

# Financial Vulnerability to Natural Hazards

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*Expert Meeting*

*„Developing a method for addressing vulnerability to climate change and  
climate change impact management: To index or not to index?“*

*Bonn, 26.1.2004*

# Outline

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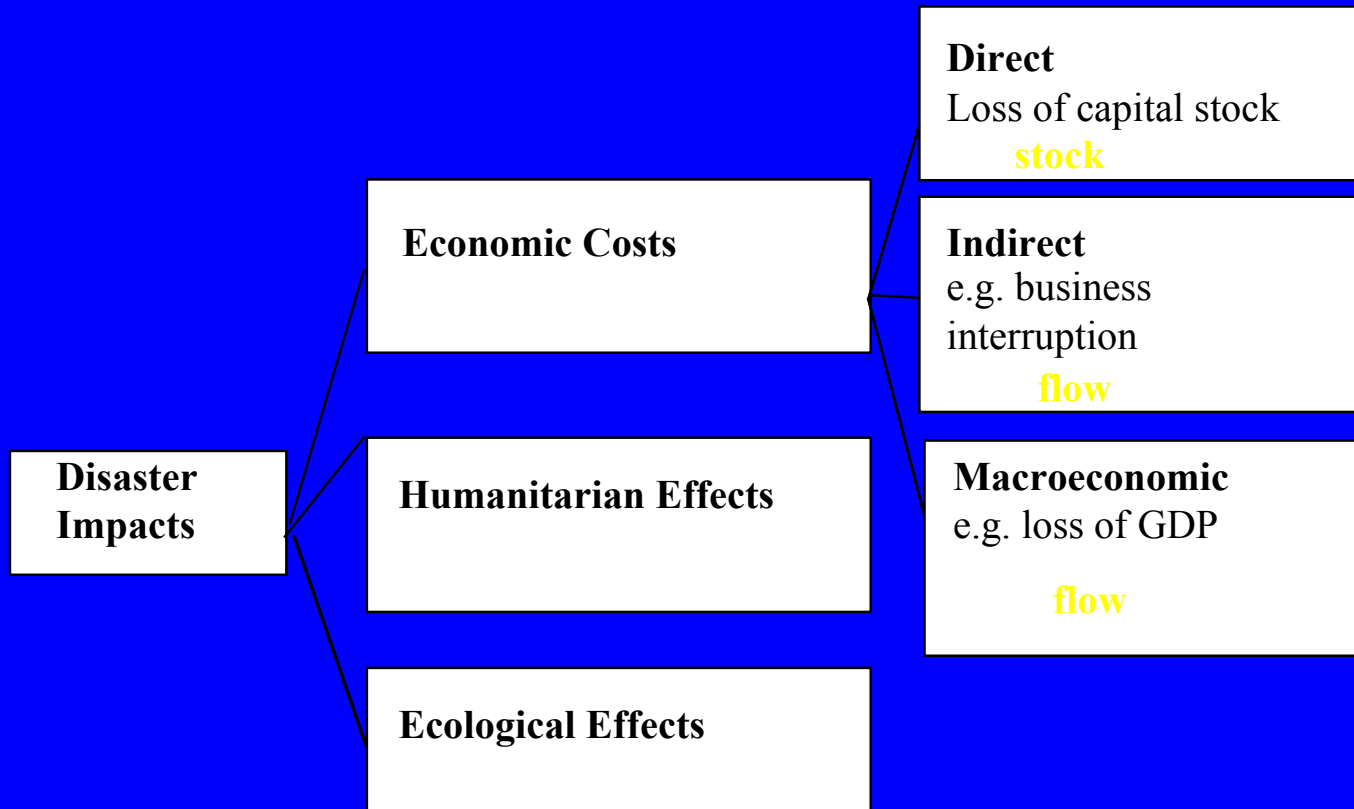
- Extreme events and climate change
- IIASA work on disasters and financial vulnerability
- Insights gained and comments

# Link to Climate Change

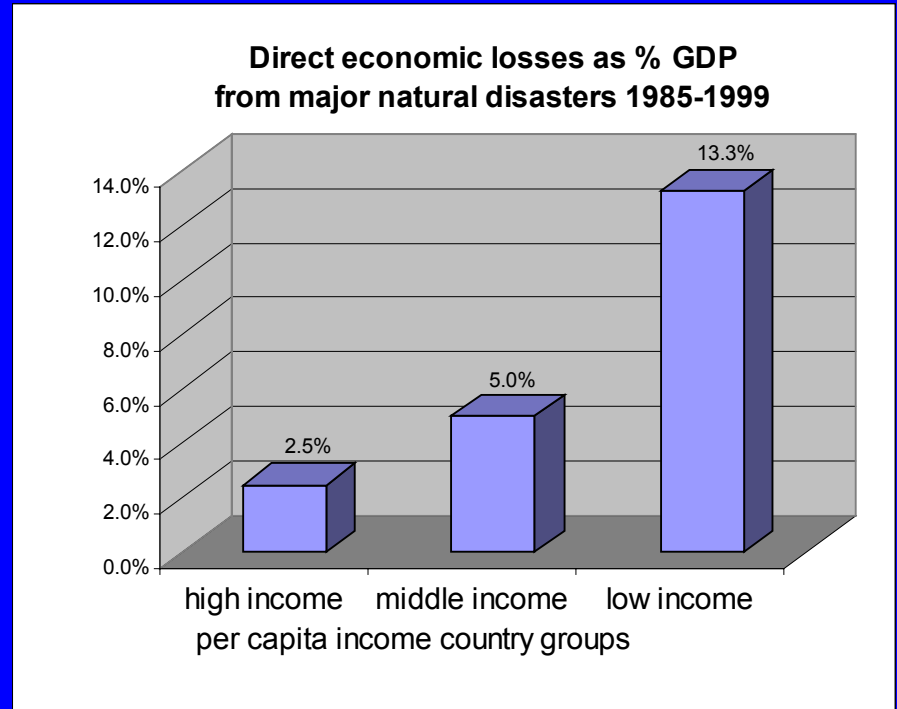
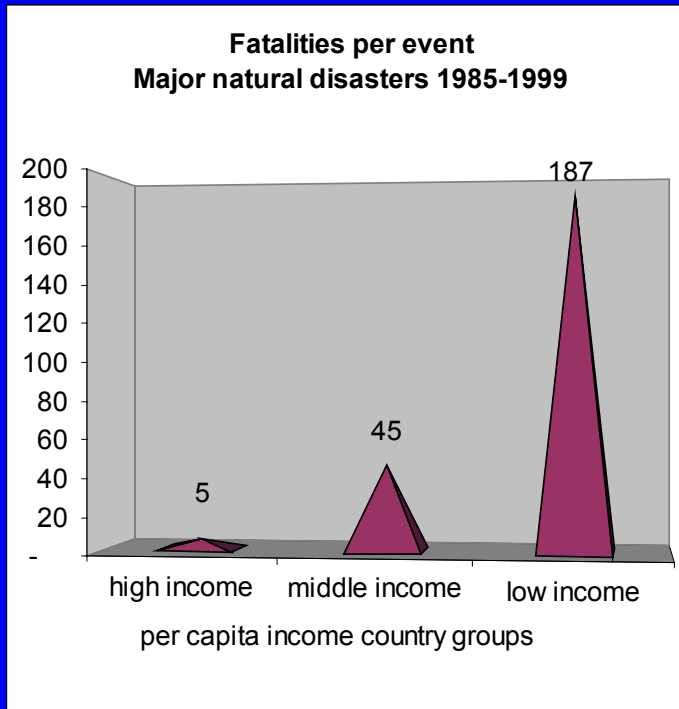
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- IPCC TAR, WKII
  - Very likely: more intense precipitation events over many areas
  - Likely: increased tropical cyclone peak wind intensities, mean and peak precipitation, intensified flooding due to El Nino
- Current (mal)adaptation as baseline for future adaptation
- Disaster risk management measures as no-regret options

# Impacts of disasters



# Differential direct impacts of disasters



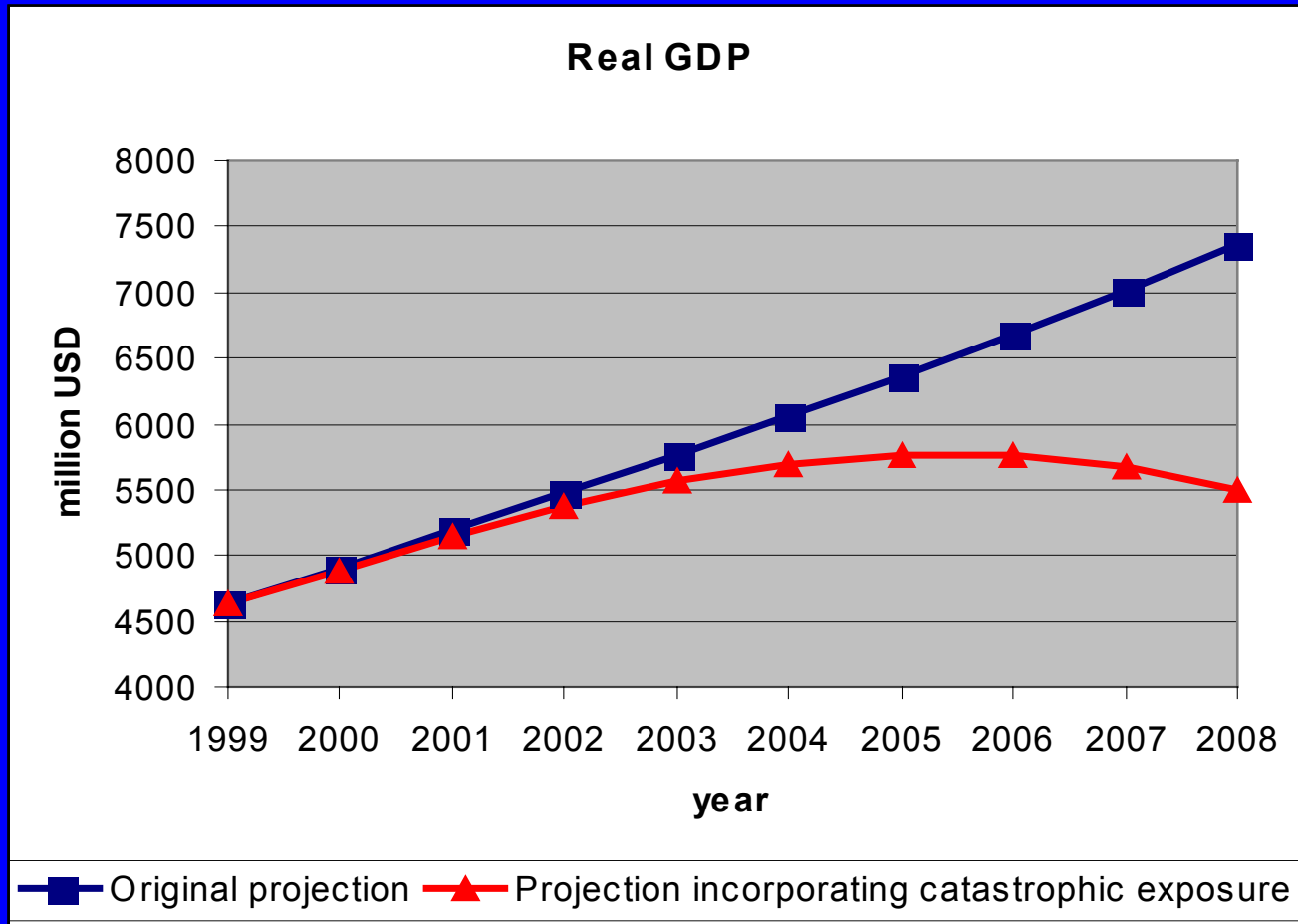
Source: Munich Re 2000

# Financial vulnerability

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- Some developing countries face a financing gap post-disaster: serious longer term consequences to be expected
- Financing gap can be reduced by ex-ante adaptation measures
- Development of a decision tool to analyze ex-ante risk management strategies and associated tradeoffs between return and stability
- Originally developed and applied to case studies in Latin America for Inter-American Development Bank project for Regional Policy Dialogue on Financing Reconstruction

# Impacts incorporating financial vulnerability



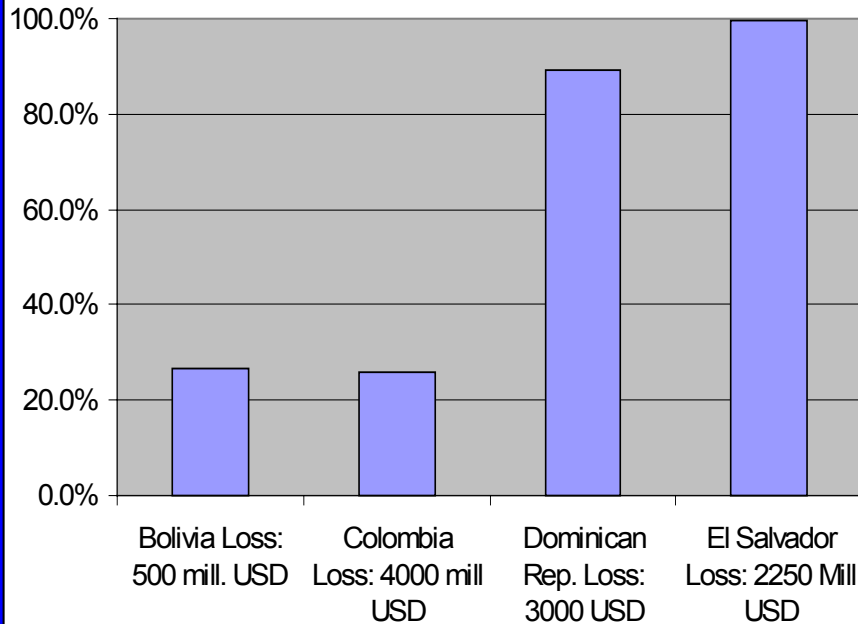
# Methodology

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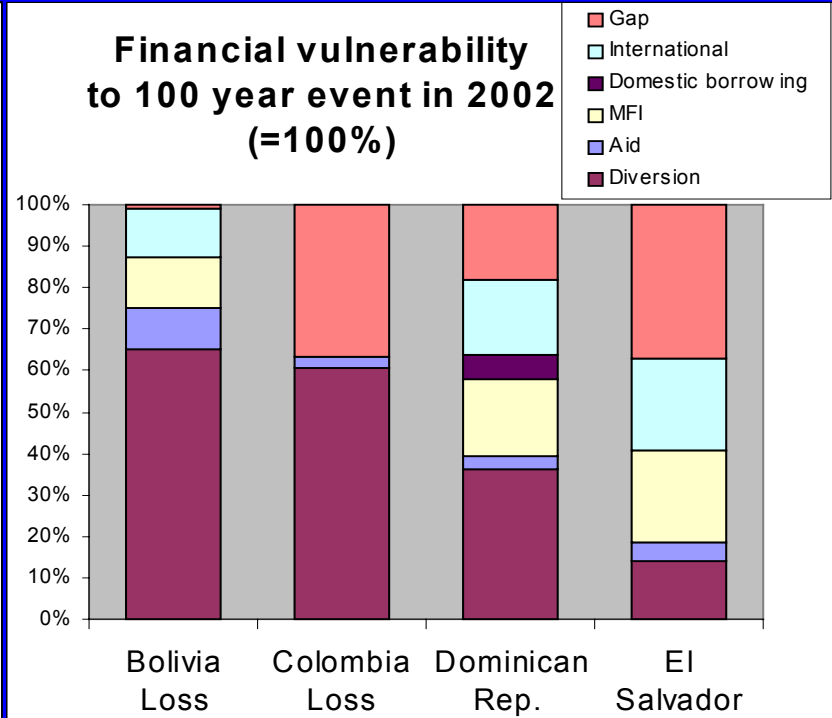
- Estimation of potential loss events and exposed elements
- Estimation of ex-post and ex-ante sources available for financing government's liabilities after disaster events
  - Own losses to public assets
  - Relief and support for private sector
- Assessment of vulnerability as input to model for adaptation planning: ex-ante sources
- Stakeholder involvement
  - Country visits, IADB roundtable, consultations with IADB and World Bank
  - First workshop for country decision-makers in April sponsored by World Bank

# Some Results

100 year losses as % of budget (2002)



Financial vulnerability to 100 year event in 2002 (=100%)



# „Map“ Latin America

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## High vulnerability

- Honduras
- El Salvador
- Nicaragua
- Colombia

## Medium vulnerability

- Dominican Republic
- Mexico

## Low vulnerability

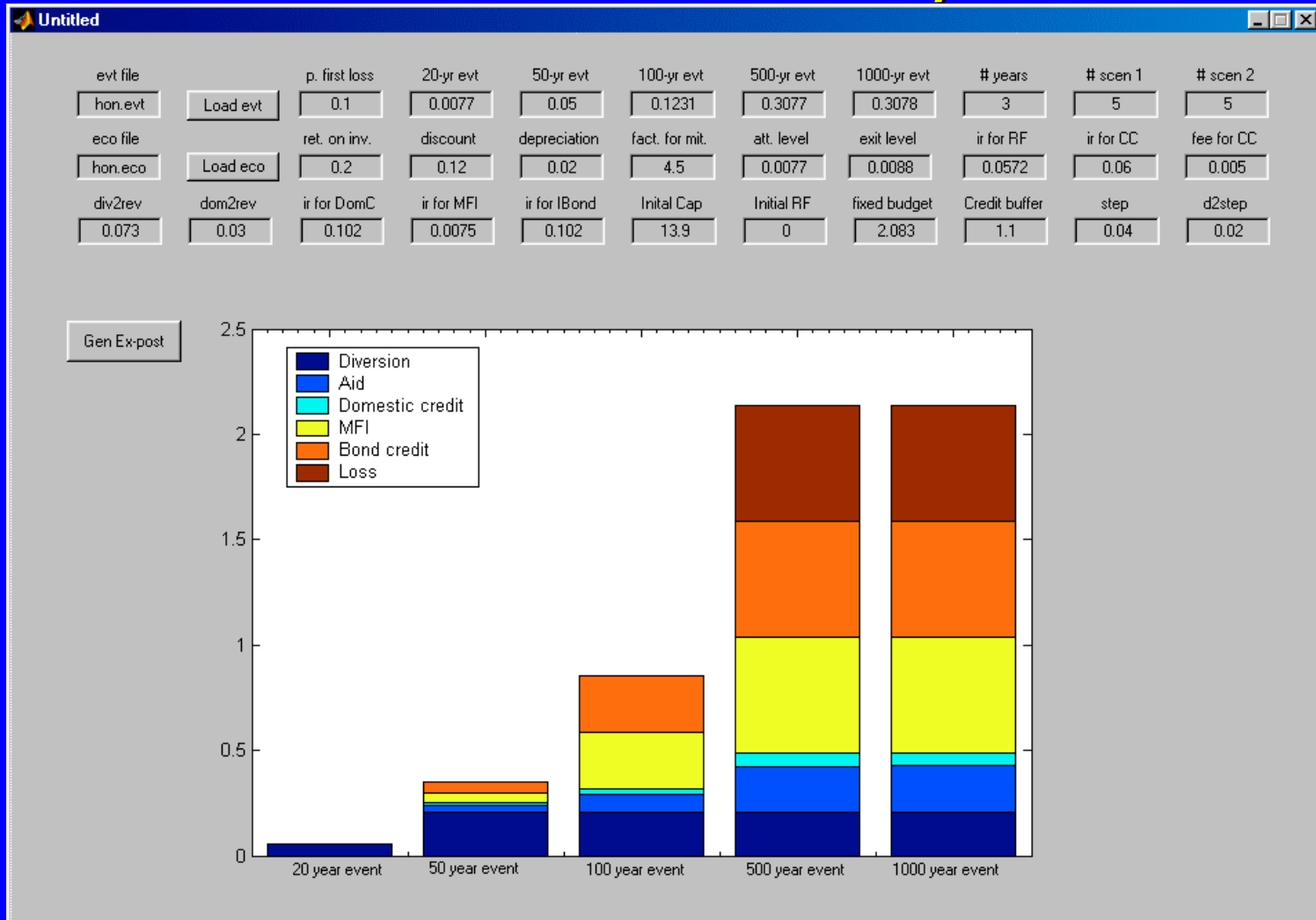
- Argentina
- Bolivia

## Next:

- India, Turkey, Philippines, China

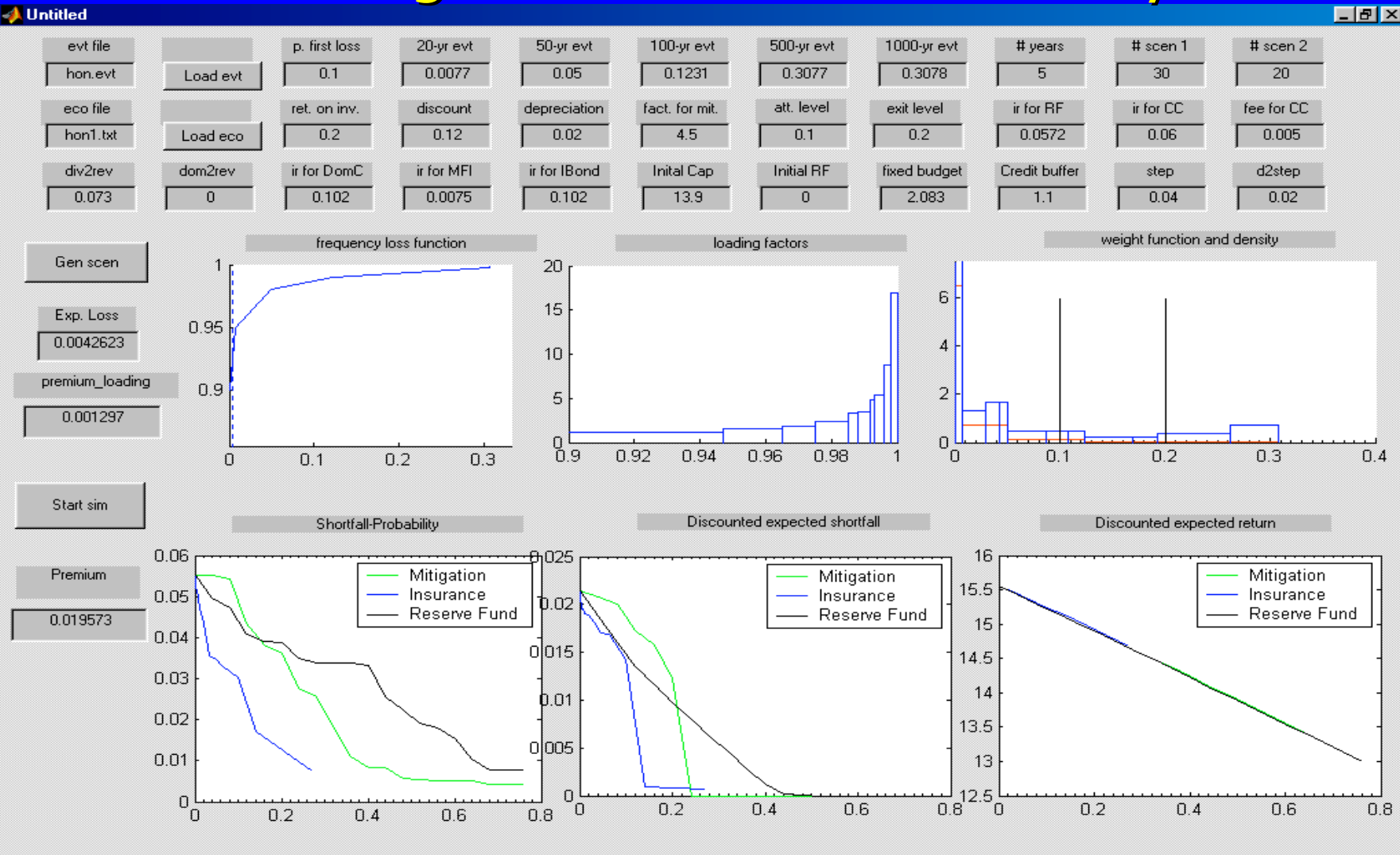
# User-Interface I

## Assessment of vulnerability and risk



# User-Interface II

## Strategies to reduce vulnerability



# Conclusions/Comments

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- IIASA indexing/indicators: assessment of status quo, starting point for discussions about possible policy options
- Which indicators to pick and for whom?: stakeholder workshops
- Financing gap indicator considered useful by
  - Country representatives
  - International lending institutions
- Indexing done in “disaster” community:
  - WB, IADB: loans post-disaster will be tied to ex-ante measures taken
  - “Hot Spots” project: assess vulnerability and monitor over time