

April 6, 2002

Equity and Extreme Events

Joanne Linnerooth-Bayer¹

Hermann Ott, Director of the Climate Policy Division at the Wuppertal Institute for Climate, Environment and Energy, concluded that the new realities after September 11 will force the Johannesburg Summit on sustainable development to put much more emphasis on poverty eradication. In his words, "Equity is the central challenge for peaceful South/North relations....The world simply will not be sustainable in the presence of widespread poverty, starvation and misery."²

My research interest, and what brings me to this roundtable, is equity or fairness in dealing with risk and extreme events. At IIASA, we have recently focused on the worldwide losses from natural catastrophes and especially those caused by weather extremes. During the past decade, economic losses of floods, storms and other disasters have increased dramatically, according to Munich Re about 14-fold from the decade of the 1950's. Most of the deaths from natural catastrophic events and about one-quarter of the economic losses occur in the developing countries, and almost half of these losses are from extreme weather events.³ Considering a recent conclusion of the Intergovernmental Panel on Climate Change that global warming will increase their intensity and frequency and considering the North's contribution to the problem, issues of fairness become paramount.

There are no single universal concepts of what is "just" or "fair", but many morally defensible concepts depending on social context and values. We have found in our research that *responsibility* for the imposition of environmental or technological risks plays a strong role in how people view risk regulation or control. Often assigning the burdens to those responsible trumps over efficiency. Responsibility as an important aspect of fairness links directly to a core question of this roundtable as set out by the organizers:

...the events of September 11th have raised the question as to what are the appropriate roles of the private and public sectors in mitigating the possible consequences of future catastrophes, whether they are malevolent or random occurrences, and providing funds for recovery.

Who is *responsible* for human security - private individuals or the collectives in which they live? This is a question that goes beyond considerations of externalities and incentives, or efficiency, in providing security; it is ultimately a question of social organization. One of the most profound results of the events of September 11 may be a retrenchment of the individualism in the US to greater acceptance of collective forms of social organization, that is, more top-down governance. Placing

¹ International Institute of Applied Systems Analysis (IIASA), Laxenburg, Austria.

² September 11 and the Road to Johannesburg, Contribution to an online discussion organised by the Heinrich Boell Foundation and UNED Forum from 19-24 November, 2001, at <http://www.worldsummit2002.org>.

³ Munich Reinsurance Company (2001). Topics: Natural Disasters. *Annual Review of Natural Disasters 2000*. Munich, Munich Reinsurance Group.

responsibility on the individual or the organization will create incentives for safe operations; at the same time, if there are large externalities in providing this security, the collective will better promote overall welfare. But these gains in efficiency may be perceived as losses in fairness, especially if they violate commonly held views of responsibility. I will illustrate with two examples of our research: financing disaster relief for floods on Hungary's Upper Tisza River and disposing of hazardous wastes across Austria's borders.

Fairness in Hungary's Upper Tisza River

The Upper Tisza River flows through one of the poorest agricultural regions of Hungary, and the communities are accustomed to government protection. Indeed, the Hungarian government has spent large sums on protective levees, and following recent devastating floods the public purse has fully financed the repair of all damaged buildings. Compensating flood victims is discouraging local efforts to reduce flood losses and is also causing serious problems for the Hungarian government with its intentions to meet the Maastrich conditions for EU membership. The government would welcome more private responsibility and insurance.

This policy option was tested in a survey administered to 400 persons within and outside the Upper Tisza region. In contrast to the assumptions of many economic models, many responses of the public did not coincide with personal economic interests. The majority of Hungarian survey respondents *including those facing no risks* thought the taxpayers should continue to aid Tisza victims and private insurance should only be a supplemental option – a public-private partnership. The most common justification of this response was not that the Tisza region is so poor, but the government - by not pursuing more sustainable policies in the region – is largely *responsible* for these risks. This view was voiced even when it was recognised that compensating victims lowers their incentives to take loss reduction measures, or that compensation is inefficient.

Fairness across Austria's borders

Fairness and responsibility are also key concerns *across political borders* as shown in another study on a less tractable policy issue - siting hazardous waste facilities – in this case, in Austria. A survey administered to the Austrian public explored the fairness of constructing a state-of-the-art waste incinerator in the neighbouring Czech Republic, but only on the condition of Czech consent to the deal based on sufficient compensation to reduce the country's much higher risks in other areas (e.g. infant mortality). Economists would regard this as a Pareto fair deal, where all parties consent and feel themselves to be better off. Yet, *eighty-four percent* of the Austrian respondents rejected this option, mostly on the grounds that Austrians should take *responsibility* for their own wastes and thus dispose them in their own country. Like in the Tisza River flood study, it turns out that *responsibility* for imposition of the risks is a key concern to the public, and in this case it trumped over Pareto efficiency.

Fairness and weather-related disasters in developing countries

Moving from local and transborder to global justice, as the “North” accepts greater *responsibility* for global warming and worsened weather extremes, how might this translate into fair procedures for aiding the “South” in adapting to these changes? The poor suffer disproportionately more from the economic losses from weather-related disasters, especially in their dependency on critical infrastructure. In contrast

to developed countries, financing disaster recovery and reconstruction after a disaster can be difficult for poor countries, and many could potentially benefit from insurance or insurance-related financial instruments, like catastrophe bonds, especially if these instruments are designed to create incentives for loss-reduction measures. It is the small, poor countries facing large catastrophes that can benefit most because they lack the means to raise funds for relief and infrastructure repair after a catastrophic event. Since the countries that could benefit most from insurance and other risk-transfer instruments, however, can least afford them, could disaster hedges combined with loss-reduction policies become a new form of aid from the North to the South? More ambitiously, might *responsibility-led* risk transfer lead eventually to the extension of social security systems from the national to the global level? In this case, the world community would be the collective providing security at the level of the nation state.

Public-private partnerships for airline security

The roundtable organizers ask

“Are there lessons from natural and technological disasters that shed light on public-private partnerships that are relevant for dealing with terrorism, and *vice versa*?”

In an insightful article on airline safety, Howard Kunreuther and Geoffrey Heal show that a private airline may not have the socially optimal incentives for investing in a baggage security system if the airline believes that the others will not invest.⁴ One policy option to combat this inefficiency is government regulation requiring baggage security, a move towards collective risk management. Looking especially at the Tisza River case, there may be fairness reasons in addition to efficiency for moving from private to collective forms of security provision, or *vice versa*. It is important to consider both efficiency and the public’s views on fairness in the allocation of responsibility in designing public-private partnerships for public security.

The hidden problem looming behind these justice and equity issues is that of democracy. Are passengers aware that they are travelling on airlines with or without baggage security? Who do they trust to take responsibility for this security? Who decides? These issues of democratic process go beyond national borders. Hermann Ott points out that vital decisions for many of the world’s citizens are being taken without any participation by those affected. Decisions taken by the US government on global warming, for example, have profound impacts on millions of people living in countries already vulnerable to extreme weather events.

To conclude, the purpose of this short discussion is to raise – and hopefully discuss at the roundtable - the broad issues of public-private partnerships, including:

- Issues of fairness, responsibility and efficiency in providing private and collective security;
- Democratic processes for dealing with extreme events within and across borders.

⁴ Interdependent Security: The Case of Identical Agents (2002), Draft paper.