Sharing Disaster Losses
Designing a Flood Insurance System for Hungary

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Risk Transfer and Loss Sharing

VICTIMS

- Households
- Businesses
- Agriculture

- Public Sector

Donor Aid

Government
Tax payers

Private Market Insurance (Risk transfer)
Losses reimbursed from insurance and government assistance as a percentage of AREDL

- Umbria '97: 57%
- Kobe '95: 57%
- Poland '97: 44%
- MidWest '93: 58%
- Rhine '93: 60%
- Northridge '94: 51%
- Easter '98: 61%

Source: Linnerooth-Bayer et al. 2001
Policy Question

Can we design a public-private mitigation and insurance system that is acceptable to the stakeholders?

– Government ministries (and their experts)
– Local authorities
– Water authorities
– High- and low-risk public
– NGOs (environmental groups)
– Insurance companies
Hungary and the Tisza River
Round 1: Stakeholder Views

State Protection
• Structural mitigation to protect lives
• Government compensation to victims

Individualistic
• Self responsibility
• Private insurance
• Incentives

Holistic
Sustainable development
Mutuals
After a major flood, the government should compensate...

- **57%** All victims by a certain percentage of their losses
- **19%** All victims by the same amount, above which they can choose to have insurance
- **7%** Only needy victims, that is, not owners of vacation homes or well-to-do businesses
- **3%** Only victims with flood insurance
- **4%** Only victims who have not built their homes in high-risk areas without a permit
- **0%** No-one
What is the most important argument for government compensation?

- The government is responsible for flood losses: 51%
- The government has always compensated flood victims: 26%
- Social solidarity on the part of Hungarian taxpayers: 19%
- Do not know: 4%
Given conflicting stakeholder views and a heterogeneous public, how do we reach a stakeholder consensus on a flood mitigation/insurance system?
Round 3: Three Policy Paths for National Flood Insurance Program

Option 1: Voluntary private insurance (cross subsidies)

Option 2: Voluntary private insurance (risk based)

Option 3: Government reinsurance (with tax payer support)

Government compensates victims (percentage of losses)

Government compensates victims (fixed amount)

Voluntary private insurance (cross subsidies, government pays premiums for poor)
Flood-Loss-Policy Model

Hydrological Module
- One-dimensional
- Unsteady Flow

Inundation Module
- GIS-Based
- Flood Depth
- Flood Duration

Consequence Module
- Agricultural
- Urban
- Infrastructure
- Historical Buildings

Policy Model
- Test policies
Result: During the 1000 simulated 10-year periods, failures occurred 146 times.

View results for:  Scenario 1  Scenario 2  Scenario 3

View results from perspective:
- Government
- Insurer
- Pilot
- Individual

The consequences for one example household situated in a high-risk area - property is fully insured.
Round 4: Stakeholder Workshop
The stakeholder consensus on a national insurance scheme

Private Insurance
- Voluntary
- Flat rate
- Subsidies for poor households

Government Compensation
- Only for households with insurance
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