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Facing Up To Fate

Global natural hazards and Education for Sustainable Development



With a concept of sustainability that combines environment, society and economy, the extent and consequences of natural catastrophes can be minimised for those affected.

Ours is a world full of dangers. Whether through technical failure – in a plane crash, for example – or through the onset of natural disasters – such as hurricanes, earthquakes and volcanic eruptions – there is probably no place on Earth where people should consider themselves truly safe. With the population explosion, gathered ever more closely in megacities, and the increasing use of precarious living space, enormous potential for disaster has been built up around the globe. The latest series of natural catastrophes is a clear sign of this. The international statistics speak all too clearly: every year they break new records for damage caused – and, worst of all, for the huge numbers of victims.

“The statistics speak all too clearly”

The year 2005 was the year with the costliest natural catastrophes of all time. The economic damage added up to around 220 billion US dollars, the insurance bill to around 95 billion. This broke the previous record from 2004 (145 billion / 45 billion USD) by a long way. The earthquake in Kashmir (Pakistan/India) on the 8th October 2005 claimed more than 80,000 human lives, and 2004 will go down in the history books as a tragic example: the tsunami in the Indian Ocean killed more than 200,000 people.

The Social Component of Sustainability

The concentrated appearance of catastrophes over recent years is no coincidence. For there is a close relationship between the ongoing destruction of the environment and increased susceptibility to natural phenomena such as flooding, hurricanes and droughts. Experts are no longer counting on being able to stop climate

change. But it lies in the hands of the human race to at least slow down its progress.

Although awareness is spreading that the Earth is a whole, and that our existence is dependent upon it, many countries in their thirst for prosperity and development show little care for the needs of others. Thus, the lion's share of consumption of raw materials takes place in a small number of industrialised countries, where oil consumption in particular has reached a level that endangers the continued existence of this resource for future generations.

This context has brought a great deal of attention to the term “sustainability” over the last few years. It has simultaneously positioned debate on the environment on a new footing and ensured that increased value is placed on the issues of economics, the environment and socially responsible actions in politics, science, business and society. The term has often been used with reference to “management” or in societal contexts, but in connection with natural hazards, sustainability has received comparatively little attention.

“Experts no longer count on being able to stop climate change.”

Sustainability – as formulated by the UN Commission chaired by Gro Harlem Brundtland many years ago – calls explicitly for increased work on disaster prevention. Indeed, in this definition, sustainable development means nothing other than to satisfy today's needs without endangering the ability of future generations to meet their own needs. The realisation of intergenerational justice leads directly to natural hazards: all human beings have an equal fundamental right

Major Natural Disasters, 1980-2005

Date	Event	Region	Victims	Damage	
				Economic (Mio. US\$ at 2005 values)	Insurance
25th-30th August 2005	Hurricane Katrina	USA	1,350	125,000	60,000
17th January 1995	Earthquake	Japan, Kobe	6,430	100,000	3,000
17th January 1994	Earthquake	USE, Northridge	61	44,000	15,300
23rd-27th August 1992	Hurricane Andrew	USA, Florida	62	30,000	17,000
May to September 1998	Floods	China	3,650	30,000	1,000
19th-24th October 2005	Hurricane Wilma	Mexico, USA	42	19,000	11,500
26th December 2004	Tsunami	South Asia	> 200,000	10,000	1,000
29th -30th April 1991	Cyclone, storm floods	Bangladesh	139,000	3,000	100
8th October 2005	Earthquake	Pakistan, India	88,000	5,200	
July-August 2003	Heatwave, forest fires	Europe	35,000	13,000	

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to an intact environment and to a satisfactory standard of living. The needs of future generations must be taken into account when taking decisions today.

As worldwide climate change and the over-consumption of natural resources favour the appearance of storms, floods and droughts, the importance of environ-

mental and climate protection, and therefore of sustainable management, cannot be overestimated. Equally, the creation of effective early-warning systems and preventative measures are also demands of sustainability. The so-called Millennium Goal of combating poverty negotiated by the UN can only be achieved if people do not repeatedly see their homes, schools, streets and hospitals destroyed by natural catastrophes.



Flooding in the old town of Dresden in August 2002. Thanks to insurance, local businesses were quickly able to repair the damage and continue trading. Long-term damage is limited.

Foto: T. Loster

In order to prepare people in risk areas adequately for natural hazards, the United Nations declared the 1990s to be the "International Decade for Natural Disaster Reduction" (IDNDR). As a consequence, global efforts for catastrophe prevention increased significantly and at the end of the Decade clear successes were visible. It was possible to develop effective protective concepts in many countries. The best example can be seen in the storm flood protections in Bangladesh, where the number of people killed by flooding has fallen considerably. Nowadays, threatened people near the coast can get to safety – a warning system sounds the alarm in good time.

In the aftermath of the UN Decade, numerous national and international initia-



The earthquake in the Kashmir region on the 8th October 2005 flattened large parts of the region. 88,000 people lost their lives. People will need years, if not decades, for reconstruction. For the poorest of the poor, it will be difficult to escape the cycle of poverty.

Foto: A. Allmann

tives were founded, such as the German Committee for Catastrophe Prevention in Bonn or the International Strategy for Disaster Prevention in Geneva, which continue to work to optimise catastrophe prevention to this day.

Catastrophe Prevention Tailored to People

The social and cultural components of sustainability increasingly take centre stage against the background of the latest major catastrophes. Hurricane Katrina, which swept across New Orleans in August 2005, went to show that even in the USA, one of the world's richest countries with excellent early-warning systems, the dangers cannot be underestimated. Hundreds of people lost their lives because the evacuation measures were not suitably designed for the affected populations. A protective concept that pays heed to the risk perceptions of different cultural groups and the individual needs of human beings is thus desirable.

Catastrophe Response and Systems of Solidarity

As natural catastrophes are not avoidable, we must at the very least prepare for them well. The social component of sustainability further requires that the people affected should be given the opportunity to minimise the consequences of major damage. That means rapid help and support in rebuilding, so that people can get back on their own two feet as quickly as possible and take responsibility for their own lives. Left to their own devices, people in developing countries after a natural catastrophe have hardly any chance to break out of the "cycle of poverty" that is passed on from generation to generation. In most cases the already wide-meshed social safety net is pulled away by natural catastrophes, so that existing social support systems fail. Insurance solutions are generally inexistent in the poorest countries, and the development of microcredit or microinsurance systems is proceeding slowly. These are precisely the instruments capable of significantly improving

the living conditions of this and future generations.

Sustain Knowledge

Once people in an endangered region are prepared for possible catastrophes, sustainability takes on a new dimension. For knowledge about prevention must be sustained in the fullest sense of the word, as warning systems, protective facilities, logistics and infrastructure require intensive maintenance.

Education has an absolutely central role in this regard. Education for Sustainability bears particularly ripe fruit when it begins in childhood. This is as true for understanding of nature and ecology as it is for basic ethical and moral attitudes – evidently also with regard to awareness of natural hazards. As weather events are for the most part spectacular, passing on related information tends to be easy.

“Seismic flood waves were a topic at school”

The tsunami catastrophe in South Asia brought right before our eyes how important early education can be. A little girl from Britain saved many people at her holiday resort from drowning because her school teacher had taught her about the signs of seismic flood waves; earth tremors – drop in the sea level – flood wave. At the first warning signs on the morning of the 26th December, the girl told people on the beach to find higher ground.

In Japan, an annual Disaster Prevention Day is held, on which people are informed about preventative measures for earthquakes. In school drills, even small children are prepared for earth-

quakes, which the country must reckon with due to its geological situation. This initiative ensures that the people affected know what to do should disaster strike. In addition, awareness of natural hazards and possible damage is maintained at a high level.

Education for Sustainable Development must be a fixed component of school education. The issue is taking on a key role in an ever more volatile and complex world. The more effort we put into implementing sustainable solutions today, the greater will be our success in overcoming natural hazards.

Thomas Loster is chairman of the Munich Re Foundation and is a member of the German National Committee for the UN Decade.



Building with an awareness of the risks: the newly-built houses in the tsunami area around Khao Lak, Thailand, are built on stilts. This allows the inhabitants to get to safety when the flood warning sounds. The measure is sustainable, provided the building regulations are complied with. Foto: T. Loster