



## **Urban Flood Management: Towards A Holistic Approach**

**Social dimensions: Have they been considered adequately?**

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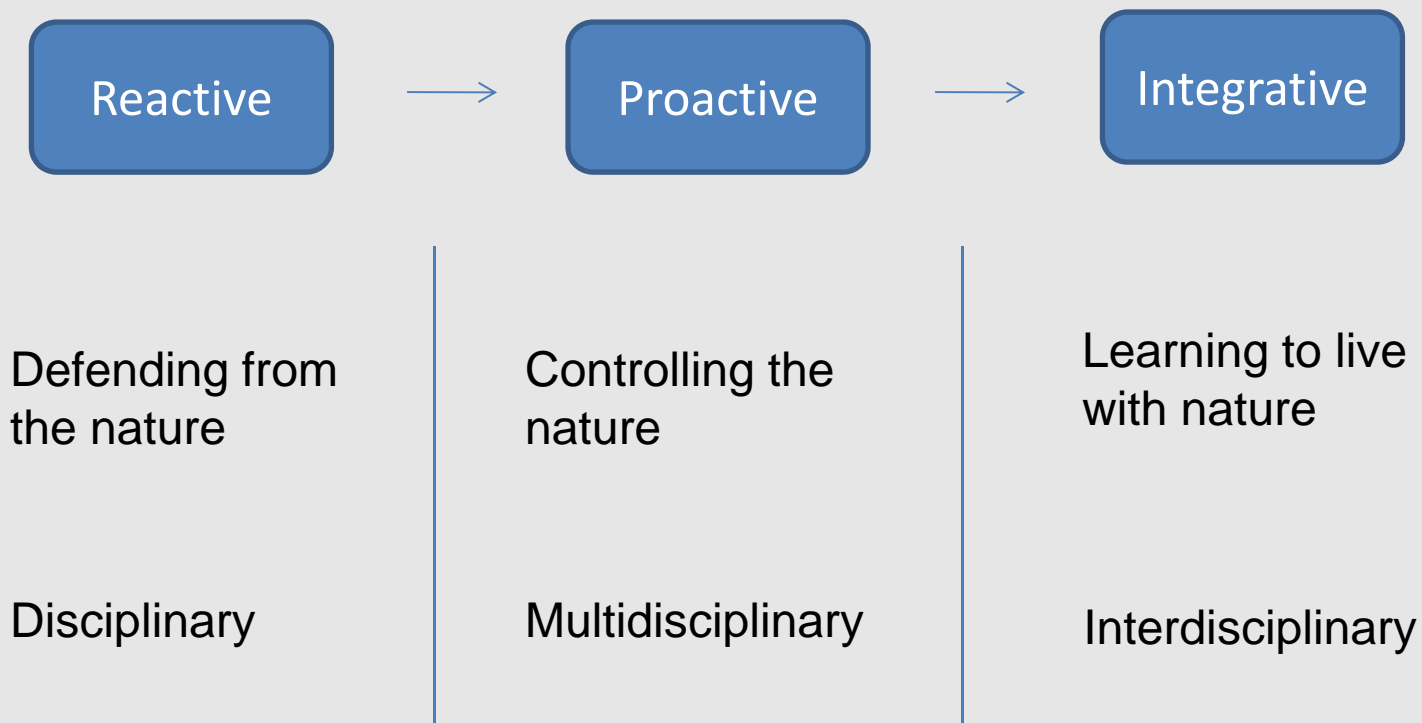
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## Social Dimensions in Urban Flood Management

- **How well** are social aspects reflected in the analysis
- **What is the meaningful** involvement of society in decision making processes



# Social Dimensions in Urban Flood Management



## Urban Flood Management – Current Practice

- Still fragmented views and organisational structures
- Most of floods can be managed by technical measures alone
- The method of inquiry rooted in the modern science
- Reductionist: taking something apart in order to understand it



## Urban Flood Management – Current Practice

- Obsession with quantification (ordering, numbering, counting, measuring)
- Qualities are left out - they cannot be measured/counted (e.g., perceptions, feelings, emotions, ethics, social justice, etc.)



# Urban Flood Management – Current Practice

$R = \text{Probability} \times \text{Consequence}$

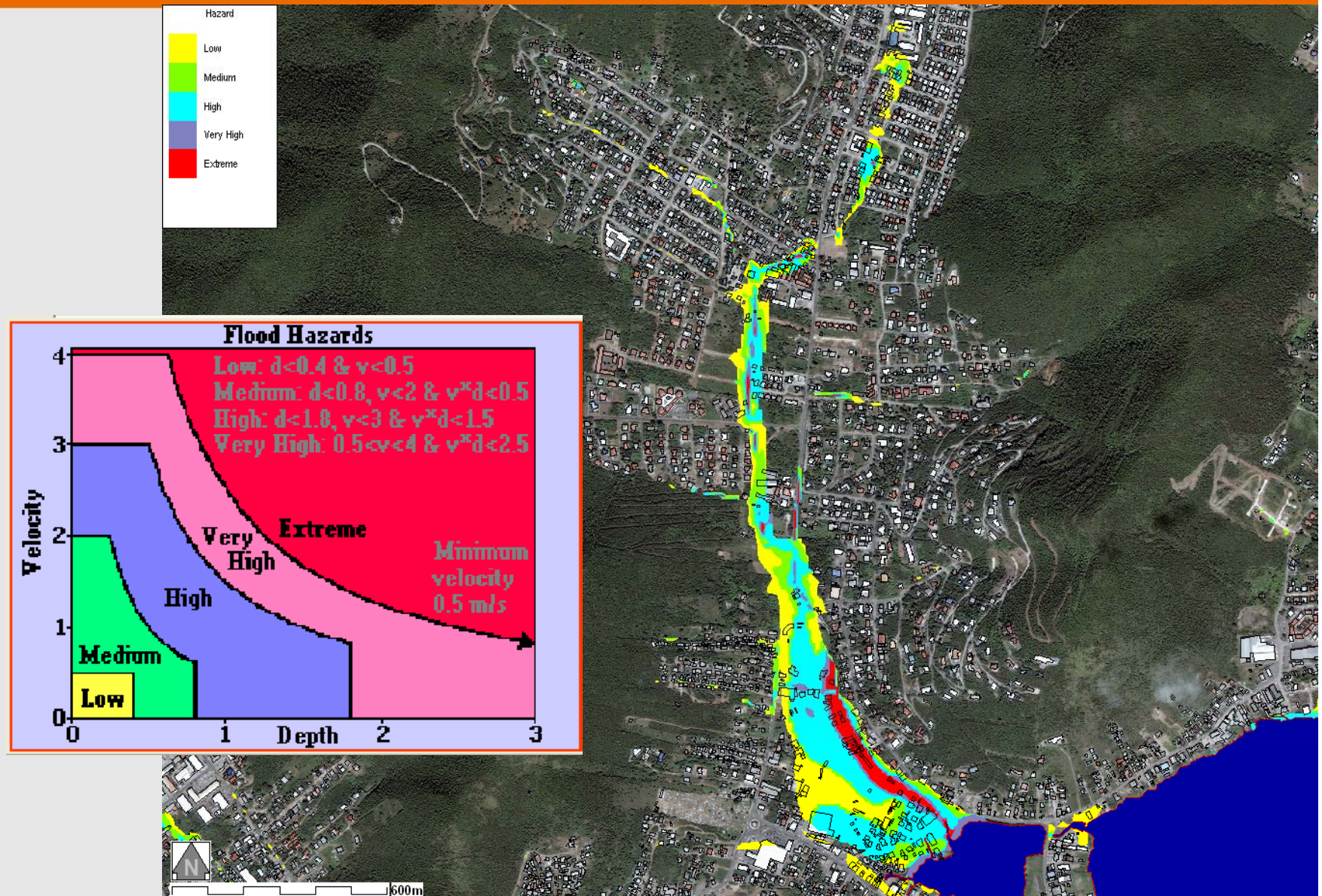
$R = f(H, V, R, E, CC, \text{etc.}) = f(H, V)$

$\text{Impacts} = \text{Benefits} - \text{Losses}$





# Urban Flood Management – Current Practice



# Flood Damages

## Losses/Damages

### Tangible

Financial  
(costs that can be expressed in monetary terms)

### Indirect Costs

#### Financial

- Loss of production or revenue,
- Reduced wages
- Extra expenditure

#### Opportunity

- Non-provision of public services

#### Clean-up

- Immediate removal of flood debris and discarded items

### Direct Costs

#### Internal

- Buildings' contents

#### External

- External items (e.g., vehicles)
- Anything that is outside from buildings

#### Structural

- Cleaning and repair of buildings



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# Flood Damages





# Flood Damages



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# Flood Damages

- 900 Million people live in slum areas;
- Hazardous, congested and concentrated areas;
- Lack of drainage infrastructure and other basic services;
- Often not seen as an equal partner in the city;



# Urban Flood Management – Stakeholder Participation

- Who should be involved?
- How should they be involved?
- How often?
- Empowerment?
- What should be the prevailing criteria for decision making?



## Social Dimensions – Current Practice

- Flooding: “an engineer’s problem”
- Quantitative risk assessment
- Focus on economic costs and benefits
- Inadequate stakeholder participation





# Social dimensions - from an engineer's point of view

Social dimensions: Have they been considered adequately?



# Thank You

