

# Insuring Natural Hazards - Public Private Partnership in Austria

Franz Sinabell, Thomas Url

Financial Risk of Natural Hazards-  
Markets and the Role of the State

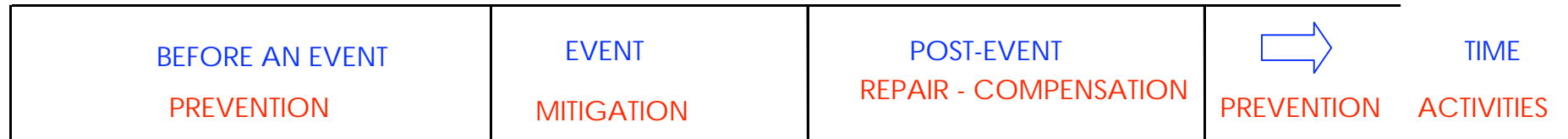
5 July 2007

WIFO ■

## characteristics of natural hazards

---

- event can not (hardly) be influenced
- large number of simultaneously affected households
- many low value damages
- economic consequences can be minimized (prevention, mitigation, risk-transfer)

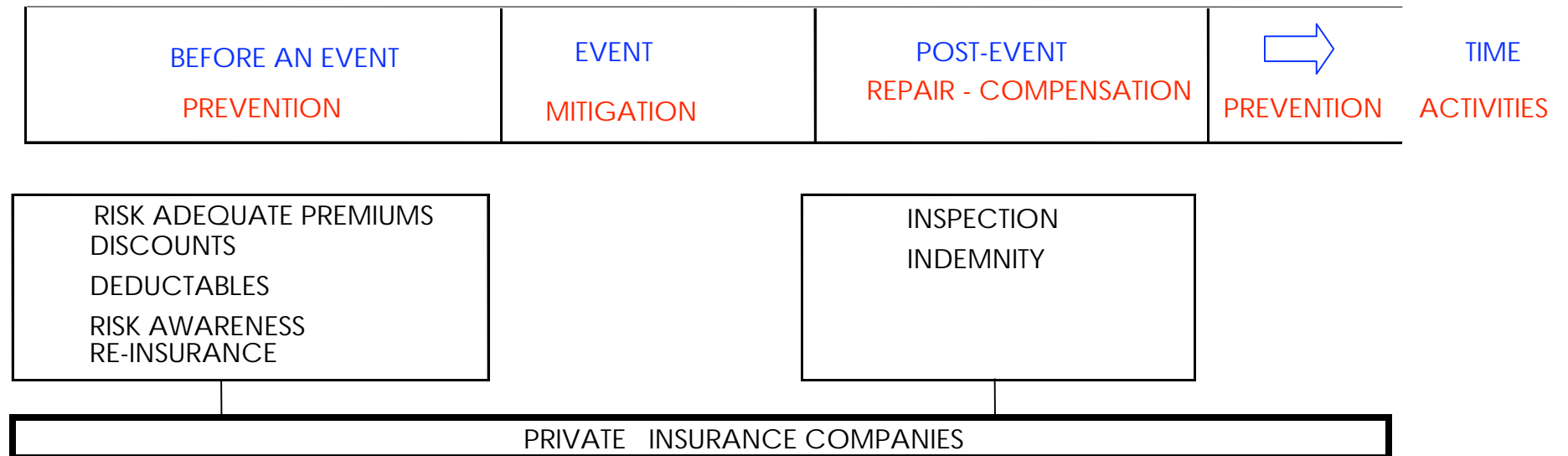


STATE		
LAND USE ZONING HAZARD MAPS INFORMATION/ AWARENESS PROPERTY RIGHTS PROPERTY REGULATION DAMS WARNING SYSTEMS	MILITARY RED CROSS etc. FIRE BRIGADES COORDINATION INTERNATIONAL AID	COMPENSATION REPAIR INFRASTRUCTURE CATASTROPHE FUNDS  EU-TRANSFERS

BEFORE AN EVENT <span style="color: red;">PREVENTION</span>	EVENT <span style="color: red;">MITIGATION</span>	POST-EVENT <span style="color: red;">REPAIR - COMPENSATION</span>	 <span style="color: red;">PREVENTION</span>	TIME ACTIVITIES
--	--	--	---	--------------------

# WIFO ■ role of the state and the private sector

---

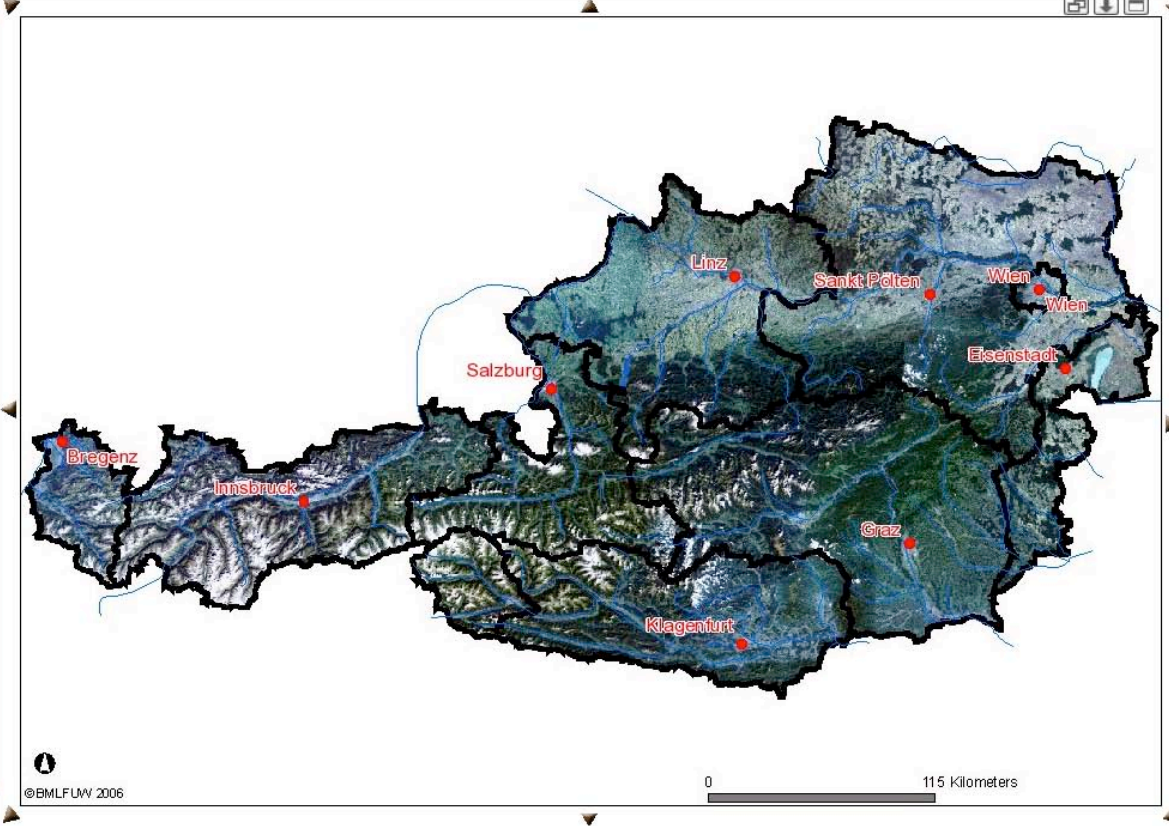


Webkartendienst BMLFUW - Microsoft Internet Explorer  
 Adresse <http://geoinfo.lfrz.at/website/egisroot/services/ehora2/viewer.htm>

**eHORA**

Themen **Legende**

- Basiskarten
- Fachkarten
  - Hochwasserrisikozonierung Austria
    - Zusätzliche Informationen einfügen
      - Lokale Bezeichnungen
      - Gewässernetz
    - Gefahrenzonenplan
    - Erdbebengefährdung Österreich



©BMLFUW 2006

0 115 Kilometers


Karte neu zeichnen  Karte automatisch neu zeichnen

Maßstab 1: 2293842

x= 3205477 y= 274503

**Hochwasserrisikozonierung Austria**

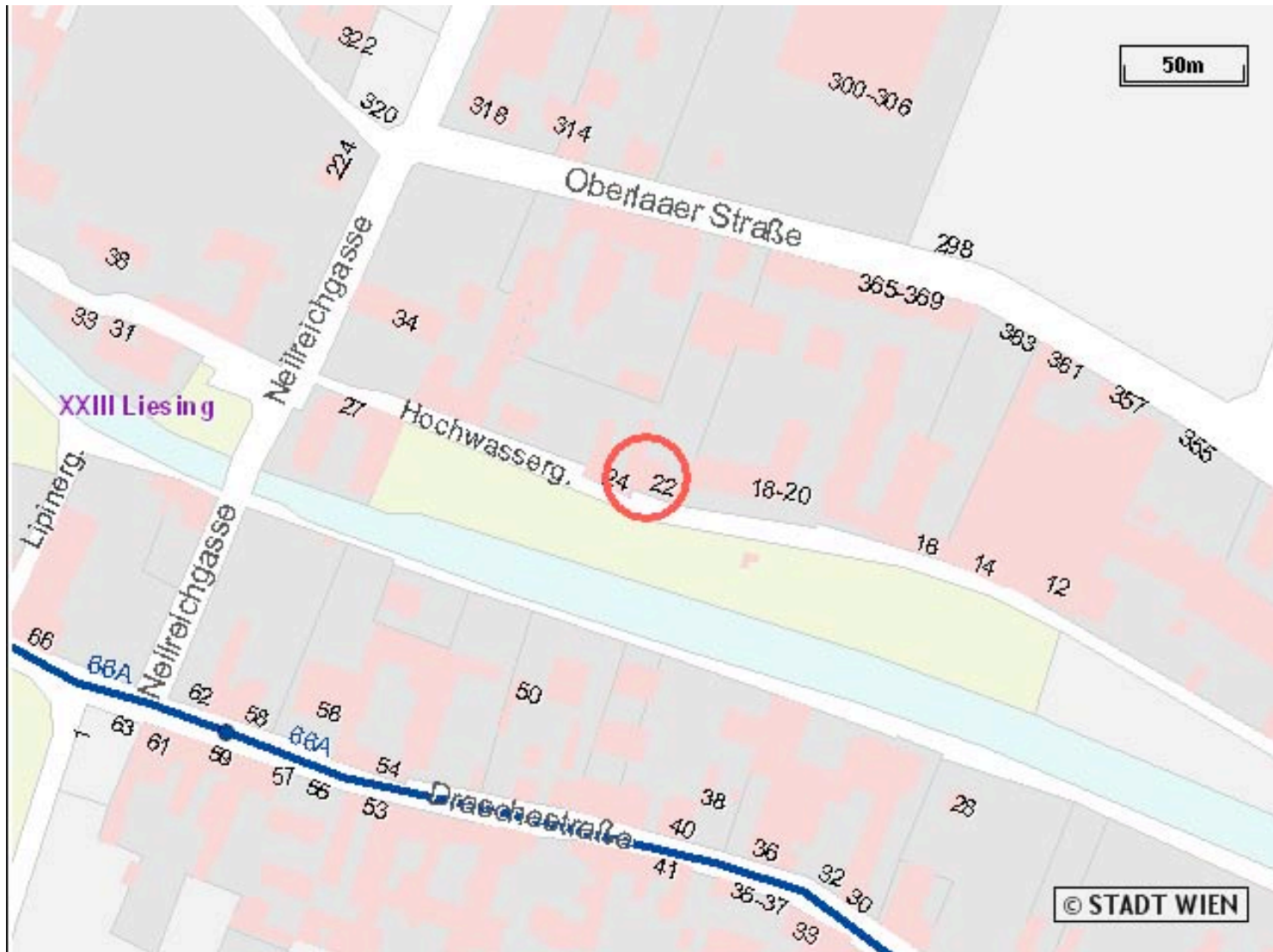
- In den Jahren 2004-2006 wurden auf Basis von Geodaten potentielle Überschwemmungsgebiete in der Ausprägung von drei Zonierungen (Zone 1, 2, 3) errechnet, welche einem Erwartungswert mit einer Jährlichkeit T=30, 100 und 200 Jahre entsprechen.
- Die ausgewiesenen Zonen stellen das Gefährdungspotential bei **Versagen der bestehenden Schutzmaßnahmen** (z.B. bei einem Dammbbruch) dar.
- Die einzelnen HORA Zonen werden ab Maßstab ca. 1.50.000 in der Karte sichtbar.
- In den Ballungszentren sind die Hochwasserdaten derzeit noch nicht verfügbar.

Inhaltliche Erläuterungen | Impressum | Kartenlayer | Rechtshinweise | Zusatzangaben |  Karteninfo gesamt

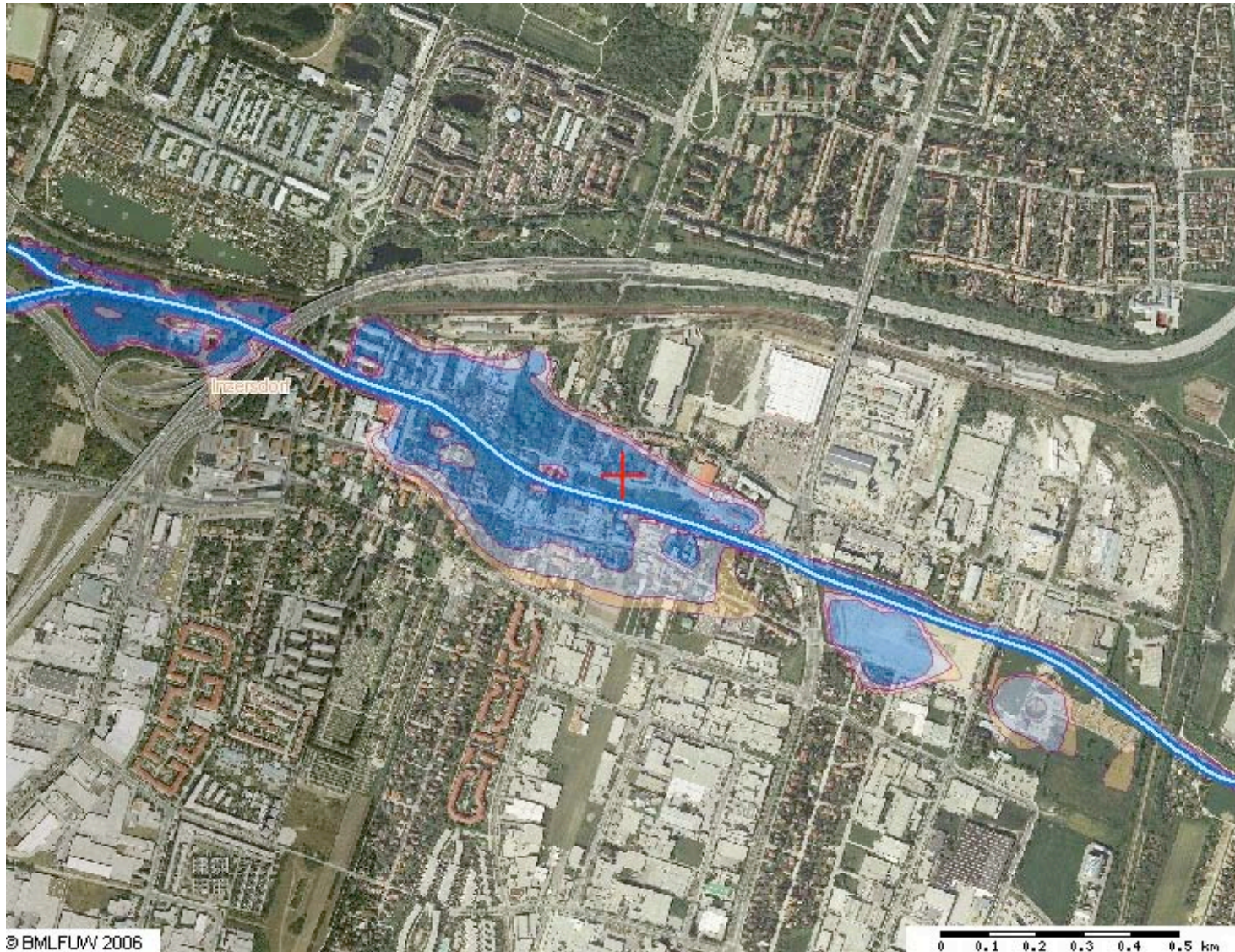
WIFO ■

example Vienna:  
Hochwasserstraße 22 / Flood Street 22

---



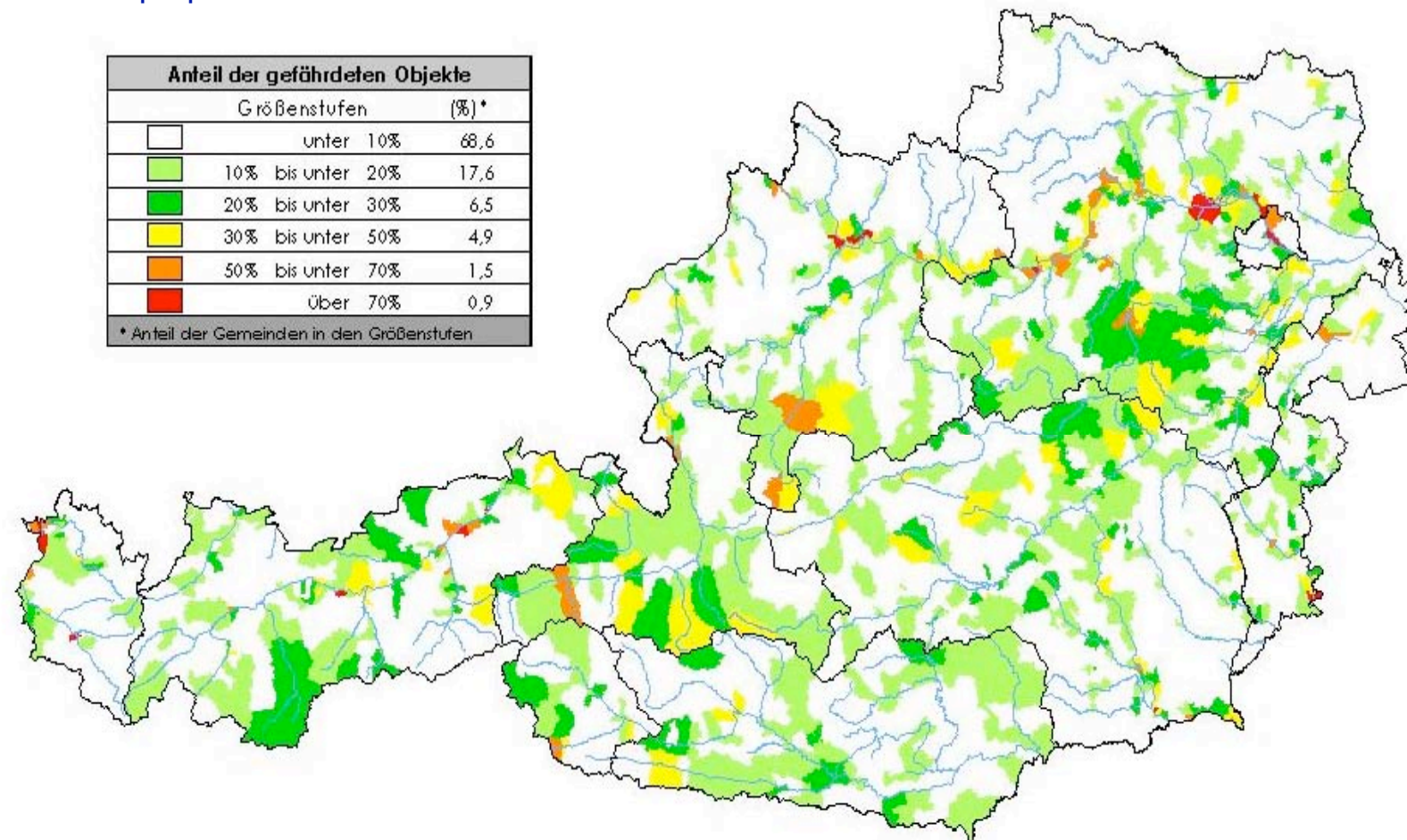






## Anteil der gefährdeten Objekte, 2005

share of properties in flood risk zones



---

## share of properties in flood risk zones (HORA) 2005

	zone 1 to 3 share in %	zone 1 (high risk) share in %
Burgenland	7.2	5.6
Kärnten	10.3	8.8
Niederösterreich	13.5	9.7
Oberösterreich	10.1	7.6
Salzburg	17.3	13.9
Steiermark	8.4	6.2
Tirol	14.4	11.4
Vorarlberg	17.6	15.5
Wien	14.2	6.2
<b>Austria</b>	<b>12.0</b>	<b>8.8</b>

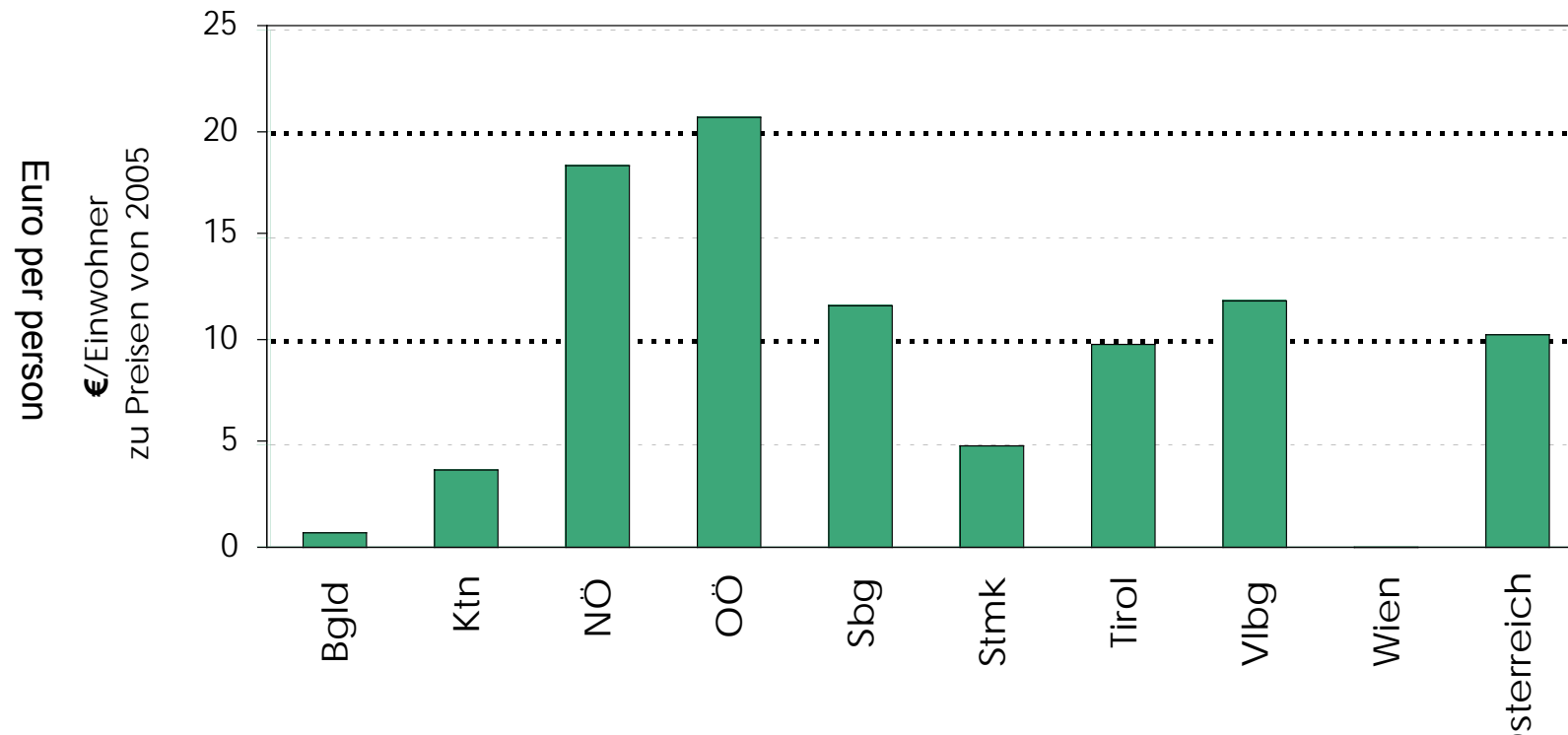
# public flood prevention (dams etc.) and potential flood risk

---

	per mio € value added	per object in HORA hazard zone
	€ per annum	€ per annum
Burgenland	4,206	2,387
Kärnten	1,904	1,465
Niederösterreich	884	383
Oberösterreich	841	768
Salzburg	1,784	1,329
Steiermark	1,102	1,056
Tirol	1,749	1,376
Vorarlberg	1,840	1,096
Wien	342	779
<b>Austria</b>	<b>1,072</b>	<b>906</b>

Schätzung der realen Ausgaben des Katastrophenfonds zur Beseitigung von Schäden im Vermögen privater Personen, Ø 1995-2005

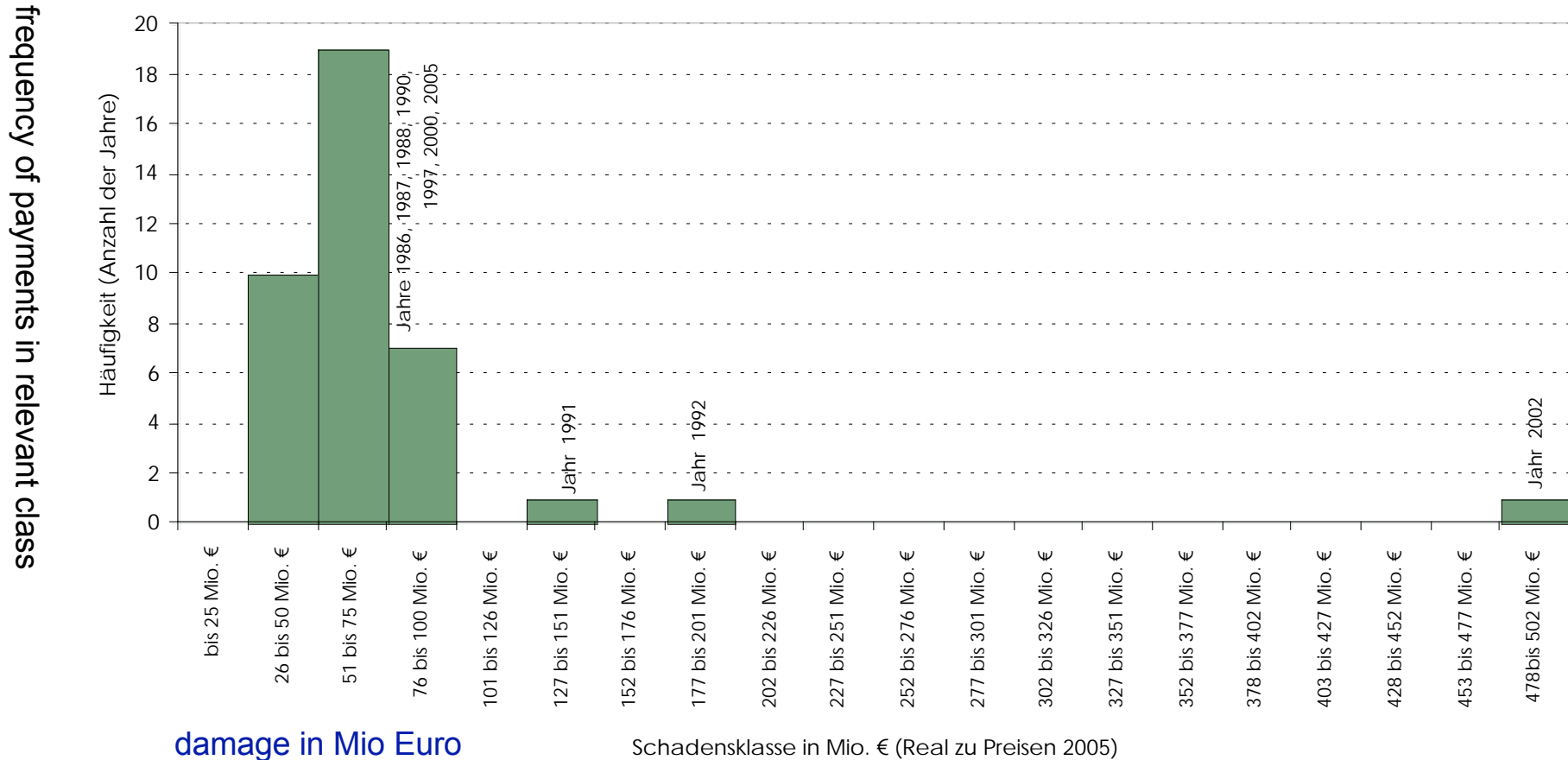
Estimate of real expenditures of the Austrian catastrophe funds for private persons and firms 1995-2005



Hinweis: Ausgaben einschließlich der Zahlungen nach dem HWG 2002 und 2005.

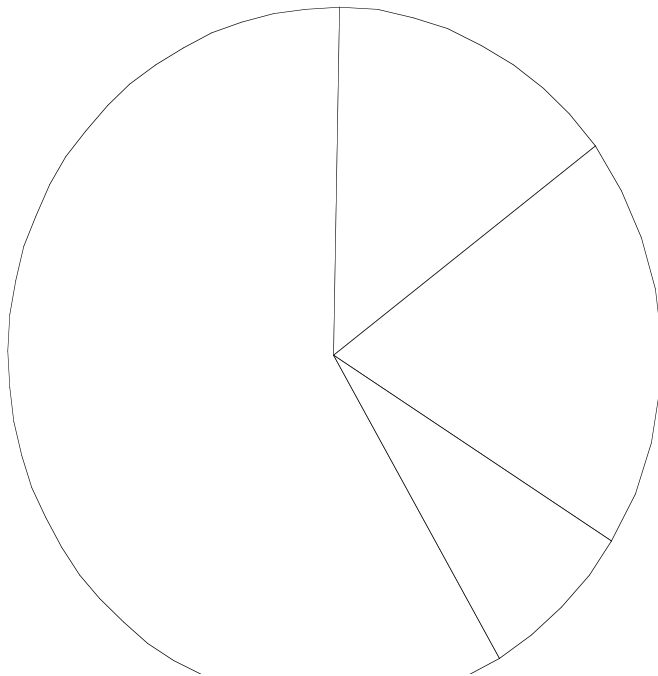
Q: WIFO-Berechnungen.

Häufigkeitsverteilung der vom Bund (Katastrophenfonds) gedeckten Schäden 1967-2005



Q: WIFO-Berechnungen auf Basis der Bundesrechnungsabschlüsse des Rechnungshofes, 1967 bis 2004 und der Katastrophenfondsberichte des Bundesministers für Finanzen, Erster bis Sechster Bericht nach dem Katastrophenfondsgesetz 1996.

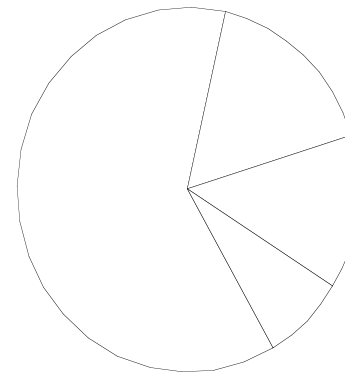




2002: Schätzung HW-Gesamtschaden  
2.900 Mio. €

(Stand November 2003)

flood damages in the year 2002

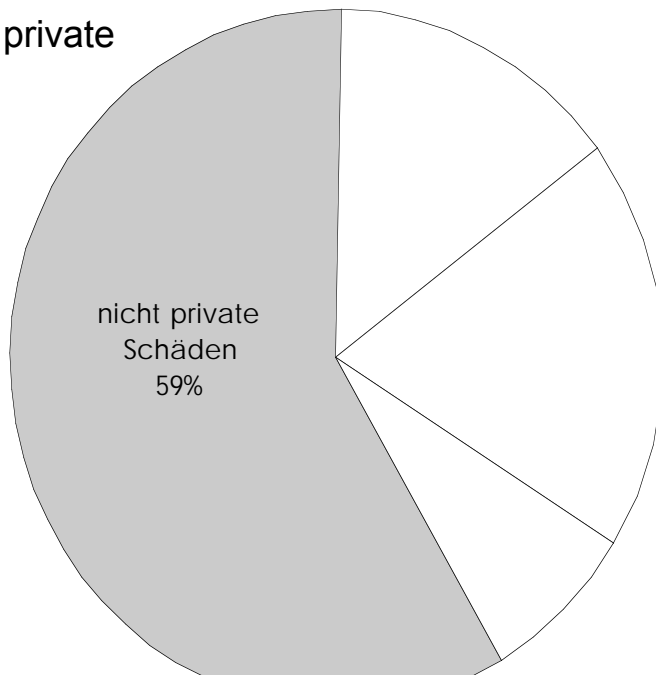


2005: Schätzung HW-Gesamtschaden  
595 Mio. €

(Stand Juni 2006)

flood damages in the year 2005

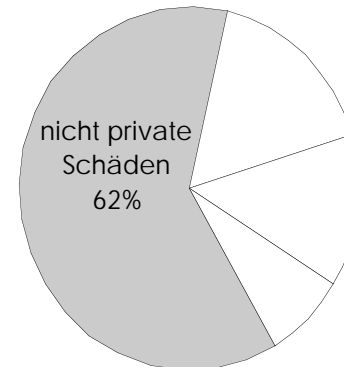
damages - not private



2002: Schätzung HW-Gesamtschaden  
2.900 Mio. €

(Stand November 2003)

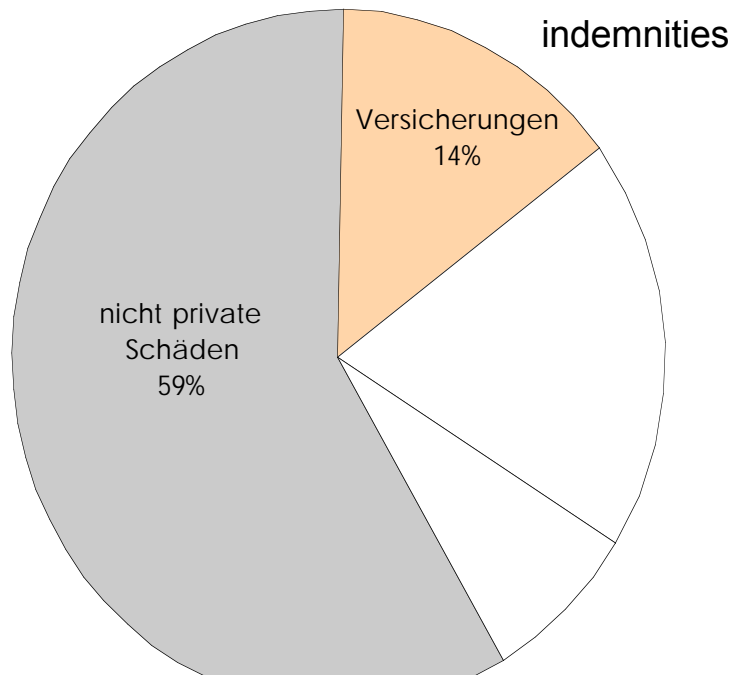
flood damages in the year 2002



2005: Schätzung HW-Gesamtschaden  
595 Mio. €

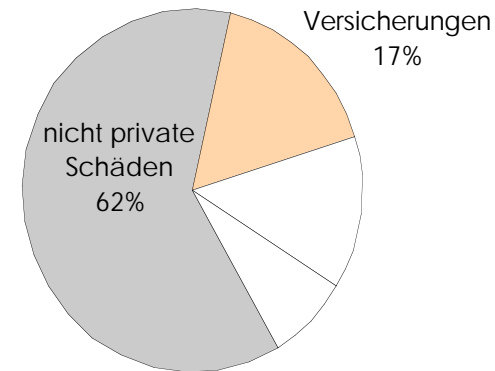
(Stand Juni 2006)

flood damages in the year 2005



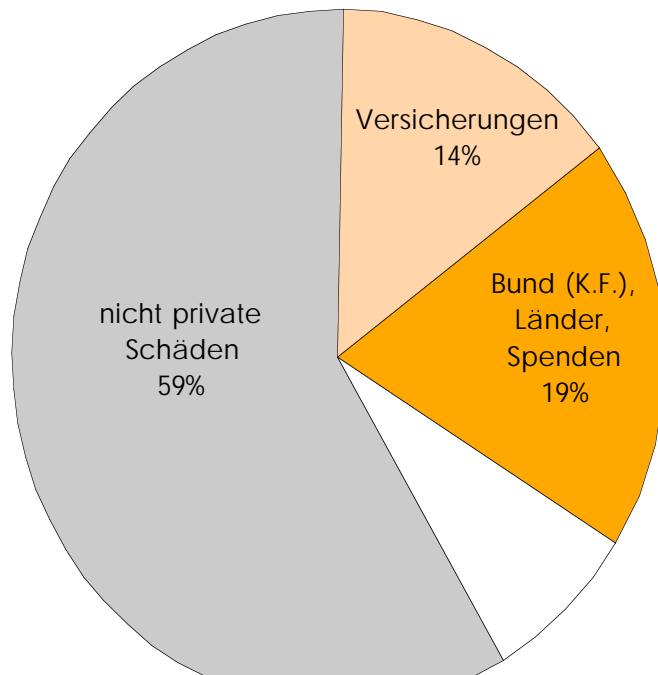
2002: Schätzung HW-Gesamtschaden  
2.900 Mio. €  
(Stand November 2003)

flood damages in the year 2002



2005: Schätzung HW-Gesamtschaden  
595 Mio. €  
(Stand Juni 2006)

flood damages in the year 2005

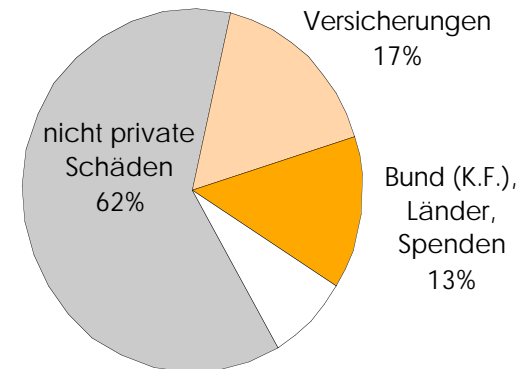


2002: Schätzung HW-Gesamtschaden  
2.900 Mio. €

(Stand November 2003)

flood damages in the year 2002

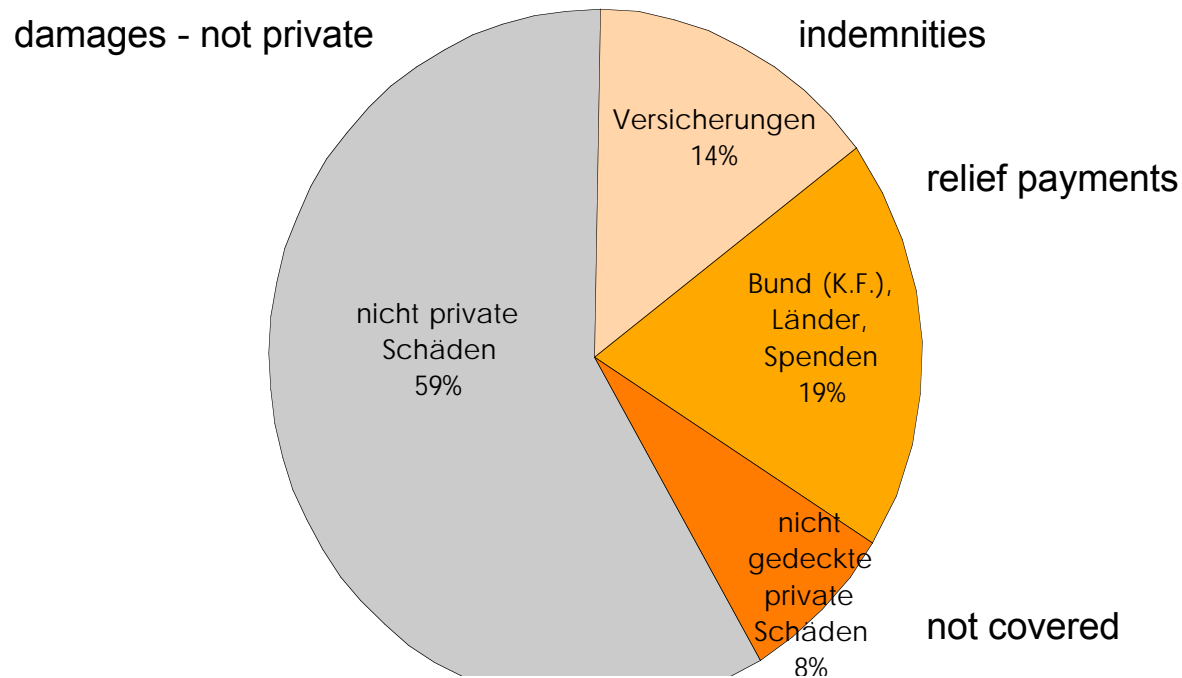
relief payments



2005: Schätzung HW-Gesamtschaden  
595 Mio. €

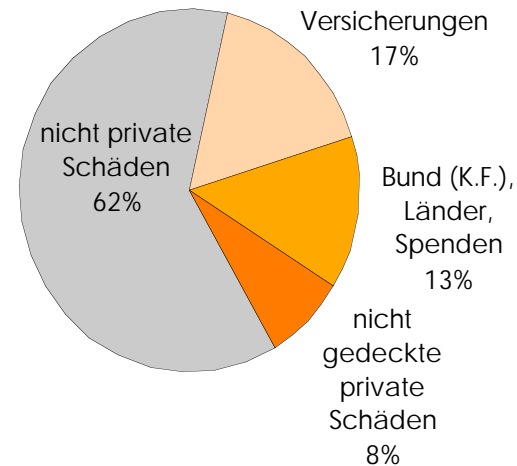
(Stand Juni 2006)

flood damages in the year 2005



2002: Schätzung HW-Gesamtschaden  
2.900 Mio. €  
(Stand November 2003)

flood damages in the year 2002



2005: Schätzung HW-Gesamtschaden  
595 Mio. €  
(Stand Juni 2006)

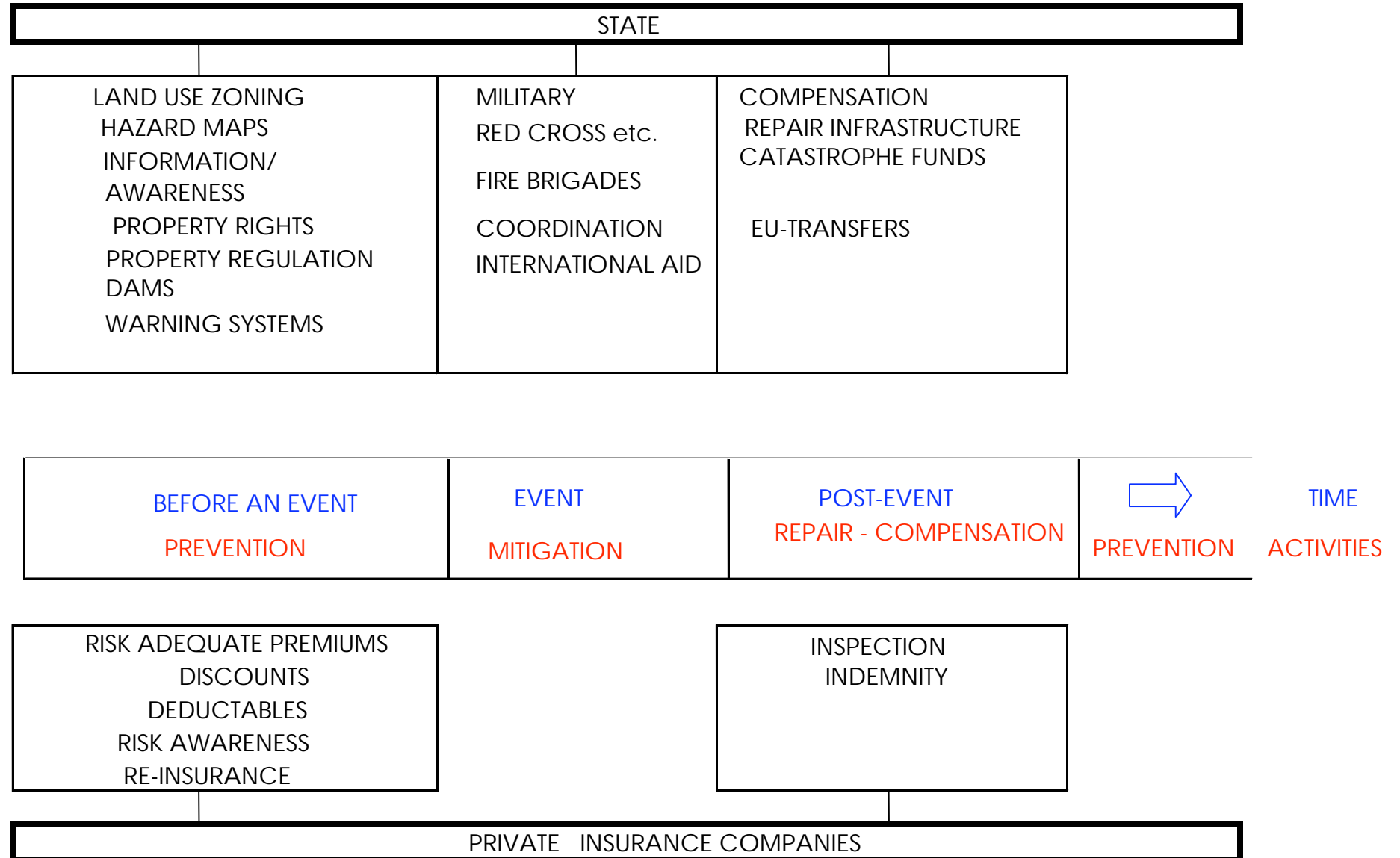
flood damages in the year 2005



- high uncovered damages (in individual cases)
  - compensation not known in advance
- public transfer crowds out private insurances
- no (few) incentives to avoid high risk zones -  
bad co-ordination between public bodies
- (economic) efficiency is not really a criterium  
for preventive measures
- private insurance companies pay low  
indemnities for frequent events
- full insurance coverage not available in high  
risk-zones ('experience based rating')

WIFO

# public private partnership state and private insurance companies



## WIFO ■ characteristics of insurance contracts

---

- distribution of individual damages
- risk adequate premiums
- moral hazard
- transaction costs
- subjective and objective risk

WIFO ■

## characteristics of insurance market

---

- relief payments granted by public funds
- cumulative losses
- high price elasticity
- positive income elasticity

- state should no longer make relief payments
- insurance contracts with risk adequate premiums
- unlimited coverage
- state should not be the insurer of last resort



- insurance policies based on mutuality principle
- bundling several natural hazards
- compulsory insurance for households in risk zones  
(credibility for the state)
- premium subsidies for poor households - only temporarily (financed by municipalities responsible for zoning)

- transition to the new system
- HORA needs to be further enhanced
  - to become a contracting tool (transaction costs)
  - include the values of of properties
- cost-benefit criteria for preventive investments
- co-ordination of private sector and public investments: where should dams etc. be constructed / maintained