



Swiss Re



Insurance framework for natural perils

# Sustainable Natural Catastrophe Insurance

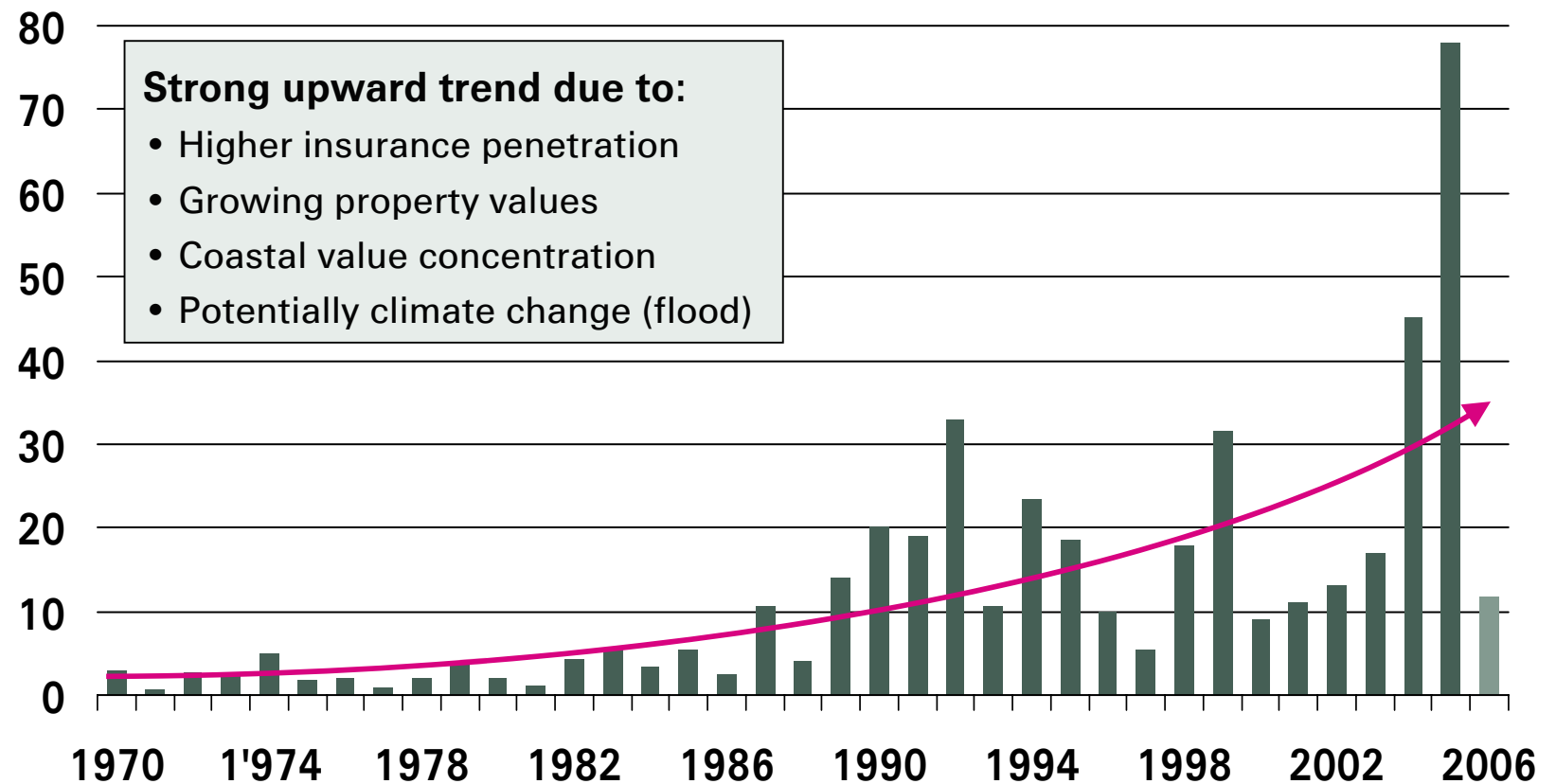
Swiss Reinsurance Company

Nat Cat Insurance Framework  
OECD Conference, Hyderabad  
27-28 February 2007



# Natural perils losses – worldwide on the rise

Annual insured losses from 1970 to 2006, in USD bn indexed to 2005



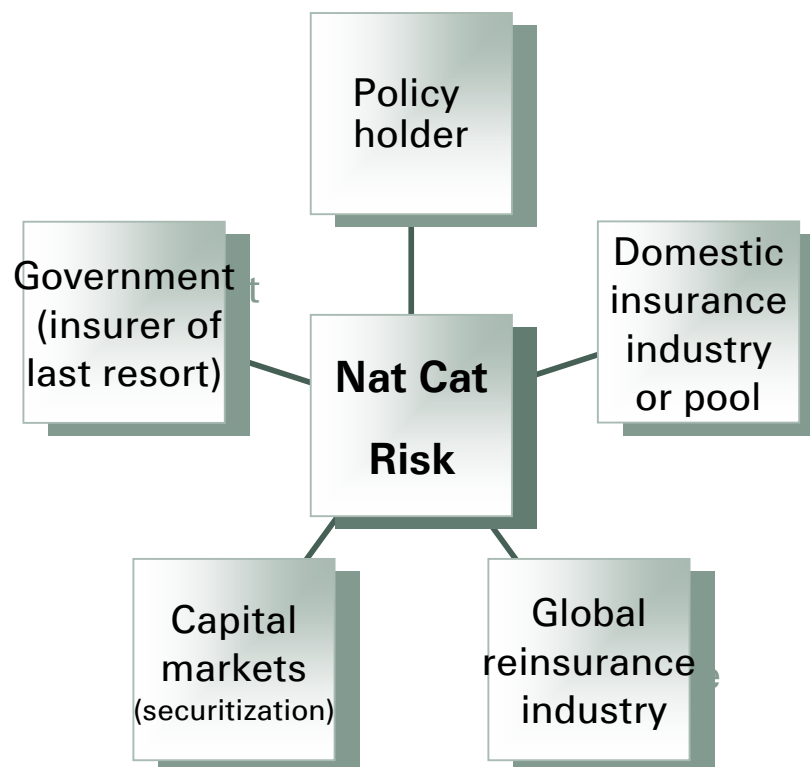


## Insurance supports social stability and economic growth

- Protection of people and businesses from financial ruin
- Rapid recovery after major disaster through channelled inflow of money to where the damage is
- Insurance pay-out as engine for economic recovery after major disaster (e.g. USD 20 bn after Hurricane Andrew, USD 16 bn after Northridge earthquake)
- pre-funding of disasters is better than post-funding
- well proven and globally tested concept



# Prerequisites for comprehensive natural perils insurance



## **Regulatory Framework**

Catastrophe reserves  
Solvency requirements  
Compulsion/Tariffs

## **Risk Sharing**

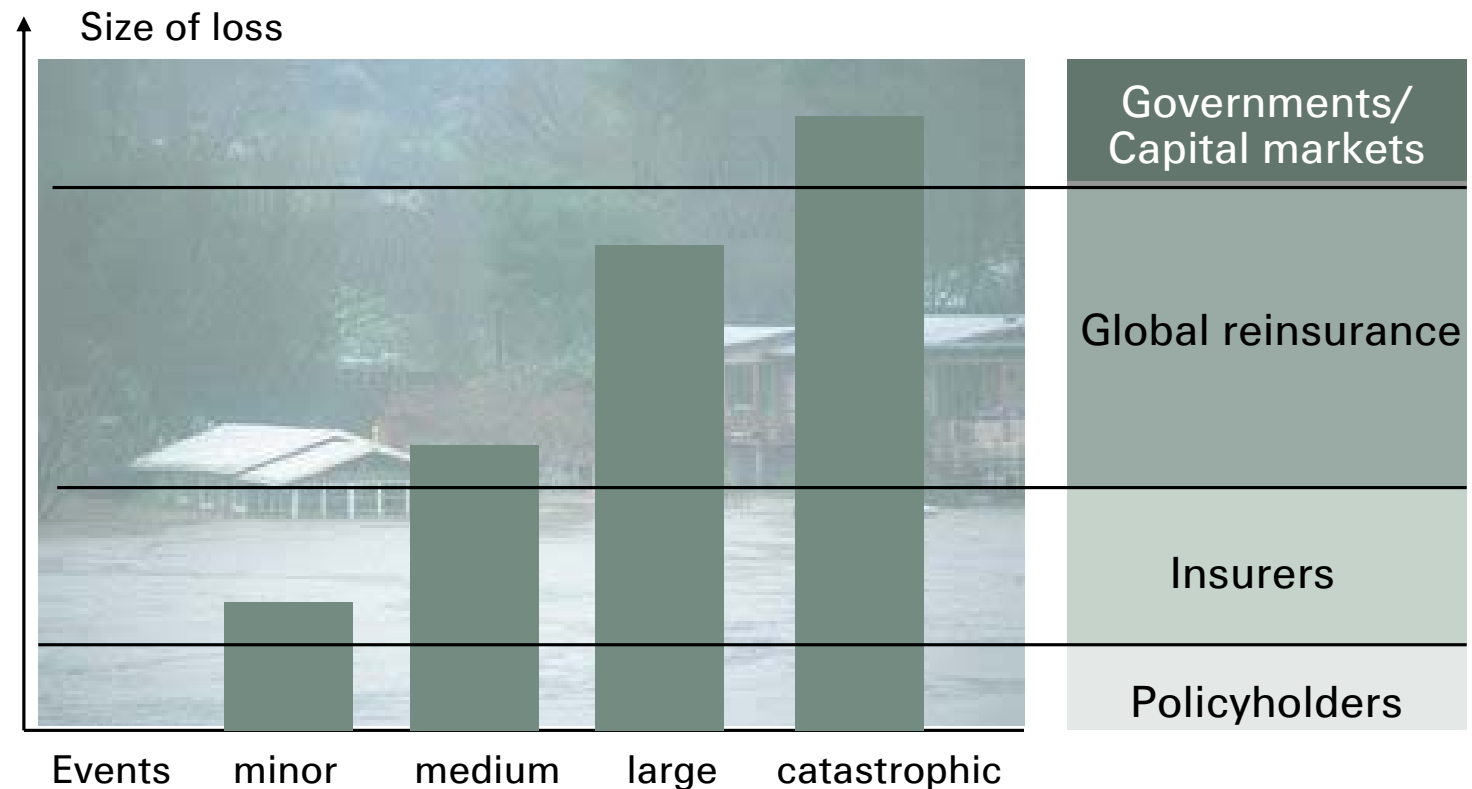
Individuals/Companies  
Insurance/Reinsurance  
Capital markets/State

## **Adequate Premiums**

System needs to generate premiums covering average loss burden plus costs



# What is needed? Risk sharing

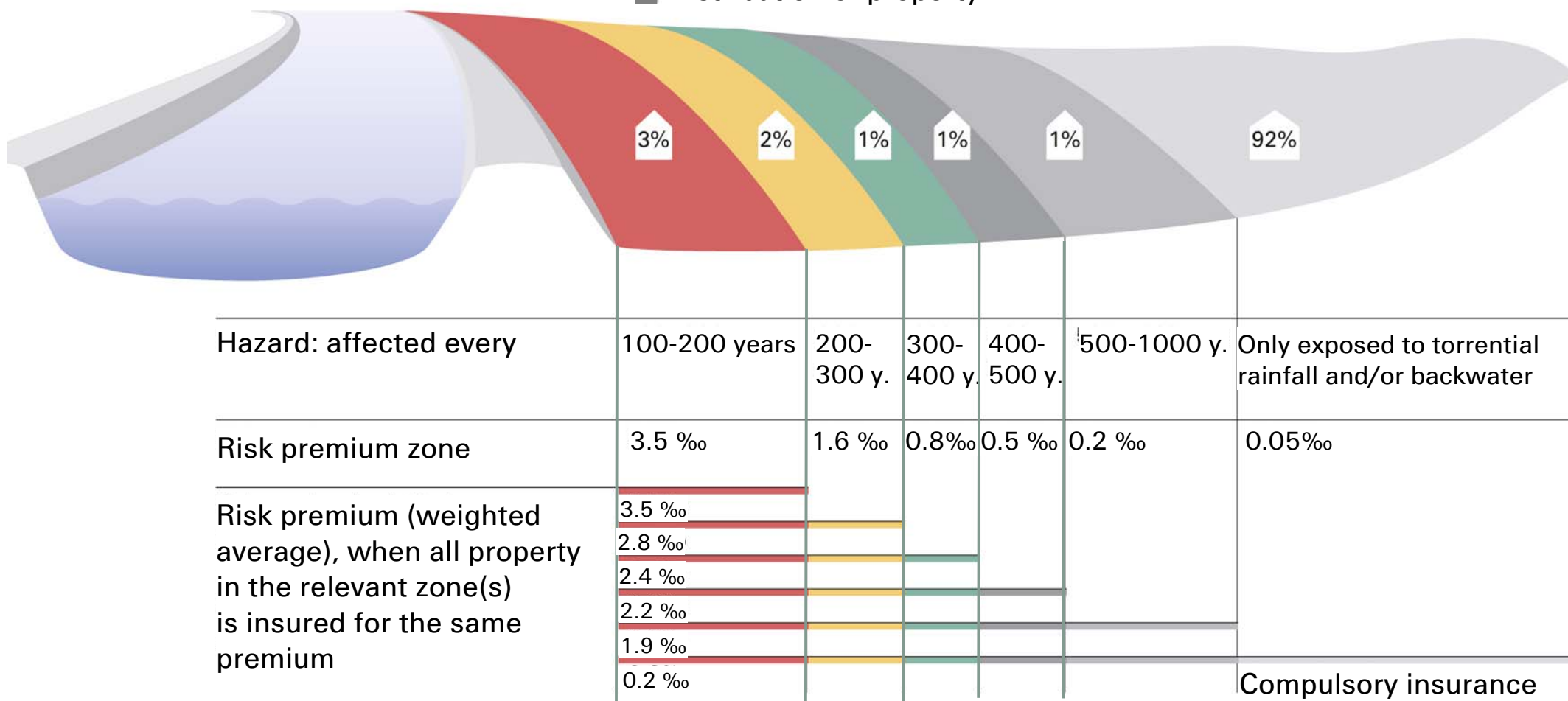


**By sharing the Nat Cat risk among (1) policyholder, (2) domestic insurance industry, (3) global reinsurance industry, (4) capital markets, and (5) government, even very extreme Nat Cat losses become insurable.**



# The power of diversification

🏠 Distribution of property



A photograph showing a large, powerful wave crashing against a house, illustrating the risk of natural catastrophes.

## One possible solution – Pooling Nat Cat risks

In pool solutions, the natural catastrophe risk is pooled on a domestic basis. The main characteristics are:

- achieves maximum insurance density (if compulsory)
- establishes a single risk transfer solution for a whole region or country with usually low administrative expenses
- enforces standard wordings, conditions and tariffs, but also eliminates product diversity

A pool can either be organized as (1) a separate company with pool participants (domestic insurance companies) as share holders or (2) as an association of participating pool members

A photograph showing a large, powerful wave crashing against the side of a house, with another house visible in the background, illustrating the impact of natural disasters.

## Private-Public Partnership: Shared Obligations (1)

### ■ Policy holders

- are informed about local hazards
- minimise damage by implementing protection measures and by reacting to warnings (e.g. remove vulnerable goods)
- participate in risk transfer by carrying a reasonable deductible
- pay collectively a risk adequate premium; depending on how desired solidarity between insureds is, individual rates might contain an element of cross-subsidy; the incentive for risk or loss reducing actions will get lost with a too uniform tariff

### ■ Insurance industry

- contributes to awareness building
- organises risk transfer and provides capacity – ideally up to total sum insured
- charges risk adequate premium



A photograph showing several houses partially submerged in floodwaters, with waves crashing against the buildings.

## Private-Public Partnership: Shared Obligations (2)

### ■ Government

- includes hazard considerations in regional planning (land use)
- invests in flood and other protection measures, establishes and enforces building codes
- ensures and provides disaster risk management activities, sets up emergency forces
- defines legal framework for insurance; leaves the risk transfer to the private (re)insurance market and only acts as last resort for uninsurable exposures
- develops basic know-how and improves risk awareness (e.g. hazard maps, information campaigns)




## Advantages of a pre-event financing approach

- Guaranteed right for compensation
- Clear definition of scope of cover
- Professional loss settlement
- Every one's contribution can be based on their actual exposure
- Institutionalised framework to manage losses by an international network of risk carriers
- Prevention and loss mitigation can be supported by risk adequate premiums, deductibles and discounts



# Appendix

A photograph showing a large, powerful wave crashing against the side of a house, with another house visible in the background, illustrating the concept of economic feasibility and risk.

## Economic feasibility: Risk adequate premium

Risk-adequate price must be able to compensate:

(1) Expected loss costs

(which is the annual average loss cost, i.e. the risk premium; this is the major part of the total premium)

(2) Expenses

(3) Capital costs and

(4) Profit



## Economic feasibility: Appropriate insurance conditions

- Policy deductible as percentage of total insured value
- Clear definition of scope of cover
- Exclusions
- Event definition
- Underinsurance clause
- Proportionally reduced pay out in case of an extreme event (normally only in case of obligatory pools)

A photograph showing a coastal area with houses partially submerged in turbulent, white-capped water, illustrating a storm surge.

## Clarity regarding scope of cover – Exemplified for flood

- Sewage overflow (water run-off)
- Flash flood
- River flood
- Mud flow (land slide)
- Dam break
- Storm surge
- Tsunami



## Accumulation data a necessity

High quality accumulation data is essential to control overall exposure and determine risk premiums as well as EMLs

- Total insured values
- Type of risk (Building, Content, BI)
- Class of risk (Residential, Commercial, Industrial)
- Applied cover conditions
- Geographical resolution (flood needs much finer resolution than EQ and storm, i.e. at least zip code level)