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Hans Günter Brauch, FU Berlin and AFES-PRESS

Mainstreaming Early Warning of Natural Disasters and Conflicts

[Download at: <http://www.afes-press.de/html/download_hgb.html>]

1. Introduction and Overview: Key Questions

Efforts to bring two communities together that focus on causes and effects of global environmental change were undertaken with two conferences in June 2002 in Berlin and in The Hague. In early 2003 UNISDR launched a project on mainstreaming "adaptation" and "mitigation" measures on climate change and disaster reduction.

In this talk I suggest an additional effort to look for synergies between two early warning communities focusing on nature- and human-induced fatal outcomes, i.e. the *disaster preparedness and prevention community*, and a second community that focuses on societal consequences, i.e. the *conflict prevention community*.
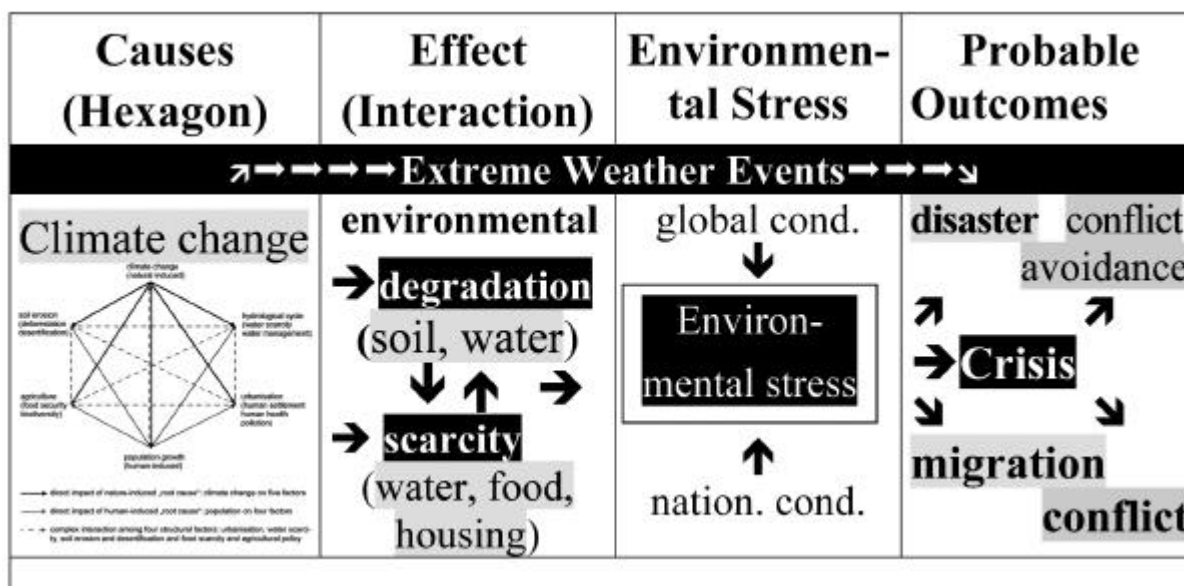
My specific focus is to link EU institutional efforts at two levels: a) of the *Cardiff process* that also includes early warning of disasters (DG Environment/ECHO), and b) of the *Göteborg process* that includes early warning for conflict prevention (DG Relex).

In this context, the role of future EU systems using earth-observation assets for both tasks will be addressed in the framework of a joint initiative of the European Commission and ESA on: *Global Monitoring for Environment and Security* (GMES).

2. Global Environmental Change, Environmental Stress and Fatal Outcomes

I have tried to illustrate the linkages between global environmental change and fatal outcomes in a simple model (figure 1) where extreme weather events link climate change with hydro-meteorological hazards and disasters. In my talk I will focus on fatal outcomes and on potentially violent societal consequences (crises, conflicts).

Figure 1: Global change, fatal outcomes and violent societal consequences

3. Fatal Outcomes: Linking Natural Disasters with Societal Consequences

With regard to fatal outcomes of global environmental change we know relatively much on these five factors of: hazards/disasters, migration, crises, conflicts and on scientific and policy efforts at conflict prevention and avoidance. In contrast, there is little systematic knowledge on the linkages among these fatal outcomes between disasters and disaster-induced migration, or famine and environmentally-induced migration, or conflicts and conflict-induced migration. There is also a lack of systematic knowledge on linkages between fatal outcomes and violent societal consequences, as well as between environmentally-induced crises and conflicts.

4. Diagnosis: Interactions among Outcomes: ECHO-Human Needs Index

With its *Human Needs Index*, the Humanitarian Office of the European Community (ECHO) established a priority list of humanitarian needs that included among others the following indicators: 1) human development index (HDI), 2) human poverty index (HPI), and groups of events: 3) natural disasters, 4) conflicts, 5) refugees, 6) internally displaced persons, 7) recipients of food aid, and 8) death of children below 5 years of age. The figure "**3**" refers to the highest intensity (validity).

Table 1: Human Needs Index of ECHO

	Country Ranking		I		II		III		IV		data not available
	Priority List of Humanitarian Needs	ODA	HDI	HPI	nat dis	conflicts	refugees	IDP's	food	under5	
	country	Average	1	2	3	4	5	6	7	8	
1	Burundi (NB)	2,857	3	x	2	3	3	3	3	3	1
2	Somalia	2,833	x	x	3	3	2	3	3	3	2
3	Ethiopia (NB)	2,625	3	3	3	2	3	1	3	3	
4	Sudan (NB)	2,625	3	2	3	3	3	3	2	2	
5	Angola	2,571	3	x	1	3	2	3	3	3	1
6	Afghanistan	2,500	x	x	3	3	1	2	3	3	2
7	Liberia	2,500	x	x	1	3	3	2	3	3	2
8	Rwanda (NB)	2,500	3	3	2	3	3	0	3	3	
9	Bangladesh	2,375	3	3	3	2	2	2	2	2	

Several countries among the nine most in need of humanitarian aid, such as Sudan, show a very high occurrence of natural disasters, conflicts, refugees, and internally displaced persons but this does not necessarily imply a direct causal link among these four events. Two different types of linkages may be observed either among:

a) *Lack of precipitation* > drought > bad harvests> famine> disaster-induced migration > violent clashes between migrants and resident farmers (in the Sahel) or food price increases > general strike > hunger riots > police or armed forces restore order using force > several hundred fatalities (in Morocco in 1984, 1990).
b) *Conflicts* > war refugees > famine > enhanced societal and environmental vulnerability to hazards and disasters (to drought, floods, earth quakes, volcanic eruptions, epidemic diseases) > high fatalities among poor and war refugees.

These causal linkages are illustrated for four Nile Basin countries and for Bangladesh where both hazards and disasters and violent conflicts could be observed.

5. Early Warning Efforts: Disasters and Conflicts

Early warning efforts are distinguished for hazards and disasters and of crises and conflicts and for two levels: a global, UN level (UNDP, UNEP, UNISDR), and a regional EU level. Within the EU, the focus is at two processes to enhance early warning of hazards, e.g. within the *Cardiff process* to include environmental concerns into all sectoral policies, and within the so-called *Göteborg process* to include conflict prevention goals in all regional foreign policies. With the adoption of a *Green diplomacy* at the European Council in Thessaloniki in June 2003 a network of Foreign Ministry experts on environment and security was set up with the goal to "address the link between environment and security by ensuring that environmental factors are fully addressed in conflict prevention activities as well as in post-conflict reconstruction ... to identify priorities for more concerted action".

6. Tool of EU-ESA: Global Monitoring of Environment and Security (GMES)

Global Monitoring for Environment and Security is a joint EU and ESA project that has been proposed in 1998, that will enter the implementation phase (2004-07) and that will become operational after 2008. A GMES Working Group on Security that reviewed EU policies of conflict prevention and crisis management concluded in 2003 that GMES could support a) natural and technological risks in Europe, b) humanitarian aid and international cooperation, c) conflict prevention including monitoring of compliance with treaties, d) surveillance of borders and e) CFSP and ESDP. The position paper listed among the organisations as potential users: a) civil protection in Europe to manage natural and technological risks, b) European institutions, international organisations, c) NGOs in humanitarian and development aid, d) civilian crisis management outside Europe, and e) Council entities for civil and military crisis management operations. It mentioned among the early warning tasks: forecasting tools for natural disasters, methodologies, and alert tools for rapid onset disasters.

7. Mainstreaming two Early Warning Communities: Science and Policy

The paper points to several advantages of linking early warning of disasters and conflicts because successful early warning of hazards will also mitigate conflicts, and successful early warning of conflicts will reduce the vulnerability to hazards. The paper argues that a three-fold mainstreaming of early warning efforts is needed: a) *vertical*: global – regional – national – local, b) *horizontal*: disaster reduction and conflict prevention, and c) of *actors*: political and scientific community,. It claims that humanitarian organisations and their sponsors would benefit from such a mainstreaming because they address in their activities both challenges: *disasters* and *conflicts*.

8. Policy Conclusions and Recommendations for Science and Policy

To mainstream both early warning activities we need: a) systematic knowledge on interactions among fatal outcomes and societal consequences, b) analyses on the commonalities of technical forecasts of hazards and political assessments of conflicts on policy processes of warning, analyses and policy responses by IGOs and governments, c) assessments of the potential of remote sensing techniques and satellite systems for dual early warning tasks of hazards and conflicts, d) comparable case studies on the integration of different technical early warning systems, e) comparable case studies on cooperation of government agencies and IGO offices on early warning for disaster reduction as well as conflict prevention and crisis management activities, f) comparable case studies on success ("best cases") and failure of early warning of natural disasters and of crises and conflicts. This requires intensive discussions and systematic cooperation among both communities.