MAINSTREAMING FLOOD PREPAREDNESS IN LOCAL COMMUNITIES

Erich J. Plate & Janos J. Bogardi

UNU-EHS Bonn

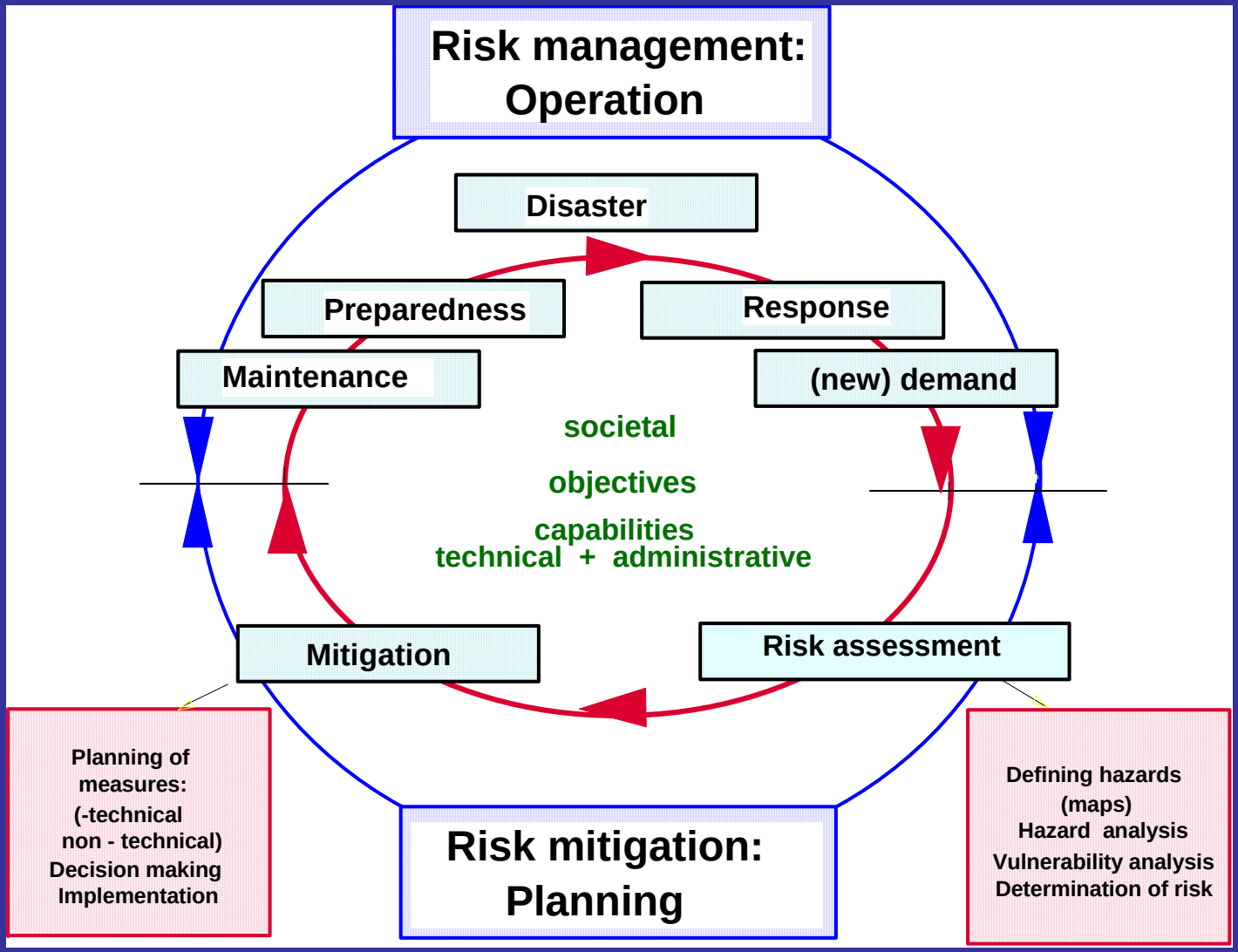
The framework of community involvement in flood management

The Government of the country or province has to provide an enabling environment:

- **Through legal structure: setting appropriate policies**
- **Through administrative assistance: provide technical and other guidance**
- **Through large scale projects**
- **Through financial support: assist particularly disaster prone communities**

The communities have to translate local needs and national policy into local actions. They not only know best what local threats are, but also the shortcomings of local protection systems.

Basis for community engagement must be a flood management and action plan adapted to the local needs.



The cyclical nature of flood risk management

The cyclical nature of flood risk management

Every generation has to reconsider the flood management cycle:

- **New options:**

  Better technologies for implementing structural and non-structural solutions,

  Better planning tools, and new knowledge.

- **Constraints:**

  Changes due to population development

  Changes in socio-economic conditions,

  Change in the environment due to climate change and local interferences with the flow of natural water courses

  Change in value systems

Community response to disasters

The task of rescue and relief after a disasters rests squarely on the communities!

In planning for disaster response of communities, consider these non-obvious facts:

- **most of rescue and recovery is done on the local level by the people of the community, and not by national, or international rescue operations**

- **disasters tend to generate numerous selfless acts of mutual assistance and civic obedience, and generally no looting and anarchy**

- **polluted water and contaminated food are major threats to health, and not bodies of dead animals or humans**

Risk perception for improved flood protection

Modern flood protection measures integrate nature protection, environmental quality and modern planning principles (like widening the distance between dikes) into planning. Not always accepted by the communities!

But: every step in the development of a protection system needs complementary measures on community level, guided by local priorities. Note problems due to different perceptions of risk!

It must be conveyed by the planners that subjective evaluations should be replaced by objective scientific assessments based on three factors:

the frequency of the occurrence of the extreme event,

the measures available for protecting lives

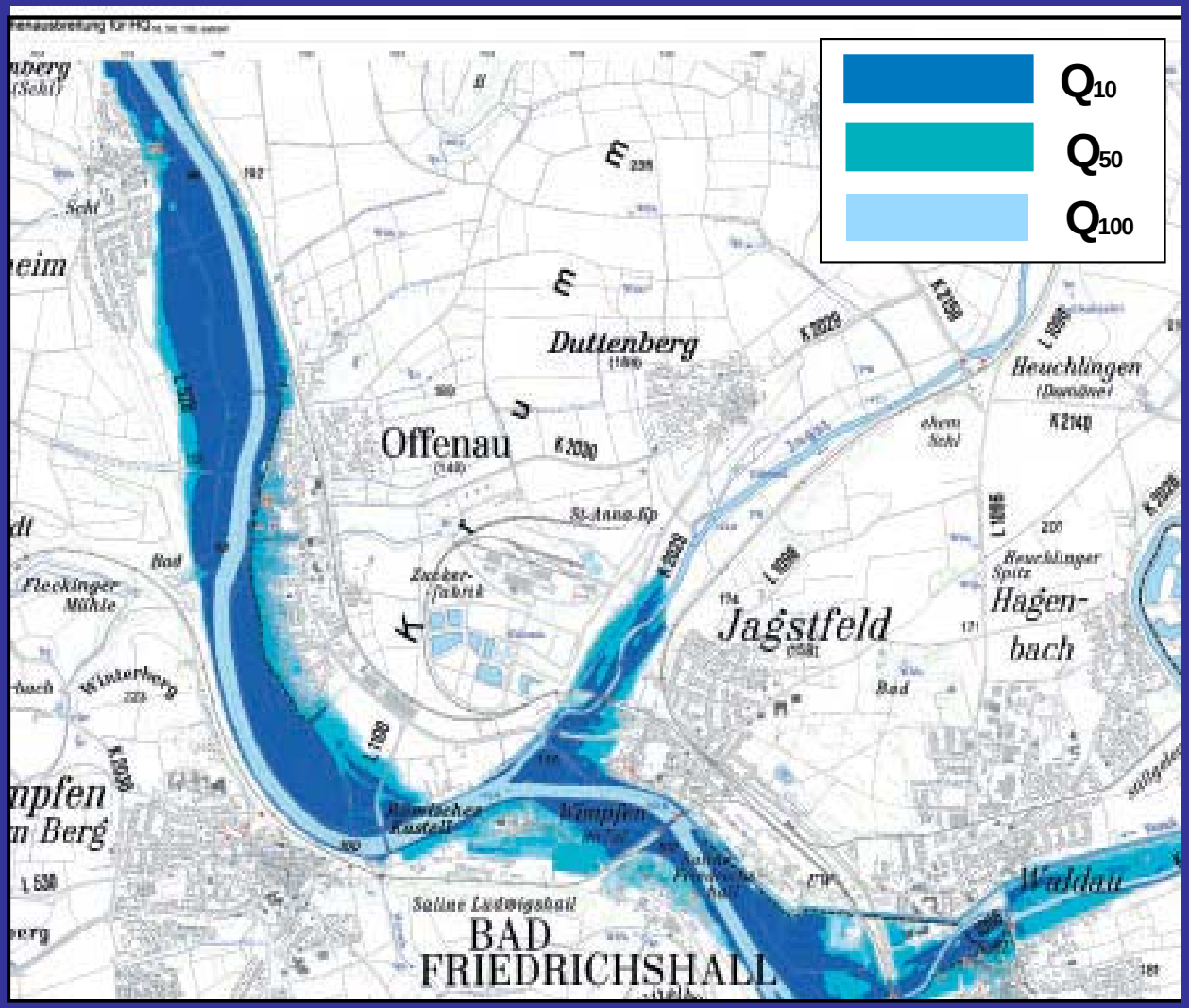
the socio - economic consequences of preventive measures.

Risk analysis for flood protection of communities

European Community Directive: based on the success of Flood Action Plan for the Rhine

Steps in risk analysis:

Step 1. Hazard assessment: hazard maps - flooded regions are indicated for extreme flood events of different frequency



Example of a hazard map in South Germany

showing 10, 50, and 100 year flood levels

Risk analysis for flood protection of communities

Step 2. vulnerability evaluation = evaluate benefits and costs, include social consequences (where possible!)

"ISDR: Vulnerability:
a function of human actions and behaviour that describes the degree to which a socio-economic system is susceptible to the impact of hazards.

Vulnerability relates to the physical characteristics of a community, structure, or geographic area which render it likely to be affected by, or protected from, the impact of a particular hazard on account of its nature, construction, and proximity to hazardous terrain or a disaster prone area.

Step 3: An important step is to combine hazard and vulnerability into an economic risk, which is a decision quantity:

a. for identifying weak links in the protection chain

b. for prioritizing investments

However, vulnerability is more than an economic quantity. It also designates the combination of factors that determine the degree to which someone's life and livelihood are to loss or damage by a specific identifiable threat or event in nature and society. One therefore also needs to identify the social risk:

a. for identifying vulnerable persons and objects as basis for appropriate action plans

Conversion of risk maps into actual measures

Develop a Flood Disaster Management Plan

European Community: SAFER program (Strategies and Actions for Flood Emergency Risk Management), to promote flood partnerships to inform and familiarize the public of flood action plans.

Obtain consensus of all people affected by any measures and find the right balance between preparedness efforts, damage compensation and permanent protection.

Difficulty of getting the assent of the people directly affected by the measures. Beneficiaries are not the same as disadvantaged by the measure. (Upstream - downstream conflict of flood retention on the Rhine river jeopardises Rhine Action Plan)

Flood early warning

Flood early warnings are essential protection measures, in particular on rivers where flooding usually is beneficial, except for extreme floods. Example Mekong!

Flood forecasting is only a part of an early warning system. Forecasts must be translated in endangered communities into adequate warnings and protective actions.

The hydrograph of forecasted water levels is not enough. On the Mekong warning levels for floods overtopping the banks are given. However, these values are valid only for the locality of the gage.

Therefore many projects were developed (among others with donor help from the US and many non-governmental organizations (NGOs)) with the purpose of relating gage readings on the river to gages, which are installed in villages in the flood plain.

Local reference gage

Flood warning boards for villages near Phnom Penh

World Conference on Disaster Reduction of January 2004:
Hyogo Framework for Action 2005 -2015

Paragraph 1 :

"Ensure that disaster risk reduction is a national and a local priority, with a strong institutional basis for implementation, including community participation and participation of the people at risk themselves".

- **promoting community participation in disaster risk reduction through the adoption of appropriate policies,**
- **promotion of networking,**
- **strategic management of volunteer resources,**
- **provision of the necessary authority and resources.**

Conclusions

Flood protection as a challenging task to the management of communities requires an enabling environment created by an enlightened population, and supported by political leaders dedicated to the well being of their constituency .

The framework for creating an enabling environment rests on three fundamental pillars:

- **a people oriented political system,**
- **education and training of citizens of the community, so that they can understand and participate in the decision process for flood protection**
- **a well trained and dedicated team of personnel and administrators of the flood protection projects**