

PART III A

Chapter 14

Designing a Disaster Insurance Pool

Participatory and Expert Approaches in Hungary and Turkey

by

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The Hungarian and Turkish governments have recently implemented national insurance systems to transfer risks from floods and earthquakes, respectively, from households to public insurance pools. To date, neither system has met the expectations of the respective governments in terms of insurance uptake and political support. The study described in this chapter implemented a model-based participatory process for designing a nationwide flood insurance pool for Hungary with a focus on the highly vulnerable Upper Tisza region. The consensus reached by the stakeholders in this pilot study demonstrates that a participatory process, aided by a simulation model, can potentially provide insights on the political viability of a disaster loss-sharing system. This study raises the question whether the Hungarian and Turkish governments might have benefited from involving the stakeholders in the design of their recent insurance systems.

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1. Introduction

One of the more controversial issues in countries highly exposed to disasters is the respective roles of the government and the private market in preventing disaster losses and providing post-disaster assistance to flood victims. Economists view private responsibility for disaster risks as important for providing market incentives for individual loss-prevention measures and to discourage development in high-risk regions, but the attribution of responsibility invokes fundamental questions of equity and social solidarity in responding to extreme circumstances, especially in poor and vulnerable regions. How much should persons living in non-risk areas and taxpayers contribute to preventing losses and compensating victims in vulnerable communities, and to what extent should those living or locating in high-risk areas bear the burden to encourage them to relocate or take loss-reduction measures? Experts, alone, cannot decide on these value-laden questions, but they require consideration in a broadly based democratic process that takes account of the conflicting views of what is a fair and effective insurance/solidarity system.

The drawbacks of relying solely on an expert-driven process for designing a national insurance pool have become apparent in Hungary and Turkey, where national insurance pools have recently been put into place. In Hungary, the uptake is far lower than needed for the viability of the recently legislated flood insurance system. In Turkey, a recent governmental decree implementing the Turkish Catastrophe Insurance Pool (TCIP) may be jeopardized by the reluctance of the Turkish parliament to legislate its continuation. The TCIP was an initiative of the Turkish government and the World Bank. The recent Hungarian insurance system has passed the Hungarian parliament, but the details were negotiated between the government and the insurance companies without the direct involvement of other stakeholders.

A pilot study carried out by IIASA with the Hungarian Academy of Sciences and Stockholm University¹ developed and tested a model-assisted, citizen-participatory procedure for designing a disaster reduction and insurance system. The focus was on the vulnerable Upper Tisza river region in northeastern Hungary. Renn et al. (1995) define public participation as “...forums of exchange that are organised for the purpose of facilitating

¹ The study was funded by the Swedish FORMAS.

communication between government, citizens, stakeholders and interest groups, and businesses regarding a specific issue or problem” (p.2). In this paper we describe a participatory process that combines stakeholder interviews, a public questionnaire and a stakeholder workshop. A challenge for this process was to identify the conflicting perspectives and preferred policy directions for flood risk management held by the stakeholders, and more concretely to identify a politically viable policy path for a nation-wide, public-private insurance/compensation system (see Linnerooth-Bayer and Vári, forthcoming). A unique feature of this process was a computer simulation model that illustrated the outcomes of the competing policy measures suggested by the stakeholders for reducing and sharing flood losses.

The pilot “Tisza study” was a success in that the stakeholders, who held strongly competing views of the flood risk pooling issue and its resolution, reached a consensus on a way forward. The stakeholder consensus differed importantly from that legislated by their parliament, and the Hungarian system – like its Turkish counterpart – has not received wide-scale public support. The Hungarian stakeholders agreed on a radical change from current practices, and only households with partial insurance cover would be eligible for post-disaster government assistance. They were unanimously opposed to mandatory insurance policies, which they viewed as a tax, and most stakeholders opposed risk-based premiums in poor regions opting instead for social solidarity (similar to the French insurance pool). These results contrast with the recent and controversial Turkish insurance pool. Of course, the Hungarian results cannot be transplanted to Turkey, but the political difficulties encountered by the TCIP raise the question whether a stakeholder participatory process, by informing the Turkish government and World Bank experts, might have avoided the current parliamentary stalemate?

After describing the flood risk problem in Hungary and specifically in the Upper Tisza river basin, we report results from the stakeholder interviews and nation-wide public survey. We then describe the catastrophe/policy model that simulated the distribution of future flood losses among the flood-basin residents, the government and insurers based on policy options that emerged from the stakeholder and public views. Armed with this model, the active stakeholders were revisited, which resulted in a revised set of three policy paths. The final round of this study took the form of a deliberative stakeholder workshop where participants chose and argued for their preferred policy option and reached consensus reached on a public-private insurance system in Hungary. We compare this consensus with the recent legislation creating public-private insurance systems in Hungary and Turkey.

2. Background

One of the highest flood-risk areas in Hungary, and one of the poorest regions in Europe, is the Upper Tisza river basin in the northeastern part of the country. The Tisza River originates in the Carpathians in the Ukraine and flows from Romania and Slovakia to Hungary, and eventually into the Danube in Serbia. The intensity and frequency of flood disasters in this region and throughout Hungary appear to be increasing. Pecher et al. (1999) point out that from 1877 to 1933 the average period between high-water discharges resulting in disastrous floods on the Tisza River was 18 years; from 1933 to 1964 it was only three to four years. Since 1998, record-breaking water levels of the river have occurred almost annually, but the extensive network of levees surrounding the river has prevented major losses. The flood of 2001, however, burst through the protective levees causing extensive damage. Since flood waves originating in upstream Ukraine arrive in Hungary at very high speed, there is a little time for warning and preparation.

Communities in the Upper Tisza region, and especially the high-risk areas near the Tisza River and its tributaries, are among the poorest in Hungary. Among the less qualified Roma population, the rate of unemployment in the region is very high, and agriculture by itself cannot support the local population. Riverine floods and inland waters have aggravated this situation considerably. There are communities, for instance, where free seed is distributed, but the residents are unwilling to sow mainly on account of the flood risk (Horváth, et al., 2001).

More positively, the area has a large and undeveloped potential for recreation, tourism, as well as nature conservation. There are pristine, almost untouched areas surrounding the meandering Tisza River, and its flood plain is sprinkled with old villages, traditional farms and historic buildings. Tourism was on the rise until 2000, when the area was stigmatized by a cyanide spill into the Szamos and Tisza rivers caused by the breakage of a tailings impoundment maintained by the AURUL Australian-Romanian joint venture mining company in northwestern Romania. Until this episode, water sports had developed intensively in the area; however, infrastructure supporting these sports remains underdeveloped, and there is large uncertainty about the future of the region with regard to tourism.

While there is little controversy that flood risks are a problem in the Tisza region and throughout much of Hungary, there is little agreement on *why* they are a problem or *what should be done* about them. The challenge to some stakeholders is to design cost-effective flood-control interventions, and according to others, to move people out of areas where the costs are too high. Seen differently, however, overflowing rivers are a natural part of the

flow and ebb of ecosystems, and the challenge is to live in harmony with the river. Likewise, there are different views with regard to who should bear the losses. Many view their government as responsible for protecting the public, and the government should absorb the losses; social solidarity with flood victims is a valued public virtue that promotes a humanitarian and equitable society. Others are concerned about disincentives created by overly generous public compensation and see individual responsibility as the cornerstone of a flood risk system.

The challenge for this pilot project was to design and test a stakeholder process that takes account of these contending constructs of the problem and its solution and that seeks consensus on a flood risk management system. The process described in the next sections included stakeholder interviews, a public questionnaire, a flood-risk policy model and a stakeholder workshop.

3. Round one: Stakeholder interviews to identify feasible policy paths

Nearly all Hungarians have a stake in the flood risk management system for the Upper Tisza region, either directly by their exposure to flood risks or indirectly by their tax payments for flood loss mitigation and relief, their flood insurance payments that subsidize those living in high-risk areas and their foregone public amenities because of flood-relief expenditures (for instance, after the 1998 Tisza flood the central government justified the suspension of building a new section of the Budapest subway in order to divert funds for flood relief). For the purpose of eliciting stakeholder views on flood risk management strategies for the Upper Tisza region, round one of the participatory process was carried out with face-to-face, open-ended interviews with stakeholders who are actively involved in and informed of the policy issues. These included twenty-four persons representing central, regional and local government agencies, farmers and entrepreneurs, NGO activists and insurance companies (Vári, 2001). From these interviews, three prototypical flood-policy strategies emerged: state protection, individual responsibility, and holistic development of the region.

State protection: One widespread view saw the government as continuing to absorb a large share of the costs of reducing flood risks in the area and supporting reconstruction by its investments in levees, its generous compensation of flood victims and controlling development in the flood-risk areas by top-down zoning regulations. Justification for this strategy was based on claims that the government is responsible for protecting its citizens, and if it is negligent in providing this protection, it must be held accountable and absorb the losses. Critics saw this hierarchical approach as leading to a worsening of the central government's budget deficit and,

despite regulation, encouraging undesired development in the flood-prone areas.

Individual Responsibility: Alternatively, the government can withdraw resources from this area and rely more strongly on market forces to encourage individual responsibility for reducing losses and for insuring against them. The stakeholder discourse in Hungary is notably short on this strategy. With the exception of blaming the new landlords in the Tisza area for not maintaining the water drains and culverts, the stakeholders made little mention of individual loss-reducing measures. Nor was there a sense that individuals and communities should be fully insured. This is true throughout Central Europe. For instance, after the 1997 Polish floods, the Prime Minister made a public statement that uninsured victims had only themselves to blame for their financial losses and should not expect government compensation. This remark raised such a public outcry that the Prime Minister was forced to apologize (Stripple, 1998).

While the individualistic view of flood risk management has been conspicuously absent from the mainstream policy discourse in Hungary, it is beginning to assert itself as Hungary enters the global marketplace and as government authorities recognize that they cannot continue massive public support programs. Budget austerity is thus forcing a partly reluctant government to switch towards more individual responsibility and “borrow” the market discourse that dominates the discussion in countries such as the United States and Great Britain. If uninsured disaster victims are guaranteed grants that enable them to continue to rebuild their property in hazard-prone areas, and more people build in those areas, taxpayers will be subject to increasingly larger expenditures for bailing out victims of future disasters. This moral hazard argument led the authors of a recent book, suggesting reforms to the U.S. natural disaster program, to argue for making private responsibility and insurance a cornerstone of catastrophic risk management (Kunreuther and Roth, 1998).

The policy path emphasizing individual-responsibility can be justified on what at first appears to be an efficiency argument. With increased emphasis on incentives promoting loss-reducing measures, everyone stands to gain: the taxpayers because of decreased demand for post-disaster aid and the Tisza residents if they are compensated for their loss-reduction expenses. The Hungarians stakeholders, however, were reluctant to accept this Pareto efficiency argument. They saw few realistic measures local residents can take to reduce flood damages. Besides switching to more flood-resistant crops or abandoning agriculture altogether in favor of small handicrafts like rug weaving, the only remaining option is to leave the area. The relocation strategy is often advocated in wealthy countries, but it is problematic in Hungary where more than 50 per cent of the territory is at risk to flooding.

As some stakeholders point out, the poor residents can only relocate to the cities increasing urban problems and resulting in the abandonment of historic villages.

Holistic development: The third view promotes the ecological preservation of the area and egalitarian policies towards the poor, including subsidized programs to help farmers change land-use practices, the re-naturalization of the river by removing levees in some areas and the provision of infrastructure for soft tourism. These voices are strongly opposed to levees and other structural flood protection measures that, they claim, only push the risks downstream and endanger ecosystems. Fairness in this line of argument stands in opposition to the paternalistic fairness of the hierarchical discourse and the efficiency arguments of the individualist. Ecosystems should have standing in the policy debate, and the very poor should be given priority in a kind of equality for all. Commercial insurers are regarded with suspicion since risk transfer should not be an issue in an ecologically and socially just society.

These three perspectives – state protection, individual responsibility, and holistic development - form the contested policy terrain in Hungary. Each discourse constructs the problem and solutions in a way that reinforces the underlying worldview. Within this struggle, institutions and individuals may argue for the same policy, but for different reasons and based on different claims of fairness, which is a core concept behind the search for viable policy paths.

4. Round Two: The Public Survey

Based on the stakeholder interviews, a questionnaire with face-to-face interviews was administered to 400 persons in Hungary. The purpose was to elicit public stakeholder views on Hungary's options for reducing flood risks and providing assistance to victims. Four separate locations in Hungary were chosen in order to include stakeholders at high risk to flooding in both rural and urban areas, as well as urban and rural stakeholders who subsidize those living in high-risk areas through their tax and insurance payments. The sample size in each area was 100. Settlements in rural areas were chosen randomly, and the number of participants was determined according to population size. The sample was selected to be representative in terms of gender and age for each region. For more details on the survey, see Vári, et al. (2003).

The public survey confirmed that when it comes to floods the majority of Hungarians continue to view their world as it has been, that is, with a paternalistic state taking the main responsibility for their well-being. The main causes of flooding were seen as lack of maintenance of the levees,

clearing of large forest areas in the catchment area and insufficient height and strength of the levees. Significantly, the least important cause was attributed to the local people taking insufficient preventive measures or building in flood-risk areas. At the same time, a third of the respondents blamed the authorities for having issued building permits in areas with high inundation risk. In mitigating the risks, low rankings were given to measures such as financial incentives, including risk-based insurance premiums, to encourage inhabitants to migrate out of high-risk areas, the introduction of alternative agricultural practices and re-naturalization of parts of the river. These results confirm the findings of the stakeholder interviews, that a majority of Hungarians tend to blame their government or neighboring countries for escalating flood losses, and few appear to hold those living and working in the high-risk areas as contributing substantially to this escalation.

Along this same perspective, responses strongly indicate that responsibility should be mainly in the hands of the central government rather than in the hands of property owners living in high-risk areas. In terms of responsibility the central government was ranked in first or second place (of four alternatives) by 92 percent of the respondents, the neighboring countries by 51 percent, the municipalities by 49 percent and the property owners by only 10 percent of the respondents. Corresponding to the view that the central government is mainly responsible for flood losses, a large majority of the respondents would fully or partially support Hungary's generous public compensation system. Importantly, however, an equally large majority was, at the same time, sympathetic with switching to more individual responsibility, meaning that many persons are in favor of both state protectionism and individual responsibility. Indeed, later questions show a great deal of support for a joint public-private insurance system for Hungary.

What motivates Hungarians to express such strong solidarity with flood victims? Considering Hungary's history of government protection against flooding, it is not surprising that half (51%) of the respondents justify financial assistance to flood victims on claim that flood protection is the *responsibility* of the government and thus flooding is the fault of the government. If the river overflows the levees and floods the villages, the government is to blame since it has not built the levees strong or high enough. Alternatively, about a quarter of the respondents (26%) justify victim relief on the grounds that the government has always provided compensation, and a fifth (19%) justified financial support to the victims on the solidarity principle. This strong majority does not mean that there are no contending views in Hungary. A small but important minority of respondents is *not* in favor of compensating flood victims. Among the cons, the respondents differentially thought that compensation is too costly for the

taxpayers, or that it often goes to the wealthy or that compensation discourages people from purchasing insurance.

This plurality of views was apparent throughout the survey results. For example, there were mixed views on whether households in low-risk areas would be willing to pay higher flood insurance premiums to subsidize the premiums of those in poor, high-risk areas. As shown in Figure 1, more persons in low-risk areas considered cross-subsidization unfair, but a surprising number, between 20 and 30 percent, supported cross subsidies on the grounds of social solidarity especially with poor regions. This result was consistent with responses to taxpayer support: nearly *one-third* of the respondents in the low- or no-risk areas support taxpayer solidarity with Tisza flood victims. It is remarkable that approximately *76 percent* of the respondents thought the government should compensate every victim regardless of the victim’s economic circumstances or role in preventing losses.

Figure 14.1 Respondents’ views on risk sharing by region

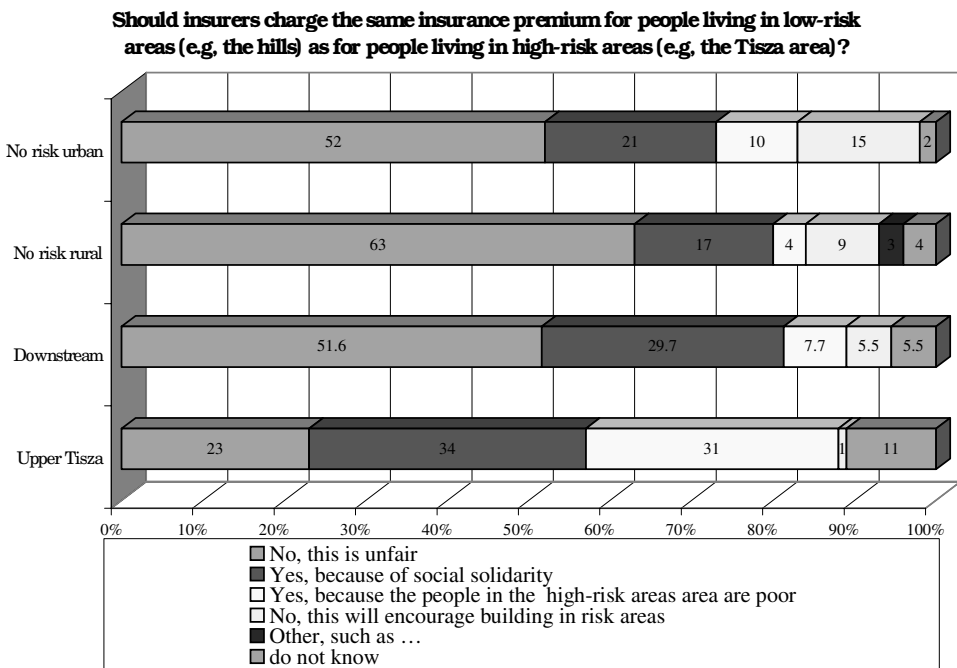
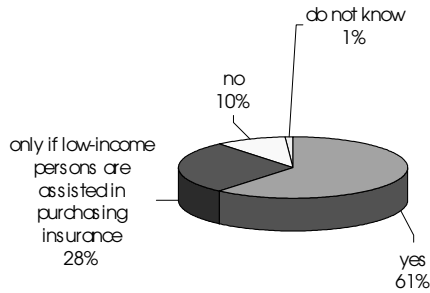


Figure 14.2 Respondents' views on whether property owners should insure themselves against flood damage



A large majority of respondents fully or partially subscribe to continuing Hungary's generous victim compensation system, and at the same time a majority of interviewees are in favor of more individual responsibility. Exploring this duality further, as shown in Figure 14.1, over 60 percent of the sampled persons (but fewer in the Upper Tisza region) thought it desirable that property owners have insurance against flood losses, and only about half as many (but higher in the Upper Tisza region) shared this opinion on the condition that low-income individuals receive public assistance in purchasing insurance. Although private insurance was viewed for the most part as desirable, *only about a third of the respondents thought it should be mandatory and another third thought it should be conditional on assistance to low-income persons*. Most importantly, half the respondents supported a mixed public-private system of victim relief. This finding is consistent with earlier results indicating that many Hungarians regard government compensation and private insurance as complementary.

It is beyond the scope of this paper to discuss all the questions on the public survey. As a short summary, the questionnaire results confirmed that the Hungarian public has differentiated and contending views concerning the management of flood risks in the Upper Tisza region. These views appear to depend to some extent on economic interests – those living in high and dry areas are less disposed to generous taxpayer aid and other forms of solidarity with flood victims – and to an important extent on notions of a fair society – almost a third in the high-dry areas do support this aid. The results showed little sympathy with extreme market positions, nor for extreme ideas on a

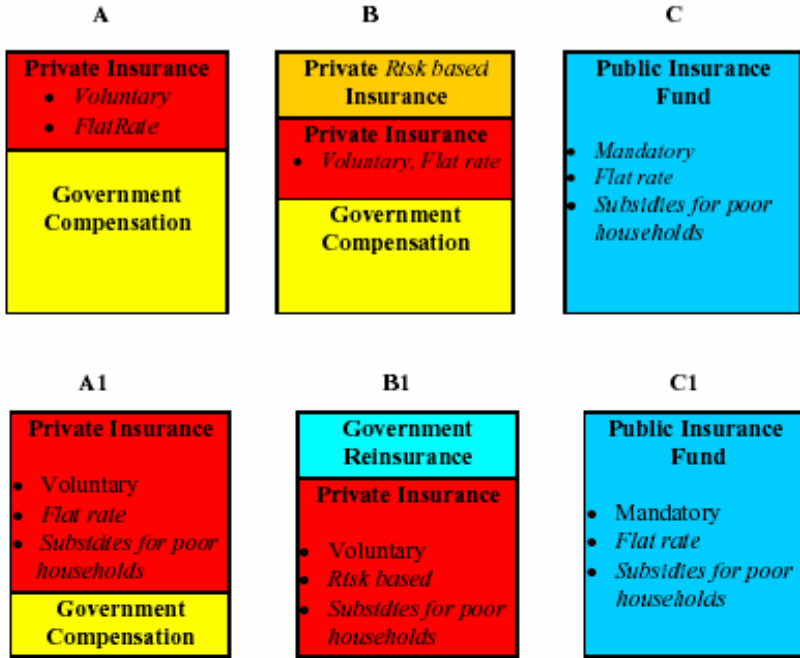
more ecological and naturalistic path for the region. Hierarchical government still commands wide support in Hungary. However, in light of recent history, the minority views in favor of increased individual responsibility and more holistic development policies are revealing and important.

5. Round three: Designing a national insurance program

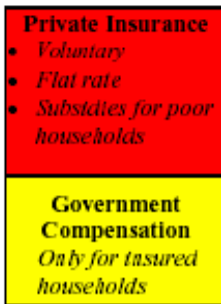
The challenge for this pilot study was to develop a citizen participatory process that can accommodate the different perspectives and articulate a way forward. Ideally the process would lead to a flood insurance program that is compatible with the Hungarian legal, economic and political context and is viewed as efficient and fair by the stakeholders. Following the first two information-gathering rounds (the stakeholder interviews and public questionnaire), the research team proposed three policy paths or options that appeared consistent with the majority and minority views of the stakeholders and that were compatible with the political and institutional setting. These options took account of (1) the apparent widespread stakeholder support for continuing large government involvement in a national insurance program with post-disaster relief to flood victims; and (2) the simultaneous endorsement of introducing limited individual responsibility and insurance. The three policy options for a nation-wide public/private insurance system are shown in Figure 3 and described below:

- **Option A** continues current practices by combining extensive government post-disaster relief with voluntary, flat-rate (cross-subsidized) insurance;
- **Option B** places more responsibility on households living in high-risk areas to reduce their risks and purchase insurance. The government thus compensates victims by a lesser amount (perhaps only assuring their subsistence), and the public role is supplemented by two insurance layers: voluntary (but bundled) private insurance based on a flat-rate premium and, if a household wishes greater coverage, voluntary, risk-based insurance (this option was suggested in the World Bank report, see Halcrow, 1999).
- **Option C** is notably similar to the TCIP in that it reduces the role of private insurers with the creation of a fully public, but privately administered, insurance system (government disaster fund) financed by mandatory contributions from all property owners throughout Hungary. Unlike the TCIP, however, the Hungarian system contributions would not be based on flood risks, and the government would subsidise insurance premiums for low-income households.

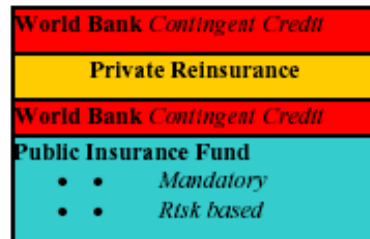
Figure 14.3 Insurance Program Options



The consensus recommendation



The TCIP



6. Round four: Revising the policy options with support from a flood risk policy model

To demonstrate the financial consequences of the three pooling options (A, B and C in Figure 14.3) a flood risk policy model was developed for a pilot area in the Upper Tisza region in collaboration with VITUKI Consult (Brouwers, 2002; Ekenberg, et al., 2002; Ermolieva, 2002, Galambos et al., 2001; Hansson, et al., 2001). Depending on the option chosen, the aim of the model was to simulate the incidence of future flood losses on three key stakeholder groups: flood victims in the pilot basin, the insurance companies and the central government. The simulation model generated a probabilistic distribution of future flood losses in the pilot basin over a ten-year horizon, and illustrated the effects of this distribution given selected policy interventions. It consisted of four modules: (1) a one-dimensional, hydrological model of the river based on probabilistic input of water levels at the source, (2) a GIS-based flood model with values for residential properties, industry and crops in the pilot area, (3) an inundation or flood-loss model with property vulnerabilities and (4) a policy module that illustrated the effects of policy changes. Modules 1-3 integrated assessments of the probability of the peril (high water) in the selected geographic region, the probability of levee failure or over-topping of the levee, the vulnerability of the properties concerned and the potential financial loss. The policy module simulated the effects of selected insurance-pool options on the profits of insurers, on the government budget and on those living in the pilot basin.

The model was designed to be as realistic as possible given available data and knowledge, but it was not presented to the stakeholders as full reality. Ravetz (2003) suggests that models be viewed as metaphors, as illustrations of reality without any pretence of representing the full complexity of the physical and behavioural context. Many simplifying assumptions with respect to the data, the scale of the analysis and the functioning of the physical/economic system were necessary. For a detailed description of the model, assumptions and parameters, see Brouwers (2002).

Armed with model simulations for Options A, B and C shown in Figure 14.4, the IIASA team returned to the active stakeholders to refine the policy options based on the interviewee's values, knowledge of the political playing field and the economic constraints (see Ekenberg, et al., 2002). A slightly different picture emerged from the more detailed discussions with the stakeholders informed by the model results. The revised options (A1, B1 and C1 illustrated in Figure 4) differ from those described above mainly in the reduction of government compensation to victims, fully eliminating this compensation in Options B and C. The full elimination of any post-disaster

government support for rebuilding the homes of flood victims (and other forms of compensation) was a radical shift from earlier stakeholder positions, and was triggered by the recognition that *solidarity need not mean extensive post-disaster compensation but could also take the form of subsidies for pre-disaster loss reduction and insurance* was a breakthrough in the stakeholder process. Indeed, across-the-board government relief might mean that households with insurance actually receive more than 100 percent of their damages, which was rejected by several stakeholders as unfair. This combination of government relief through a market mechanism, which would also appeal to social justice, was a first hint at a consensus policy package.

Another interesting view, which is counter to the economist's emphasis on building incentive structures to dissuade people from locating in high-risk areas, is the wish to keep people in risky areas. Keeping in mind that a significant part of Hungary is at high risk to flooding, relocation might be more expensive than other measures. "In the Upper Tisza basin, people can survive on very little money and lead reasonable lives, which would not be possible if they were relocated to the cities" (Interview with a local mayor, 2002). Correspondingly, many stakeholders expressed dissatisfaction with instituting risk-based premiums. An exception, not surprisingly, was voiced by a representative of the Association of Hungarian Insurers (MABISZ), who would like to see more risk-based insurance but with the government aiding those who cannot afford the high premiums: "The government should subsidize the poor by the difference between the risk-based and flat-rate premiums" (Interview with a MABISZ representative, 2002). There was generally broad support for assisting low-income households in high-risk areas.

The divergent and mixed stakeholder views on the role of the government, individuals and insurance companies in absorbing flood losses led to the revised set of options (A1, B1 and C1 shown in Figure 4) for the nation-wide insurance program (For details see Linnerooth-Bayer and Vári, forthcoming). In effect, the stakeholders participated in revising the options to reflect what appeared to be a more moderate support for state protectionism toward more market-oriented and egalitarian perspectives. The revisions reflected the almost unanimous view that poor households should be assisted, and the polarized views on the respective roles of private, risk-based insurance and a government fund. How the three different options distributed simulated losses to the government, residents of the pilot basin and insurance companies are illustrated in Figure 14.4.

Figure 14.4 The simulated decadal distribution of losses according to Options A1, B1, C1 and D

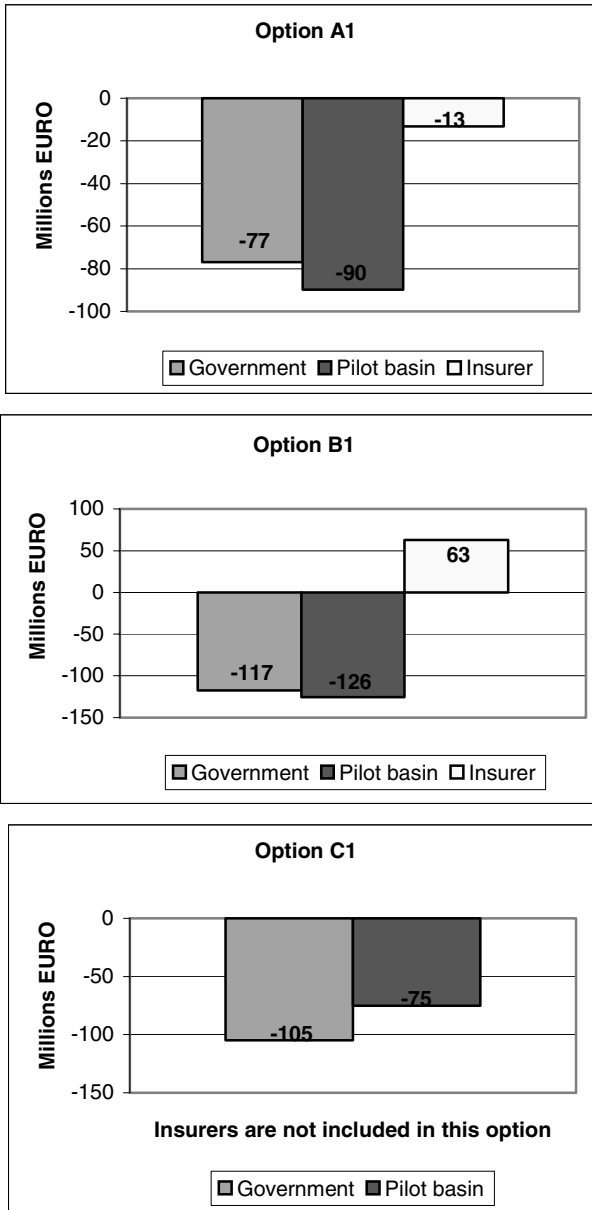
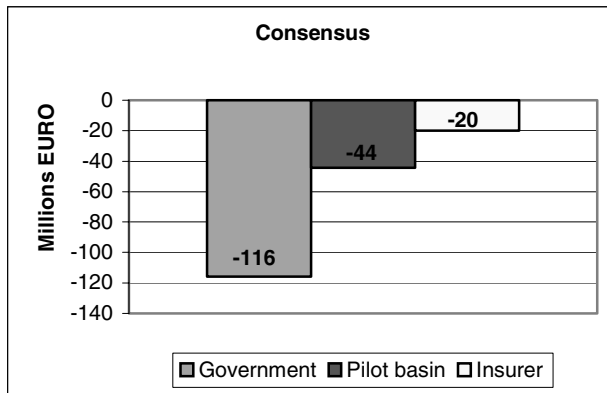


Figure 14.4 (continued) The simulated decadal distribution of losses according to Options A1, B1, C1 and D



7. Round Five: The Stakeholder Workshop

The stakeholder workshop was held in September 2002 in Vasarosnameny, a town in the Upper Tisza flood-risk area. Participants included representatives of the key stakeholder groups, including the local mayor, a resident of a non-risk area, the leader of a local environmental group, officials of the regional water management authority and the national authority for disaster management, and a representative of a major international brokerage firm. Unfortunately, the representative from the Hungarian insurance association was not able to attend (because of a last-minute invitation to attend a meeting on this topic with government representatives).

The workshop was a forum for stakeholders to argue their policy positions and consider the arguments of the other participants, what theorists refer to as deliberation (Elster, 1998, Reardon, 1998; Habermas, 1984). The idea was to explore the terrain where citizens can agree on a policy direction, but for different reasons. This may or may not exist, but by exploring this terrain, deliberation and citizen participation can be an effective means of formulating citizen grievances, ideas and views and feeding them into the policy process (Renn and Webler, 1995).

The moderated workshop began with a discussion on flood risk management issues in the region followed by the introduction of the three revised options shown in Figure 3. The policy model showed simulation results of how these options distribute flood losses among the three stakeholder groups. The participants were asked to choose their preferred

insurance policy option, and they were given time to change the option of their choice in any way to correspond more closely with their view of an efficient, fair and workable system. The participants were then grouped according to the option chosen and asked to negotiate a common view in their subgroup – a kind of mini consensus within a single perspective (a similar discursive process was carried out in focus groups for pension reform, see Ney, 2002).

After arguing for their competing policy directions, the workshop participants turned to a lively and heated discussion on a possible compromise. This deliberation led to an imaginative new system as shown on 34: *Only households with private insurance would qualify for government assistance after a disaster, but the government would heavily subsidize poor households in their purchase of voluntary, private flood insurance.* It was also agreed that the government would not provide reinsurance for private insurers. This type of insurance program is similar to what is being currently discussed in Italy. The details are shown in the box below, and the results of the simulation model are shown in Figure 14.4.

Box 14.1 Consensus Option

- Government compensation only to insured households;
- A private insurance system with
 - bundled or separate policies for all types of natural disaster risks,
 - covering approximately 50% of the damage, and
 - voluntary, flat-rate premiums;
- Government subsidies for poor households up to 100% of premium.

This consensus is a radical departure from current practice insofar as the government compensates victims *only* if they have purchased partial cover from private insurers. As shown on Figure 3, the Hungarian stakeholders supported a layer of government compensation as well as a voluntary, private system with substantial cross subsidies or solidarity among premium payers. This latter feature is characteristic of the French national insurance system (Linnerooth-Bayer, et al., 2001). In contrast to the French system, however, the Hungarian taxpayer will play no role in guaranteeing the solvency of private insurers by offering public reinsurance. A public guarantee is also not necessary since the private insurers can collect premiums that allow them to purchase reinsurance on the private market.

At least one caveat is in order. The solution on which the stakeholders decided would probably not have been endorsed by insurance companies, as

it would have required them to offer greatly expanded cover at flat-based rates. The simulation model shows that insurers could expect a net loss with the consensus option (see Figure 14.4). No high-level representative from the insurance industry was present at the final stakeholder workshop due, as we have already mentioned, to a last-minute cancellation. In a follow-up interview, we learned that the representative of insurance industry had not been able to make it to the meeting, as he had been expected in the Prime Minister's office to negotiate directly with government representatives.

As a result of these negotiations, the Hungarian government decided upon a novel flood insurance program. According to the new legislation, the government will fully underwrite flood insurance in high-risk areas, and taxpayers will provide a backup if the premium pool is insufficient to cover claims. Consistent with the insurers' perspective, and in direct contradiction to the results of the stakeholder compromise, insurance premiums will be risk-based. Moreover, the premiums of poor households will only be subsidized up to 30 percent.

The outcome of this new law is disappointing. As of September 2004, only 159 households had purchased flood insurance policies (Várkonyi, 2004). The Achilles heel of the new system seems to be that poor households will only receive a 30% subsidy for their private, risk-based insurance premiums. Our study strongly suggests that this will not encourage many poor households in risky areas, such as the Tisza region, to buy insurance. If so, then the next major floods will significantly harm and threaten the most vulnerable Hungarians. Given that the great majority of Hungarians still feel that the government should be responsible for flood prevention and compensation, it would not be unlikely that a public outcry would follow the floods, perhaps forcing the government to abandon its plans and compensate all flood victims. Then, a lose-lose scenario would have unfolded: one in which the Hungarian government would have to spend large sums (both in the short and long term), while poor Hungarians would be left at the mercy of the weather gods for the foreseeable future.

8. Comparing the stakeholder consensus with the Turkish system

The Turkish Catastrophe Insurance Pool (TCIP), which was designed by World Bank experts together with officials from the Turkish treasury, is the first of its kind for an emerging economy country (see Gurenko, 2004; Balamir, 2002; Andersen, 2001). Earthquake vulnerability has increased in Turkey mainly due to increased urbanization, faulty land use and construction, inadequate infrastructure and environmental degradation. Recent estimates suggest a yearly probability of 0.02 of a major earthquake in Istanbul, which is estimated to result in 30 to 40 thousand deaths and

damage or destroy up to 400,000 buildings (Erdik, 2000). Like in Hungary, the government has traditionally assumed the main financial responsibility for replacing private homes and other buildings destroyed in earthquakes. This practice has given homeowners little reason to purchase private insurance, and has also reduced incentives for building or retrofitting the existing building stock to meet standards, especially on the part of absentee property owners. Finally, if property owners expect government assistance after disasters strike, this will encourage further development in disaster-prone areas.

Designers of the TCIP attempted to solve the fundamental problem – non-affordability of earthquake insurance in poor countries – by offering limited cover and by transferring some of the risk out of the country with World Bank support. As shown on Figure 3, the World Bank will finance two layers of risk by means of a contingent credit facility with highly favorable terms.

In contrast to the consensus view of Hungarian stakeholder, which rejected mandatory insurance, a government decree in Turkey has made earthquake insurance policies obligatory for all property owners. Also, in contrast to the Hungarian consensus, the Turkish policy holders will pay a risk-based premium based on their risk zone, the construction of their property and risk reducing measures to a privately administered, public fund. On one point, the TCIP is in full agreement with the Hungarian consensus: only persons holding insurance policies will be eligible for additional government assistance after a disaster.

With risk-based pricing and no subsidies for policy holders, how is the TCIP affordable to poor households in high-risk areas? The World Bank experts explain its affordability based on two provisions: First, the subsidized reinsurance has an effect on price. Second, all households outside of municipalities (which are the poor rural households) are exempt from purchasing insurance, and the government will provide post-disaster assistance (Gurenko, 2004). Except for these provisions, however, there is no solidarity in the system. This stands in contrast to most other systems. For example, the French all-hazards insurance program deliberately incorporates national solidarity through taxpayer involvement as well as through rejecting risk-based premiums. The program is reinsured through a public administered fund, the Caisse Centrale de Réassurance (CCR). If this fund is insufficient, taxpayers will be called upon to contribute. The French recognize that the system provides disincentives for individuals and local communities to take risk-reduction measures. A recent and imaginative decree to counter this problem sets a deductible that increases with the number of disasters in the same area.

Even the US has an explicit policy of offering additional public assistance to insured disaster victims, as well as generally assisting uninsured victims. Many critics of the Turkish insurance pool doubted whether the government could uphold its resolve not to assist uninsured victims after a major earthquake. Their doubts were confirmed when the government offered generous compensation to uninsured victims of a recent earthquake in central Turkey.

To date, the penetration of earthquake insurance in Turkey is steady at about 3 million policies, representing about 22% of dwellings. The goal of the TCIP is to increase cover to 60% by 2008, but many observers are skeptical if this goal can be reached, or even if the system is viable. The TCIP was implemented through a temporary governmental decree, and the Turkish parliament must pass follow up legislation to make this a mandatory program. To date, the parliament has not passed this legislation, which appears to be politically unpopular. We can only speculate that parliamentarians are concerned about mandatory insurance and also the lack of solidarity in the system. A stakeholder process might have flagged these difficulties before implementation of the TCIP.

9. Conclusions

For the Hungarian pilot stakeholder study, the final solution is not as important as the demonstration of a participatory, deliberative *process* that respects and builds on conflicting stakeholder views and achieves consensus on a policy path. Starting with a very broad survey of views, interests and perspectives, the range of policy options was narrowed and refined through iterative interactions with stakeholders, who were knowledgeable, influential, and representative of different worldviews and perspectives. This iterative interaction with the stakeholders profited from the flood risk policy model, which simulated the effects of selected insurance-pool options on the profits of insurers, on the government budget and on those living in the pilot basin.

The process gradually moved from a contested terrain characterized by arguably non-viable policy solutions to increasingly viable options, culminating at the stakeholder workshop with agreement on a single policy recommendation. This agreement was achieved through a process of deliberation and argumentation. The arguments appeared to be based on different ideas of what is a fair insurance program, and also quite significantly on pragmatic considerations as well as economic interests. Importantly, many participants transcended their own economic interests to argue for one or the other concept of a fair program. One of the more significant findings of the public survey was that over *thirty percent* of the

respondents living in high and dry areas were, nonetheless, willing to purchase flood insurance at rates that assured subsidies to those living in risk areas. Another significant finding was the almost unanimous agreement that the government should assist poor inhabitants living in flood-risk areas, and a milestone in achieving a consensus was the eventual recognition by the key stakeholders that this assistance need not be in the form of direct post-disaster compensation or rebuilding houses. Rather, it could take the form of a pre-disaster policy, namely subsidizing insurance payments of poor households.

The policy recommendations from the stakeholder process were only partly heeded in recent Hungarian legislation for a national flood insurance system. According to the new system, the government fully underwrites flood insurance in high-risk areas, and taxpayers provide a backup if the premium pool is insufficient to cover claims. Consistent with the insurers' perspective, and in direct contradiction to the results of the stakeholder compromise, insurance premiums will be risk-based. Moreover, the premiums of poor households will only be subsidized up to 30 percent. To date, the purchase of flood insurance in high-risk areas is disappointingly low.

A main similarity with the TCIP and the Hungarian stakeholder consensus is that the central governments in both countries will reduce their fiscal responsibilities since they will be obligated to compensate earthquake/flood victims only if they have insurance. This is a major break from traditional practices in both countries, and some question its political feasibility. The important differences are twofold: First, in contrast to Turkey, disaster insurance in Hungary as proposed by the stakeholders would not be mandatory. In fact, all the stakeholders opposed obligatory insurance as a tax, although the practice of bundling flood cover with property insurance that is mandatory for a mortgage has already led to a very high uptake of insurance in Hungary. As a second contrast to Turkey, insurance payments in Hungary would not be risk based, and in a further show of social solidarity the government would provide subsidies to poor households for purchasing private insurance.

While economists view this finding as inefficient and ultimately leading to higher economic losses, their concern with distorted prices and misplaced incentives may be less appropriate for developing countries. Whereas risk-based premiums are viewed as essential in wealthy countries to avoid subsidies to large-scale and expensive development in high-risk areas, for example, the coast of Florida, the loss-reduction measures that poor farmers can take in the Tisza region are limited and may not increase substantially with the incentives imposed by risk-based pricing of insurance. Moreover, the main concern is not that expensive development will move into the Tisza

area, but that the poor farmers will leave and seek non-existent jobs in the cities. In the case of poor countries, it may be prudent to follow the U.K.'s example by beginning with subsidized insurance premiums and gradually moving to risk-based policies as the region and country develops.

The Hungarian stakeholder consensus based on only nine workshop participants clearly cannot claim to be representative of the full policy terrain in Hungary; in fact, the insurance company voice was under represented at the workshop. The purpose of deliberative stakeholder processes is not to replace representative democracy, but to sensitize political representatives and policy makers to the diverse constructions of the problem and its solutions, and to explore the terrain for agreement. While the results of the Hungarian process cannot be transplanted to Turkey, they do raise the question whether a stakeholder process in Turkey, where the stakeholders are informed by a seismic catastrophe model, might have flagged the difficulties now apparent with legislating a continuation of the program.

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Annex 1

List of Speakers and Presentations at the Conference*

Session 1 - Insurability of catastrophic risks

- Economics of catastrophe risk insurance, *Christian Gollier (University of Toulouse)*.
- Insurability of terrorism risk: challenges and perspectives, *Howard Kunreuther and Erwann Michel-Kerjan (Wharton School, University of Pennsylvania)*.
- Industrial, technological and other catastrophes, *Christian Lahnstein (Munich Re)*.
- Recent trends in the catastrophe risk insurance/reinsurance market, *Patrick Murphy O'Connor (Benfield)*.
- Role of the reinsurance industry in the management of weather related risks, *Peter Zimmerli (Swiss Re)*.
- Issues and options in the management of terrorism risk through insurance, *Robert Reville (Rand Corporation)*.
- Current state of the coverage for war and terrorism risks - including NBC - in the aviation sector, *Eugene Hoeven (IATA)*
- Free market solutions for terrorism risks coverage, *Ben Garston (MAP Underwriting and Lloyd's Terrorism Panel)*.

* Power point presentations summarising papers included in this publication as well as other presentations made at the conference are available on the OECD Insurance homepage: <http://www.oecd.org/daf/insurance>.

- Improving insurability and affordability: the role of insurance in hazard identification, risk assessment, risk prevention and mitigation for industrial/chemical accidents, *Satyananda Mishra, IAS, Disaster Management Institute, Bhopal - Government of Madhya Pradesh, India*).

Session 2 - Financial market solutions to manage catastrophic risks

- International financing solutions to catastrophic risk exposures, *Torben Juul Andersen (Copenhagen Business School)*.
- The use of risk linked securities to manage catastrophic risks, including terrorism, *Christian Mumenthaler (Swiss Re)*.
- Current challenges in terrorism risk securitization, *Gordon Woo (RMS)*.
- Financing catastrophic risks in non-OECD countries: challenges and perspectives, *Reinhard Mechler (IIASA)*.
- Current market trends for catastrophe bonds and risk linked securities, *Christopher McGhee (MMC Securities, Guy Carpenter)*.
- The potential for new risk transfer instruments to cover terrorism risks, *Michele David (The Bond Market Association)*.
- Rating agency's perspective on catastrophe bonds and risk linked securities, *Rodrigo Araya (Moody's)*.

Session 3 - Role of governments and development of public-private partnerships for catastrophe risk management

- Role of governments in natural catastrophe risk management and financing in OECD countries, *Paul K. Freeman (University of Denver)*.
- Catastrophe insurance programs in emerging countries: field experience, *Eugene Gurenko (World Bank, Financial Sector Operations and Policy Department)*.
- Potential role for governments in terrorism coverage, *Dwight Jaffee (Haas School of Business, UC Berkeley)*.
- Public-private partnerships to cover terrorism risks in OECD countries, *John Cooke (International Economic Relations Consultant, London)*.

- Role of the US government in the prevention and mitigation of terrorism risks, *Robert Liscouski (Infrastructure Protection Office, Department of Homeland Security, USA)*.
- Disaster risk management policy in Japan, *Kazuhiro Kawachimaru (NIPPONKOA Insurance Company Ltd)*.
- The Spanish experience in the management of extraordinary risks, including terrorism, *Ignacio Machetti (Consorcio de Compensación de Seguros)*.
- A stakeholder approach for developing a public-private partnership: the Hungarian case, *Reinhard Mechler (IIASA)*.
- Disaster risk management policy in China, *Yuanchang Zheng and Jianguo Mu (Department of Disaster and Social Relief, Ministry of Civil Affairs)*.
- The French experience in natural catastrophe risk management, *Suzanne Vallet (Caisse Centrale de Réassurance)*.
- Earthquake risk management policy in Indonesia, *Werner Bugl (PT Asuransi, MAIPARK Indonesia)*.
- Disaster risk management policy in Mexico, *Carlos Bayo Martinez (FONDEN)*.
- Disaster risk management policy in the Philippines, *Ronald I. Flores (Department of National Defense, Office of Civil Defense, National Disasters Coordinating Council)*.
- Disaster management in India, *D. Madan (Under Secretary, National Disaster Management Division, Ministry of Home Affairs, Government of India)*.
- Management of extraordinary risks, including terrorism, in India: achievements and perspectives, *C. S. Rao (Indian Insurance Regulatory and Development Authority)*.

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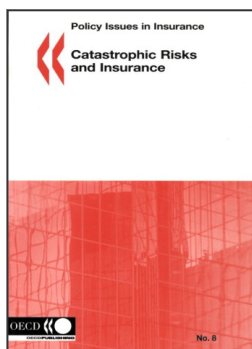
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* Background Note of Mr Kawachimaru's presentation (NIPPONKOA Insurance Company Ltd), based on *Governmental Earthquake Insurance System in Japan*, from *Earthquake Insurance in Japan*, written and published in March 2003 by Non-Life Insurance Rating Organization of Japan.



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