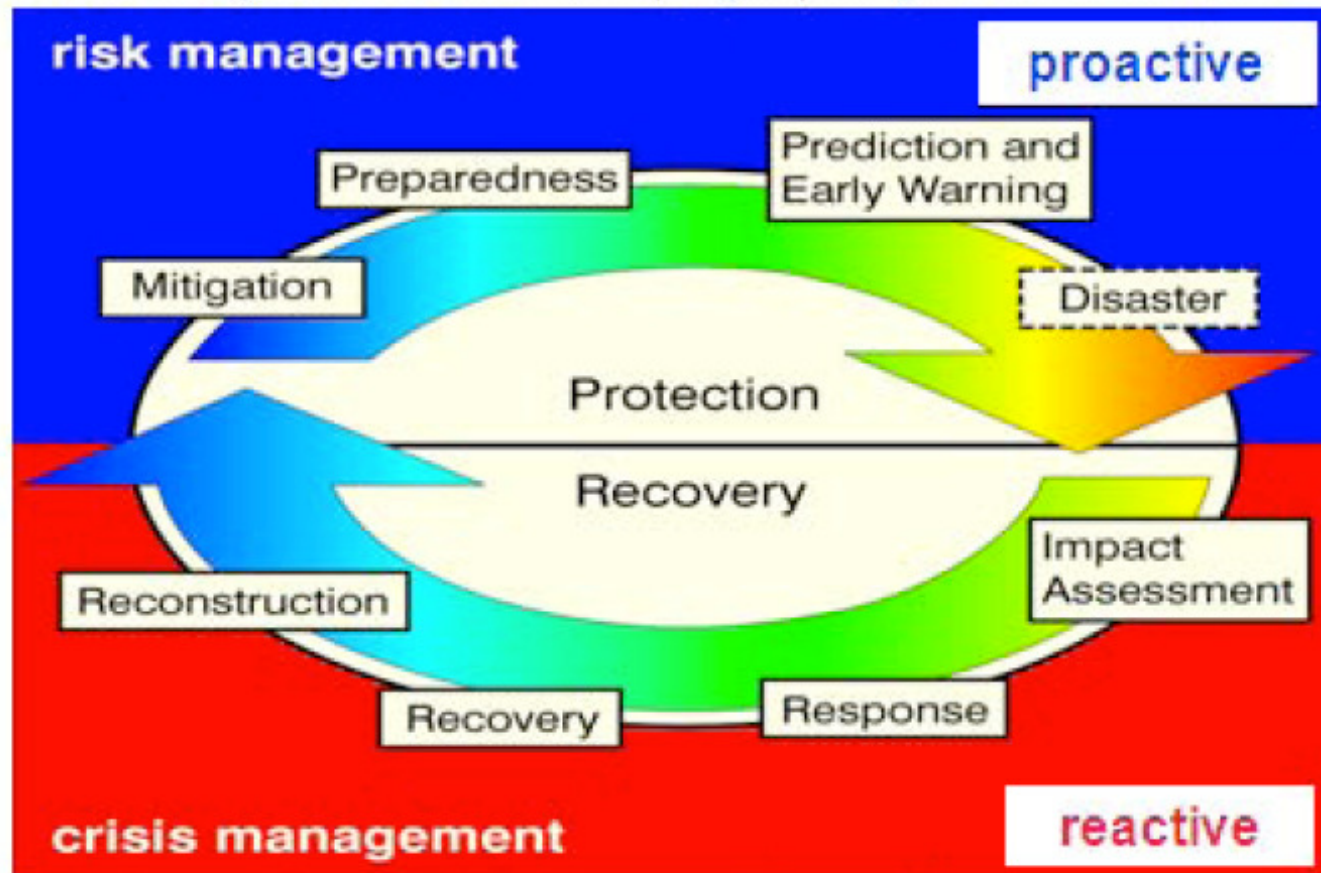


Risk Management vs. Crisis Management

Risk management increases coping capacity, builds resilience.



Crisis management treats the symptoms, not the causes.

**We cannot manage
sustainably
something we don't
know**

IHP-VIII 2014-2021





FRIEND – Flow Regimes from International Experimental Network Data

A global hydrological research program



FRIEND - A GLOBAL PROJECT

Flood forecasting hydrological processes linked with heavy rains

Techniques for extreme rain fall and flood runoff estimate

Stochastic modelling of heavy precipitation for runoff forecasting

Methodologies for reliable inundation mapping" through flood risk maps and vulnerability maps.

Established FRIEND Projects

- | | |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
|  Northern European FRIEND |  Nile FRIEND |
|  Alpine & Mediterranean FRIEND |  Western & Central Africa |
|  Southern Africa FRIEND |  Hindu Kush Himalayan FRIEND |
|  Asian Pacific FRIEND |  Latin American & Caribbean FRIEND AMIGO |

Tools for warning and forecasting in ungauged basins

Enhanced understanding forecasting and management of flash floods in urban areas





Hydrology for the Environment, Life and Policy

To deliver social, economic and environmental benefit to stakeholders through sustainable and appropriate use of water by directing hydrological science towards improved integrated catchment management basins

<http://www.unesco.org/water/ihp/help>

Real people

Real catchments

Real answers

Multi-disciplinary framework

Some global freshwater policy issues:

- water and food
- water quality and human health
- water and the environment
- water and climate including hydro-disasters
- water and conflicts

HELP BASINS

Catchments where multiple issues relating to process hydrology, water law and policy, water resources management and stakeholder participation can be solved in an integrated manner

HELP APPROACH

- A priori consultation with relevant, interested communities about the key real-world issues
- Researchers then determine which issues are researchable using current scientific methods and those which are not
- Collaborative design of the research, including how it will be conducted and incorporated into learning by managers, policy makers, and researchers
- Communal definition of conceptual models of how catchment-scale mechanisms operate, interact and exert downstream effects

HELP APPROACH

- Concerted effort to gather historic information on climate, land use, social/economic change to help: check model predictions using past conditions; envisage scenarios of future states of the catchment
- Formalise conceptual models into simulation models appropriate for integrated management use
- Field data collection of not just biophysical information, but also relevant social and economic processes
- Exploring scenarios of change and variability to guide management and process decisions