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Social Aspects of Global Warming

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Interaction and Effects
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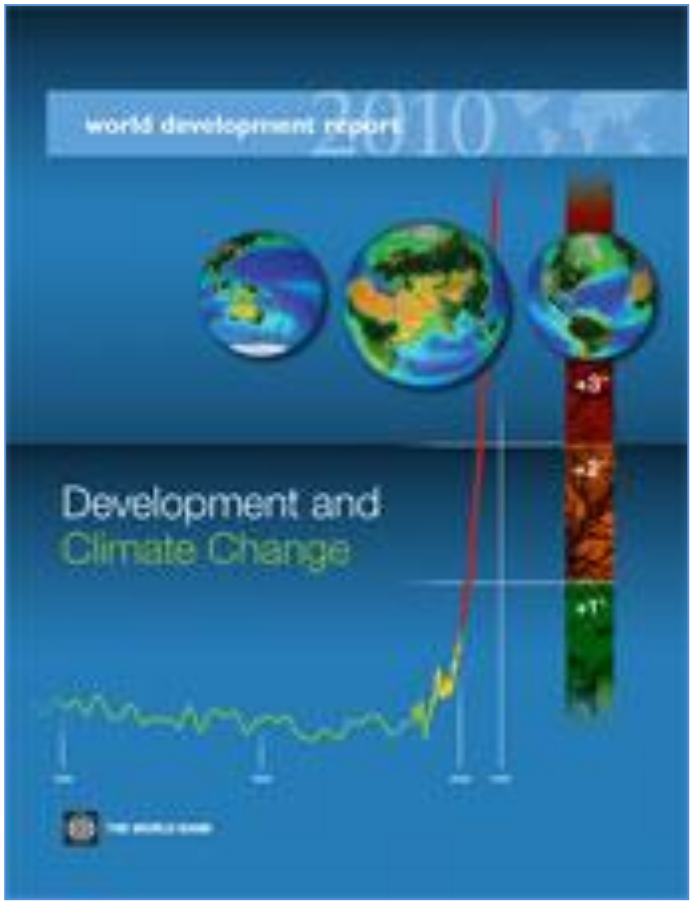
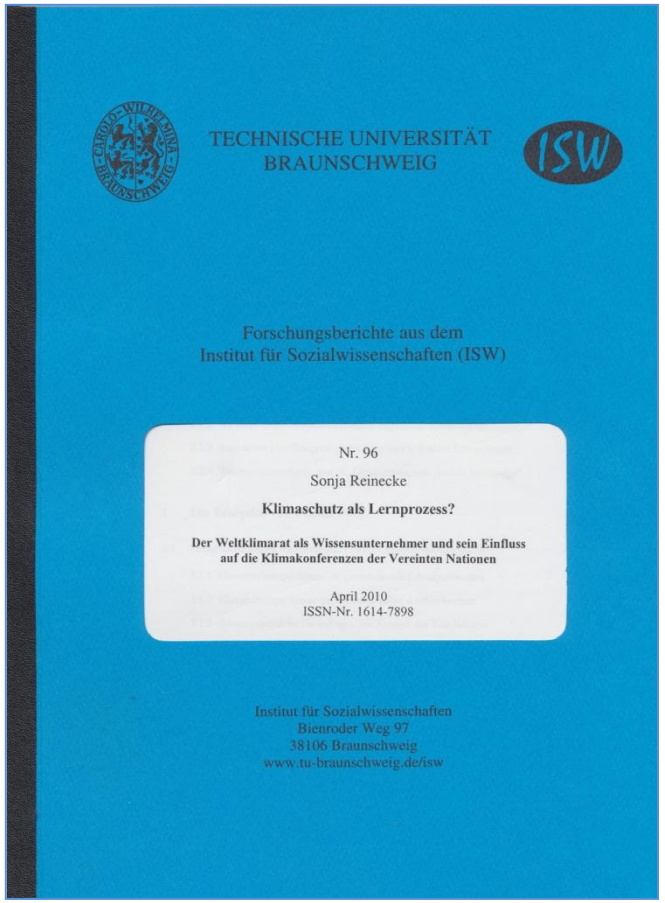
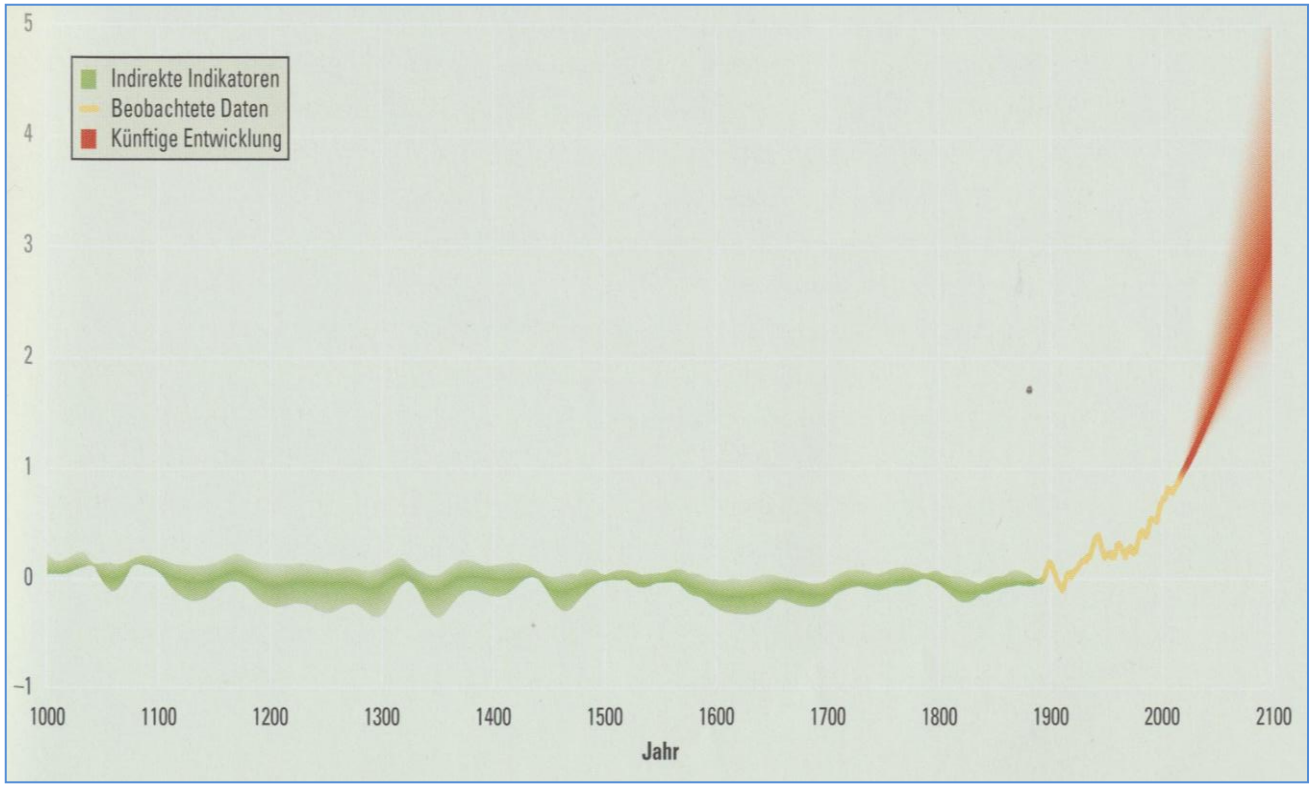
The Problem: The Contradiction between Development and the Environment





The Problem: The Contradiction between Development and the Environment

Temperature Development in Relation to Pre-Industrial Time (^{o} C)

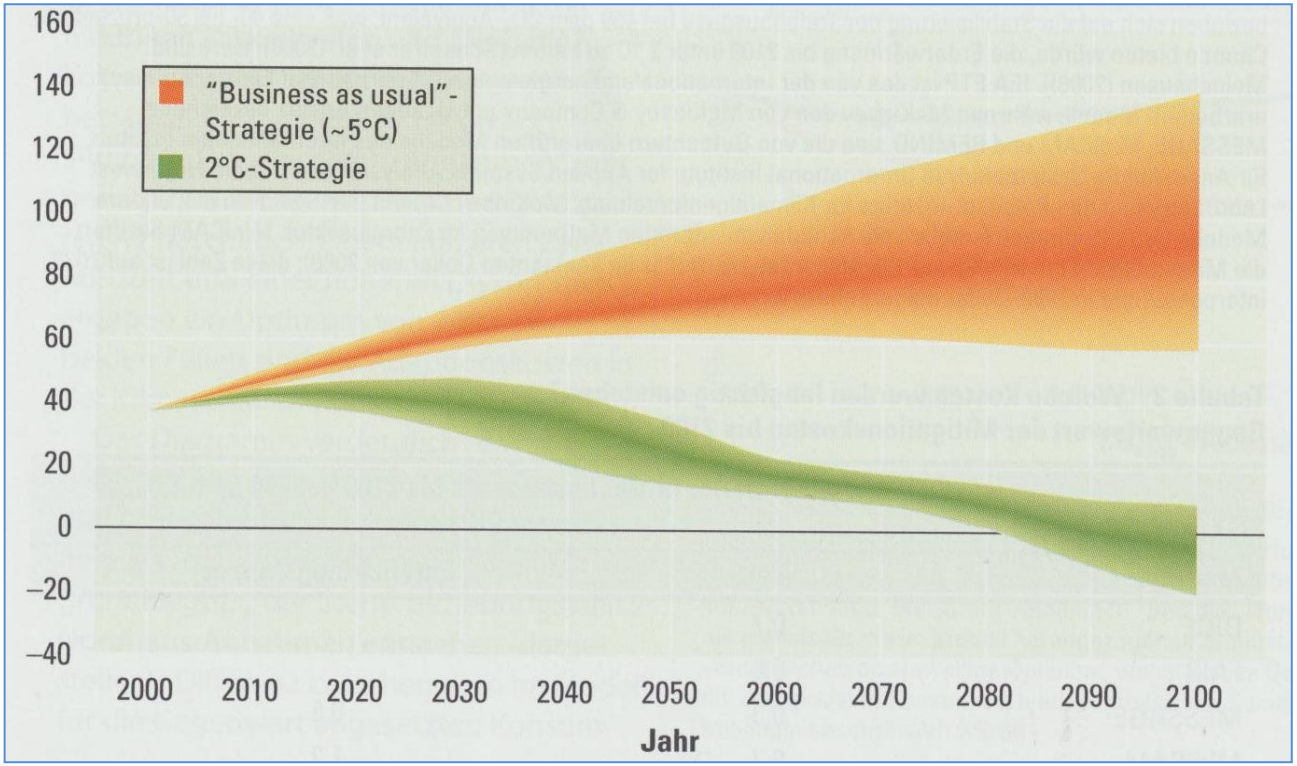


Source: World Development Report 2010

The Problem: The Contradiction between Development and the Environment

„Business as usual“-Strategy and aggressive Mitigationstrategy

- Projected annual total emissions worldwide (Gigatons CO_2-equivalent) -



Source: World Development Report 2010

Target: 2°- Strategy

Possible: 5°-Business as usual - Strategy

The Problem: The Contradiction between Development and the Environment

- 1987 Brundtland Report
- 1988 Foundation of the Intergovernmental Panel on Climate Change (IPCC)
- 1992 United Nations Framework Convention on Climate Change
- 1997 Kyoto Protocol
- 2005 Ratification of the the Kyoto Protocol by Russia
- 2007 Climate Change Conference in Bali
- 2007 Peace-Nobelprize to the IPCC
- 2009 Climate Change Conference in Kopenhagen
- 2010 Climate Change Conference in Cancún

Theory of Goods

Goods are defined by Rivalry and by Exclusion

		Rivalry	
		yes	no
Exclusion	yes		
	no		

Theory of Goods

Examples

private good

public good

club good

common good

Theory of Goods: The Case of Water

① Water as a *private good* is regulated by the market (cost and price of water and waste water)
collection, production, distribution, purification of water is organised by private actors

② Water as a *club good* is regulated by membership to a village, tribe etc.
collection etc. is organised by custom

③ Water as a *common good* is not regulated
everybody is free to collect etc. water
problem: tragedy of the commons! (Hardin, Garrett: *The Tragedy of the Commons*. Science, 162 (1968), pp. 1243-1248)

④ Water as a *public good* is regulated by law
collection etc. is organised by the state

Which alternative is given depends on the type of society, the level of development, the lack or abundance of water

The Tragedy of the Commons (1)

Garrett Hardin: *The Tragedy of the Commons*.
In: Science, 162 (1968), pp. 1243-1248)

The Tragedy of the Commons (2)

1) no member of the village can be excluded to let his cattle graze on the common pasture of the village
2) the pasture used by one farmer, cannot be used by another farmer
3) every farmer is interested to hold as many cattles as possible
4) if everybody does so, the pasture vanishes
5) although everybody knows about the problem, everybody continues to enlarge his herd
6) Why? Because the advantage of an additional head of cattle belongs to one farmer only. The disadvantage of the additional head of cattle belongs to all farmers
7) as long as the individual gain is larger than the individual share on the common loss, it is rational to do so

The Tragedy of the Commons (3)

The solution in England of the 18th Century was the enclosure of the common land.

The common good pasture became a private good. Every farmer had to bear the consequences of overgrazing alone.

If the livelihood of a farmer depended on the use of common land, he had to leave the village after the enclosure of the common land.

The tragedy is in contradiction to the classical (liberal) theory that although everybodies behavior is rational the result is not a collective gain but a collective loss!

The Tragedy of the Commons (3)

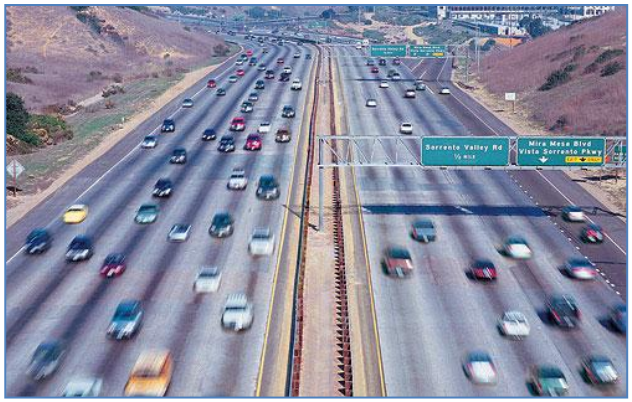
Today in the case of global warming this solution is not possible because it is not possible to enclosure the air

To transform the *common good* "air" into a public good with strong regulations how to use the air is possible in principal. But there are strong hindrances against it

1) There is no world government or international organization responsible for an international climate regime with sanctions against the violation of the regime.
2) Possible is only a weak agreement based on the principle of voluntariness.
3) Because the level of development of the member states is uneven, the involved interests are uneven as well.
4) There is always the freerider-problem.

The Tragedy of the Commons (3)

The US has a high consumption of energy per capita

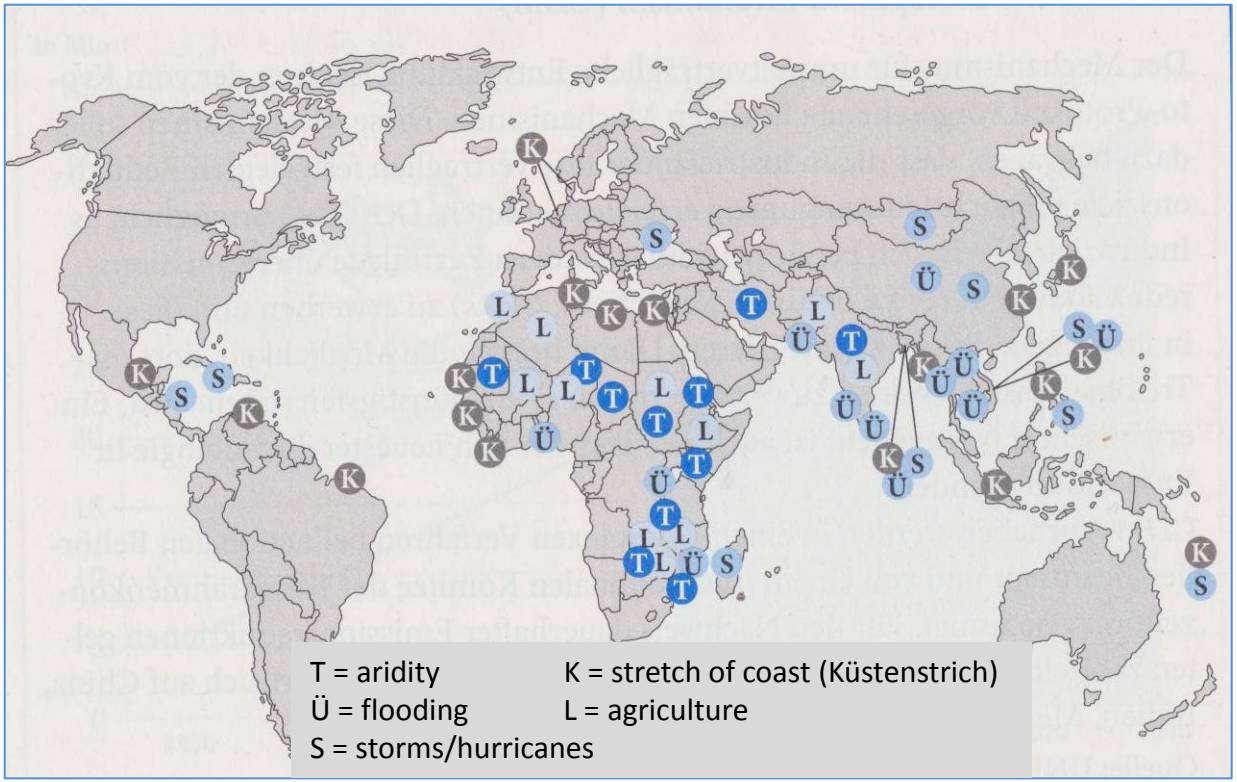


China has a huge population and shows a high economic growth led by industrialisation

The Tragedy of the Commons (3)

The most affected countries by global warming (island states, coastal states, states in the arid zones) are only to a small amount responsible

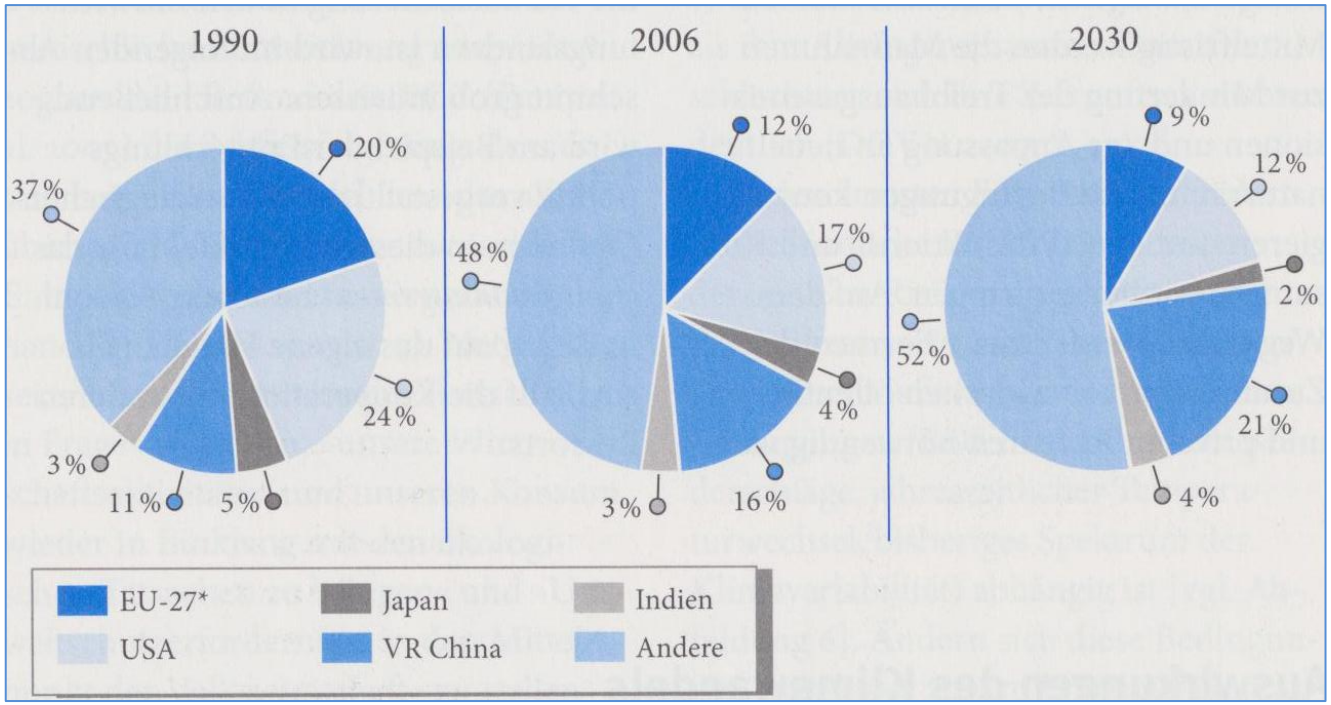
Consequences of climate change effect primarily the developing countries



Source: Globale Trends 2010 (on the basis of World Ressources Institute 2009)

The Tragedy of the Commons (3)

Percental share of selected countries/ countrygroups in worldwide CO_2 emissions in 1990, 2006 and 2030 (projected)



Source: Globale Trends 2010 (on the basis of World Ressources Institute 2009)

The Tragedy of the Commons (3)

Clean Development Mechanism (CDM) is an approach to transform the polluted air into a private good

Trade in certificates of emission reduction from Developing Countries to Developed Countries

Incentive: The same amount of reduction can be reduced by lower costs

Advantage: The emissions are reduced in such countries (China, India, Brazil, Mexico) in which the emissions are growing fast

Transfer of technology related to environmental problems

The protection of the environment is financed by the Developed Countries