The Growing Vulnerability of the Earth to Disasters

The earthquake in Kobe
Photo: Brauner

In 1995 the damage caused by natural disasters reached a record level of 180 billion US dollars, the earthquake in Kobe, Japan, alone accounting for 100 billion dollars. Even if this extremely high cost is an exception, it is generally fair to say that the earth is becoming more vulnerable to natural disasters. According to the Munich Re reinsurance company damage incurred in the last ten years was 8.4 times higher than in the 1960s.

The rocketing sums paid out in compensation have another cause too, however. Recent decades have not only seen an increase in population figures, they have also witnessed considerable increases in the value of property and belongings.

Halting the earth's increasing vulnerability to disasters cannot be done at the drop of a hat, even if the various environment and development action programmes are implemented swiftly. In this respect, global climate change is at the heart of our worries for the future.

Serious Natural Disasters 1960 - 1996

	Decade 1960-1969	Decade 1970-1979	Decade 1980-1989	Last ten years 1987-1996	Factor last 10:60ties
Number	16	29	70	64	4.0
Economic damage*	46.4	89.2	141.6	404.4	8.4
Insured damage*	6.2	10.4	28.6	98.8	15.2

* All figures in billions of US dollars (1996 price levels)
Source: Munich Re

(German Parliamentary Enquête Commission on Protection of the Earth's Atmosphere, 1990)

Climate change → Deterioration of food supplies → Exploitation and destruction of sensitive ecosystems

Scientists from the Fraunhofer Institute estimate that if CO_2 emissions double then the number of famine deaths will rise from current levels of 10 million per annum to between 20 and 30 million in 35 years time. Firm scientific conclusions on the extent of the individual consequences of climate change are not yet available. One thing is already certain, however: a further rise in CO_2 emissions will very probably result in a shift in climate zones which could have disastrous consequences. A sustained reduction in global vulnerability to disasters can only be achieved by concerted action against poverty in the countries of the South and if the industrialised countries succeed in accomplishing the ecological transformation of their societies. This is, however, a gigantic project which, if implemented consistently, will only begin to bear fruit several decades from now. Hence our primary task consists in improving existing defence capabilities and mechanisms for harmonisation.

The Consequences of Climatic fluctuations: El Niño:

"The main impact of El Niño so far have been in the tropics and subtropics with drought conditions prevailing over much of the eastern South Pacific and central South America. There has also been a dramatic decrease in tropical storm and hurricane activity across the subtropical North Atlantic and an expanded area of favourable conditions for tropical cyclone activity over the eastern North Pacific. The ... heavy rainfall and flooding in east Africa have also been attributed to El Niño. The ... forest fires in Indonesia that spread smoke and haze throughout south east Asia were suggested as being part of El Niño's impacts in the region."

(World Meteorological Organization)

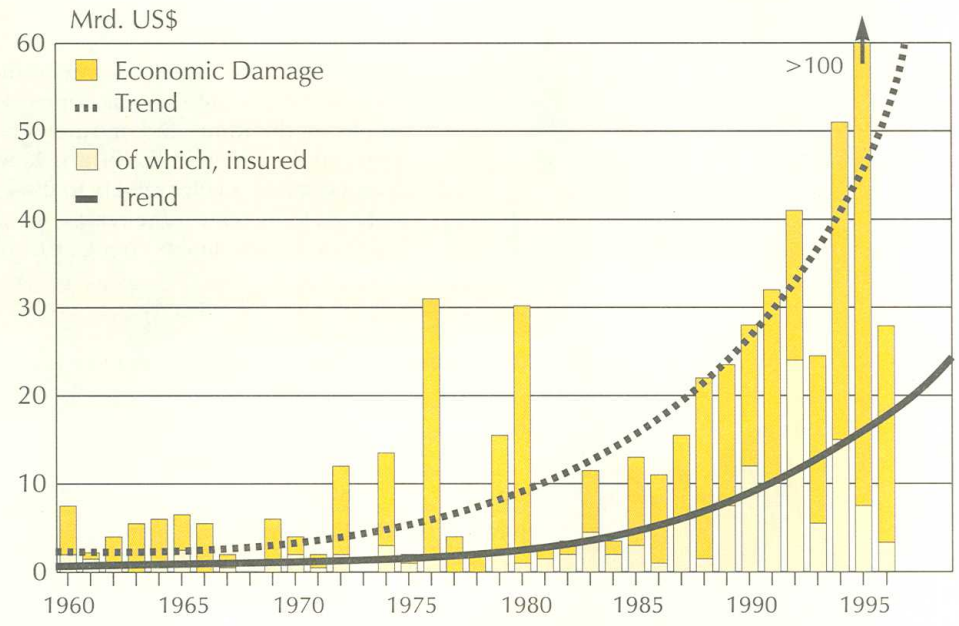
In its 1996 annual report the **German government's Scientific Advisory Council on Global Environmental Change** stated that,

"The global warming by some 2° Celsius that is to be expected in the next one hundred years would bring about a shift in the zoning of living environments and, hence, in agricultural utilisation too. It is not yet known what consequences this would entail for the guarantee of food supplies for mankind. The fact that sea levels are expected to rise by an average of 50 cm [...] is likely to endanger the inhabitants of island states and coastal regions. Moreover, according to forecasts contained in the IPCC report (Intergovernmental Panel on Climate Change) extreme weather conditions such as heavy storms, floods and droughts can be expected."

Possible Risks from Climate Change

Restricted fresh water availability
Less agricultural land
Erosion of fertile land, leading to desertification
Changes to distribution of flora and fauna in certain regions, resulting in possible food shortages
Spreading of pathogens, parasites and pests
Risk of flooding in coastal regions owing to rising sea levels

(German Parliamentary Enquête Commission on Protection of the Earth's Atmosphere, 1994)



Economic Damage and insured damage with trends (using 1996 values)
(Source: Munich Re, 1997)

Famine → **Distribution problems** → **Refugee movement**