

Draft
2003-03-21
Comments very welcome

Floods and Loss Sharing A Clumsy Solution from Hungary

Joanne Linnerooth-Bayer¹ and Anna Vári²

1. Introduction

In Europe, Hungary ranks only behind the Netherlands with respect to flood exposure. Over half of the country's territory, two-thirds of its arable land and a third of its railways are exposed to riverine, ground water and flash floods. Adding to the geographical scale of the problem, floods appear to be worsening in their intensity and frequency. With increasing losses, the Hungarian government is concerned about continuing its tradition of taking almost full responsibility for flood risk management, including flood prevention, response, relief and public infrastructure repair. With membership in the European Union Hungarians have committed to a program of fiscal austerity, and for this reason some government authorities would welcome more private responsibility for the reduction and response to flood disasters; however, many Hungarians regard the transfer of liability for flood losses to citizens, especially those living in very poor areas, as unfair. One of the more controversial issues in Hungary, and throughout Central Europe, is thus the respective role of the government and the private market in preventing flood losses and providing relief to flood victims.

A pilot study carried out by IIASA with the Hungarian Academy of Sciences and Stockholm University³ developed and tested a citizen-participatory procedure for proposing a public-private insurance and compensation program for Hungary. Renn et al. (1995) define public participation as the "...forums of exchange that are organised for the purpose of facilitating communication between government, citizens, stakeholders and interest groups, and businesses regarding a specific issue or problem" (p.2). This definition includes arenas such as public hearings, public meetings, interviews, surveys, citizen advisory committees and,

¹ International Institute of Applied Systems Analysis, Laxenburg, Austria

² Hungarian Academy of Sciences, Budapest

³ The study was funded by the Swedish FORMAS.

significantly, stakeholder workshops and focus groups. Although public participation is no novelty in industrial societies, Renn and Webler (1995) show how participation has developed differently in various institutional and political contexts. In the US and in Anglo-Saxon contexts, public participation is synonymous with participating in government decision-making, whereas in continental Europe, the corporatist development has meant that public participation and direct democracy have played a relatively minor role compared to bi- or tri-partite management models. This has changed with the so-called new social movements, and European policy-makers at the national and EU level are showing more interest in promoting public participation. This is also the case in Hungary, and in this paper we describe a novel process of public participation that combines interviews, a public questionnaire and a stakeholder workshop.

The challenge for developing this participatory process was to identify the contending perspectives and preferred policy directions held by the stakeholders, and more importantly to identify a “clumsy” policy path for a nationwide, public-private insurance/compensation system. A clumsy policy can be thought of as one that commands wide support among the stakeholders but for different reasons and based on different perceptions of the problem, competing values and worldviews (see Introduction). To meet this challenge, a five-round, participatory stakeholder process was developed and tested: A first round of interviews was carried out with 24 active stakeholders, followed by a second round in which a questionnaire was administered to 400 members of the Hungarian public. Based on the results of the interviews and public survey, three policy options for the design of an insurance system were developed, and in a third round the active stakeholders were revisited to evaluate these options. The fourth round took the form of a deliberative stakeholder workshop, where participants chose and argued for their preferred policy option. In the final round, at this workshop the stakeholders reached a consensus on a “clumsy” policy direction. The process was aided by a simulation (flood catastrophe) model that demonstrated the incidence of the policy options.

We begin in the next section by describing the background of the flood risk problem in Hungary and specifically in the Upper Tisza river basin. We then turn in Section 3 to illustrating the contending views of the problem and its solution – the contested terrain - based on extensive interviews with the active stakeholders. In Section 4, we present selected results of the nationwide public survey that elicited detailed views on the flood problem, its causes and possible responses. These results were the basis of three policy options developed by the research team.

Repeated interviews with the stakeholders to gain insight on the three options are discussed in Section 5, and the stakeholder workshop that provided a forum for citizen deliberation is described in Section 6. In Section 7, we present the clumsy solution. In the final section, we conclude with observations on the value of the stakeholder process tested in this pilot study in demonstrating a new form of participative, citizen deliberation that makes use of information technology and concepts of clumsy policy making.

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 3-4 years. Since 1998, record-breaking water levels of the river have occurred 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. Approximately 17,000 people were evacuated, 1000 houses completely destroyed and another 2000 houses damaged. 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. Most of the predominantly farming towns are located far from the cities with bad road connections. Especially among the less qualified Roma population, the rate of unemployment in the region is very high, 24 percent in 1999 compared to the country average of 9 percent. Incomes from agricultural activities are typically small, 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 floodplain is sprinkled with old villages, traditional farms and historic buildings. Tourism was on the rise until 2000, when the area was stigmatised 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 north-western 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 (Vari, et al., forthcoming).

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. Estimates show that losses from flooding could be substantial in many of Hungary's river basins. Considering that much of Hungary is a flood plain (two-thirds of its arable land), this translates into the possibility of large annual flood losses, by some estimates in the order of seven to nine percent of Hungary's gross domestic product (Halcrow Water, 1999). The challenge, thus, is to design cost-effective flood-control interventions, and according to some observers, 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. In the next section, we turn to examining these and other stakeholder views on the problem and its solution.

3. Round One: Identifying the Policy Paths with Stakeholder Interviews

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 mitigation-relief, their flood insurance payments that subsidize those living in high-risk areas and their foregone public amenities because of flood-relief expenditures (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 to Tisza victims). 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, not with all the stakeholders, but with those actively involved and informed of the policy issues (Vári, 2001). These included twenty-four persons representing central, regional and local

government agencies, farmers and entrepreneurs, NGO activists and insurance companies. From these interviews, three prototypical, contending flood-policy strategies emerged: state protection, individual responsibility and sustainable development of the region.

State protection

In Hungary, like all formerly socialist countries of Central and Eastern Europe, the central government has traditionally taken the primary responsibility for protecting the public from floods in all their aspects. In the socialist regime before the transition in 1990, the powerful national water authority (Vituki) boasted a staff of 25,000 persons spread between Budapest and twelve regional branches. A main mission of Vituki was to protect most of Hungary's territory from riverine flooding, and the authorities invested huge sums in a vast network of protective levees including about 3,000 kilometers of embankments along the Tisza River. There was plenty to justify these enormous expenditures. Foremost, nobody in Hungary should be exposed to a life-threatening flood risk. Secondly, without the levees, it was argued, huge areas in Hungary could be flooded. As a case in point, government estimates show that an unprotected flood on the Tisza could inundate up to 17 percent of the territory of Hungary (Ministry of Transportation and Water Management, 2001).

Investing in levees is not a once-for-all measure, but large sums are needed for their maintenance and improvement.. As the Tisza experience shows, flood waves appear to be worsening in their intensity, with a corresponding imperative for the authorities to build the levees higher and higher. Indeed, after the one-in-a-hundred-year flood wave nearly topped the embankments in 1998, the central government accelerated its levee-construction program for the Upper Tisza and its tributaries (Horváth, et al., 2001). This one-in-a-hundred-year flood was exceeded only three years later, when an 11-meter high flood wave broke through the levees causing extensive damage - and justification for the water authorities to build the levees even higher. These measures were for the most part supported by all the stakeholders interviewed, who considered the strengthening and heightening of the existing levees as inevitable, even if only along certain sections of the river. Some interviewees pointed out that if the construction program had taken place in the past few years, it would have cost largely the same as has been spent on flood-fighting efforts.

Along with taking full responsibility for protecting the Hungarian public from flood risks, the government is held accountable for any water that comes through or over the levees. There is

no statutory requirement for the Hungarian government to compensate flood victims, yet the national political authorities almost always take full (100%) liability for private damages in the event of a levee breach, and compensate victims generously for other types of flood damage such as ground water inundation. After the Tisza floods in 2001, the government fully rebuilt nearly 1000 houses that had been washed away. While no blame was attributed to residents, businesses and farmers in high-risk areas, everyone agreed on the importance of zoning restrictions within the endangered areas – another top-down flood protection measure. This taxpayer solidarity with flood victims is typical of all the formerly socialist countries of Central Europe. It is also typical of hierarchical organization; fair distribution is at the discretion of the authorities, who decide who is deserving and how deserving they are.

Individual Responsibility

Following the political transition in 1990, the extensive government expenditure on protective flood levees, victim relief and reconstruction, and on the requisite bureaucratic machinery, is increasingly viewed as economically unsustainable, especially by the powerful Finance Ministry that has embarked upon a fiscal austerity program required by Hungary's membership to the European Union. As a case in point, the rebuilding or repair of the damaged homes and buildings from the 2001 flood was criticized as extensive by many of the stakeholder interviewees.⁴ While government officials hesitate to relinquish public authority and control in the financing of flood risks, externally imposed demands for fiscal responsibility are forcing officials to encourage more private responsibility in preventing and insuring flood losses. This move toward more individual responsibility is contested by the water authorities, who continue to see their role as providing complete protection against floods.

While fiscal necessity may force a partly reluctant government to switch towards more individual responsibility, this switch is welcomed by those who would like to see less government intervention generally. Just as people modify their behavior after buckling their seat belt and drive less safely (see Adams, this volume), people also move into areas protected by flood levees. In both cases, the result of the protective measure may actually be an increase in the losses. In fact, after the huge costs of the floods in the US Midwest in 1993, the U.S. Core of Engineers came under heavy attack for creating a seemingly risk-free zone that had attracted

large investments in the protected areas (Quijano, 2001). If uninsured disaster victims are guaranteed grants and low-interest loans that enable them to continue to locate 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. For this reason, in a recent book suggesting reforms to the U.S. natural disaster program, the authors argue for making private responsibility and insurance a cornerstone of catastrophic risk management (Kunreuther and Roth, 1998). They come out clearly on the side of individual responsibility as the guiding principle by arguing that those in hazard-prone areas should bear a substantial cost of making their communities safer and should be responsible for most of the losses after a disaster occurs. This view dominates in the UK, where government compensation following floods has been minimal, and insurance cover is reportedly extensive (Linnerooth-Bayer et al., 2001).

The stakeholder discourse in Hungary is notably short on attributing responsibility to individuals or communities in high-risk areas. 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).

Actually, in comparison even with Western European countries and the US, a large percentage of Hungarian households, almost 60 percent, carry flood insurance offered by one Hungarian and 16 foreign-owned insurers (Horváth, et al., 2001). The reason for this high insurance uptake is that flood policies are “bundled” with residential property insurance that is required for a homeowner mortgage. In the poor Upper Tisza region, however, only about 40 percent of the households hold flood insurance. While insurance is not uncommon, insurers offer only extremely limited cover mainly for breakage or overtopping of the levees. The premium for homeowner flood insurance is independent of the risk; in fact, insurers charge all households in Hungary an equal percentage of their property insurance premium (flat rate) to cover flooding.

⁴ Insurance up-take rate in the region is 40%, however, the total sum paid by the government for damage repair and compensation was 13 times (!) the amount paid by the insurance companies.

This has resulted in significant cross-subsidisation from persons living in low-risk areas, for example in large cities like Budapest and Szeged, to persons living in high-risk areas, for example in villages in the Upper Tisza region. Like in the UK, this cross subsidization makes it possible for poor persons in high-risk areas to afford flood cover, albeit limited, and is thus a cornerstone of the current insurance-compensation regime.

Whereas few Hungarians are opposed to the protection offered by the government, the authors of a recent study funded by the World Bank query whether what is being protected in the Tisza basin is worth the costs (Halcrow, 1999). Since there is little economic output from the subsistence farming, it may make economic sense for the people in the high-risk areas to relocate. In spite of these reservations, following the 1998 Tisza flood the government invested USD 5 million in strengthening and heightening some 10 kilometers of levees along the river. Following the levee breach of March 2001, the insufficiency of even these heightened levees was recognized, and the government began discussing other flood-mitigation measures, including the construction of emergency reservoirs in Hungary and upstream Ukraine, increasing the capacity of the main riverbed, and changing land-use practices in the flood plains (Váradi, 2001).

Finally, many Hungarian stakeholders embraced the notion of using economic incentives to encourage more individual responsibility, and it was suggested that the government might withhold compensation of flood losses from those living or working in buildings without a permit. However, opinions were varied with regard to providing financial incentives for transferring people out of the inundated areas. Some expected that many people would anyway move away because of the manifold problems in the region. Others claimed that the local people are happy where they live and would not welcome the idea of relocating even with financial support.

Sustainable development

While few Hungarians are particularly bothered by inefficiencies regarding the allocation of costs and benefits in the levee construction program, many voices, and in particular the environmentalists, raise objections to the levees for different reasons. Protecting the upstream areas with engineered, structural measures ultimately pushes the water downstream to the riparians of the lower Tisza River or even further down to the Danube River. Levees are thus viewed by these voices as unfair, and moreover they contribute to the destruction of the ecology

in the river basin. What is needed is a holistic approach for the sustainable development of the region, perhaps even turning the whole area into a national park. Rather than framing the problem as primarily a failure of individuals and communities to take protective actions, many see the failure as lying within the system, particularly the failure of the authorities to institute sustainable policies that prevent disasters and their losses.

The local environmental NGO pointed to systemic sources of flooding, such as growing urbanization, the increase in paved and impermeable surfaces, deforestation and other land-use practices, and especially to the vulnerability of the very poor. The environmentalists considered the problem to stem from worsened soil erosion due to extensive clear felling and forest cutting in the Ukraine. By some estimates, the wooded area of the Ukraine's Transcarpathian region has recently been reduced by a half or even two-thirds of its former area (Pecher, 1999). Indeed, there was almost unanimous agreement among the stakeholders on the value of reforestation in the catchment area, especially in the Ukraine, although there was a great deal of pessimism on how effective the Hungarian government could be in this endeavor. The transboundary nature of the problem is made more complex by reports from NGOs⁵ that ethnic Hungarians in the Ukraine are actually the ones cutting down the trees and shipping the inexpensive lumber to Hungary! The environmentalists, among others, not only point their fingers at unsaddled markets across the borders, but also reject the government's efforts at controlling the flood problem with ever higher walls along the river. Many stakeholders thus called for the sustainable management of the entire river basin, and the environmentalists even propose taking down the levees in some places to re-naturalize the river, re-mediate wetlands and create natural reservoirs. Interestingly, some local mayors joined the environmentalists in support of these alternative solutions.

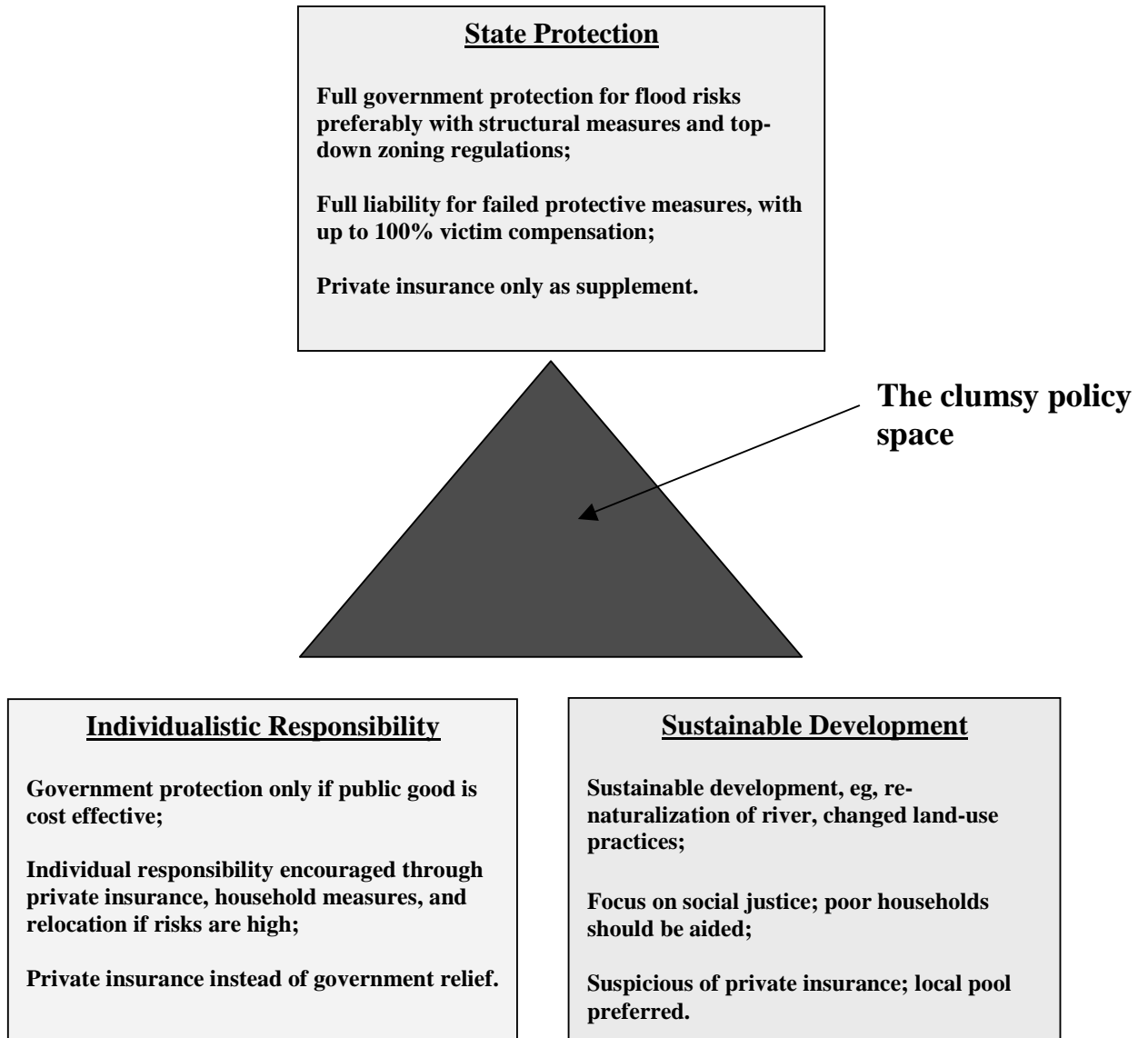
Since flooding *as a problem* should not exist in the first place (flooding is a natural part of ecosystems), these voices are remarkably silent on how the flood burden should be distributed. However, among most of the interviewees there is a deep-seated distrust of private insurance companies, and a sense that increased private insurance in poor areas like the Upper Tisza is grossly unfair. The egalitarian voices call for mutual insurance arrangements with continuing cross subsidies to those less fortunate persons unable to afford the risks they are living with.

⁵ Personal communication with Jan Sendzimir, Mar. 2003.

The contested terrain

The stakeholder interviews point to three extreme and distinct strategies the Hungarian policy community can take for reducing flood losses in the Upper Tisza region and for offering relief to flood victims. These are illustrated as “corner solutions” in the triangle of possibilities in Figure 1. At one extreme, the government can continue to absorb a large share of the costs of mitigation and public relief by continuing its investments in levees, continuing its generous compensation of flood victims and controlling development in the flood-risk areas by top-down zoning regulations. This will likely lead to a worsening of the central government’s budget deficit and, despite regulation, encourage undesired development in the flood-prone areas. 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. This would likely lead to increased diligence on the part of farmers and landowners, but also to an increased burden on an already vulnerable population and possibly to out migration and the abandonment of some historic villages in the area. Another policy strategy is oriented to the ecological preservation of the area. Accordingly, measures would include 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. Insurance may be an option, but only by circumventing the commercial insurers with non-profit mutual arrangements. This should not preclude solidarity in providing flood relief and compensation. Sceptics of this approach point out that these measures will not reduce the risks to already existing villages, may require relocation of villagers and farms, will exclude the 16 commercial insurers covering floods in Hungary and will not solve the government’s budgetary problem.

Figure 1: The Contested Terrain



While these three contending policy paths – state protectionism, individual responsibility and sustainable development – emerged from the interviews, this does not mean that the stakeholders consistently advocated any one pure policy direction. To the contrary, the stakeholders often took a mixed view. Almost all agreed that levees in certain areas are essential, and at the same time that individual initiative for reducing flood risks should be encouraged even with economic incentives. There was also unanimity that a transfer of the burden to an already vulnerable population cannot be justified by arguments of efficiency. While these views were sometimes personally contradictory in the sense of espousing incompatible goals, they were at other times surprisingly clumsy. That is, they combined elements of the three policy paths that are, indeed, combinable. There are many examples. While the hydrologists in the water authority were determined to protect the public with engineered structural works, they also recognized the limits to the height of the levees and have recently even entertained the idea of removing the levees in certain areas to create natural reservoirs. In addition, most stakeholders supported some government protectionism and at the same time saw a limited role for the private market in flood response. With a greatly reduced budget, the Water Management Authority now calls on local resources, including privately owned vehicles and equipment, to respond to threatening flood emergencies. The majority of the respondents approved of this switch to more private involvement and indicated that the recently increasing financial support (since 1998) of the water authorities has irritated the public in the region.

The prototypical policy paths described above are thus intricate and overlapping in the views of the stakeholders, still there is little question that at the institutional and policy levels – the “meso” level- the policy terrain is contested along these lines. The challenge for the IIASA study was to identify the relative strength of support for these contending and contested policy directions (and their hybrids), and more importantly to identify an intersection of these directions, or a clumsy path, that could command a wide base of support among the stakeholders. For this purpose, empirical information on the stakeholder views and the terrain for compromise was elicited through a public stakeholder survey.

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 relief to the victims. Four separate locations in Hungary were chosen in order to include stakeholders at high risk to flood in both rural and urban areas, as well as stakeholders living both in rural and urban areas, 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.

The questionnaire contained 24 questions, of which 9 questions could be answered with *yes, no, maybe* or *don't know*. With the exception of one open question, the remaining 14 questions gave the respondent a list of four possible options that correspond to the policy paths identified in the stakeholder interviews, which, in turn, are suggested by the three active solidarities or worldviews of cultural theory. Consistent with cultural theory, the fatalist option was also added. The respondents could also add options and comments. For a more detailed discussion of the survey and the results, see Vari, et al. (forthcoming).

The public survey confirmed that when it comes to floods the majority of Hungarians continue to view their world as it was, that is, with the 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 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. 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 of the respondents, 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 on the form of relief systems 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 relief to flood victims on claims 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 19 percent 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 along the lines of cultural theory worldviews was apparent throughout the survey results. For example, in response to a question eliciting views on state versus individual responsibility and local pools, Figure 2 shows that opinions were spread (but with only a small fatalist response). The respondents could rank their choice of four options:

- Solidarity requires that government compensate flood victims;
- Everyone should take more responsibility for flood risk and those who can afford it should purchase private insurance;
- Locals should create a fund for helping flood victims;

- It does not matter what you do, flood victims will lose a lot.

The differences in the responses between those living in high-risk areas (Upper Tisza and Szolnok) and low-risk areas (Zala and Székesfehérvár) shown in Figure 2 indicate that both self interest and views on fairness played a role in the heterogeneity of the responses. Consistent with self interest, government compensation based on solidarity has more sympathy in the higher-risk Upper Tisza and Szolnok regions, whereas a system based on individual responsibility and private insurance receives a more sympathetic view in the less affected regions and in the cities (Szolnok and Székesfehérvár). Although persons not exposed to flood risks appear less enthusiastic about helping those in risk areas with their tax contributions, in contradiction to the self-interest explanation there is still an astonishing degree of support for compensation across the regions. Almost *one-third* of the respondents in the low- or no-risk areas support taxpayer solidarity with the Tisza flood victims.

Moreover, the survey confirmed statements made by the active stakeholders that many Hungarians are suspicious of commercial insurance companies, which may explain the apparent popularity of mutual insurance pools (Figure 2). The respondents were also queried about who should receive compensation and to what extent. Table I shows that the majority of the respondents agree on a system in which all the victims are compensated in proportion to their losses. It is remarkable that approximately *76 percent* of the respondents agree that the government should compensate every victim regardless of the victim's economic circumstances or role in preventing losses.

Figure 2: Respondents' views on risk sharing by region

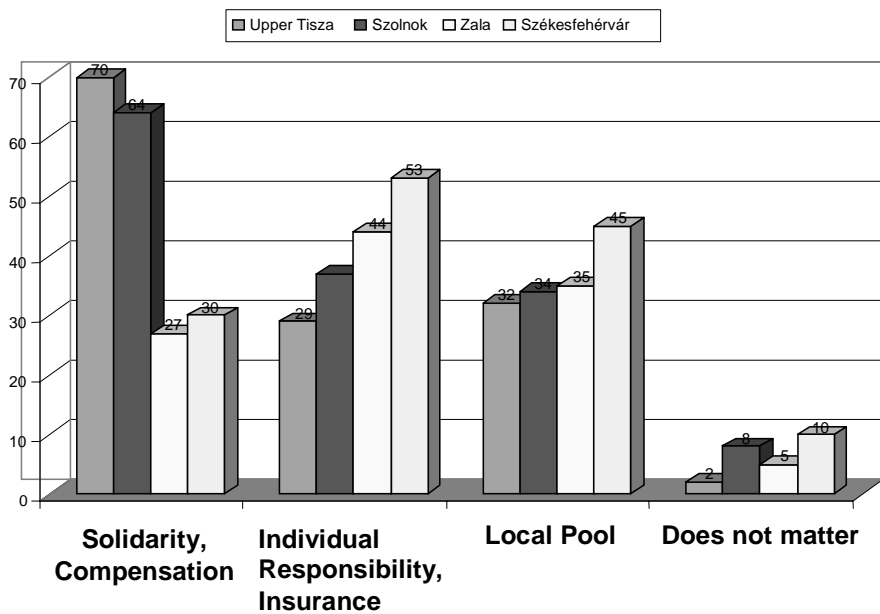


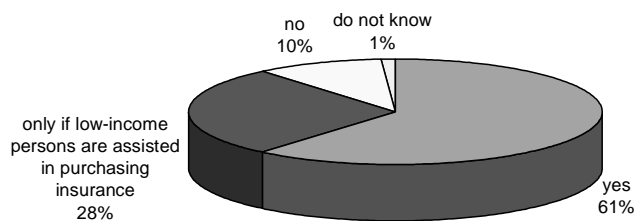
Table I: Forms of Government Compensation to Flood Victims

After a major flood, the Hungarian government should compensate ...	Chosen by (%)
All victims by a certain percentage of their losses	57
All victims by the same amount, above which they can choose to have insurance	19
Only needy victims, that is, not owners of vacation homes or well-to-do businesses	7
Only victims with flood insurance	3
Only victims who have not built their homes in high-risk areas without a permit	4
Nobody	0

While a large majority of respondents fully or partially subscribe to continuing Hungary's generous flood-victim compensation system, a majority of interviewees were at the same time in favor of more individual responsibility. Exploring this duality further, as shown in Figure 3, 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.

Of those holding these opinions, 41 percent reportedly did so because insurance could reduce government compensation to the victims and 25 percent because private insurance companies might assist governments in building flood defenses. Only a small proportion of the interviewees justified their opinion on fairness or efficiency grounds, i.e. that property owners should take more responsibility or that risk-dependent premiums would provide incentives for loss mitigation. 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.

Figure 3: Respondents' views on whether property owners should insure themselves against flood damage



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 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 for 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 questionnaire confirmed that the four worldviews posited by cultural theory are useful in delineating the ways individuals perceive and respond to the flood risk problem. It can be recalled that 14 of the 24 questions presented the respondent with a choice of four possible options that were worded to be consistent with the four worldviews of cultural theory: hierarchical, individualistic, egalitarian and fatalistic. 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.

The questionnaire also showed that individual respondents did not remain consistently loyal to any one personal worldview, rather they exhibited "multiple selves" and appeared to mix and mingle different ways of life. A statistical analysis of the responses revealed that almost without exception respondents changed worldviews as they answered the 14 questions. For example, many respondents taking a hierarchical view regarding mitigation issues chose the individualist answers to questions on compensation and insurance. On the other hand, many respondents sharing the egalitarian view regarding mitigation agreed with the individualist responses to questions on compensation (Ferencz, 2001). That Hungarians are mixed in their views on the role of government and the private sector during this transition phase is not surprising. Many Hungarians have been disappointed with the promises of market solutions and yet are reluctant to return fully to paternalistic government and ideas of solidarity. This personal dissonance may be contributing to the responses.

Whereas the cultural-theory worldviews did not play a consistent role in the questionnaire responses, the worldviews were – as the theory suggests - articulated at the “meso” or institutional level. Cultural theory is not about strict individual adherence to any one worldview or perspective, but rather about alternative ways of organizing, perceiving and justifying social

relations. At this meso level, the predominant perspective or hegemonic voice appears to subscribe to governmental responsibility and authority in protecting a more-or-less helpless population against the flooding scourge. Although commanding less support, arguments for more individual responsibility and insurance have found a legitimate and forceful place on the policy agenda. So too have voices that greatly distrust the government authorities and the private insurers, and who see mutual sharing as the path to tread.

5. Round Three: Developing a Clumsy National Insurance Program

Policy makers in Hungary are considering legislating a national flood-insurance program to increase insurance cover and decrease government post-disaster responsibility to private victims. There are many options that combine the public and private sectors. For example, the US National Flood Insurance Program (NFIP) offers *public* insurance that is mandatory for those holding a bank mortgage and that is moving from flat-rate to risk-based premiums in order to encourage local communities to reduce flood risks. Alternatively, France's all-hazards insurance system is private but backed by taxpayer funds. It is based on a concept of solidarity with deliberate flat-based premiums resulting in cross subsidies across regions and hazards. (For a review of national disaster insurance programs see Linnerooth-Bayer et al., 2001). There are many such options that combine solidarity with individual incentives for mitigation, and which approach the fairness issue from different perspectives.

Cultural theory postulates that public policies not based on all of the three perspectives of the contested terrain will tend to be unstable and ultimately not viable (Thompson, et al., 1990). An over commitment to any one perspective will eventually be undermined by opposition from the other two. Certainly, the strongly hierarchical and non-democratic socialist government in Hungary encountered strong opposition from the suppressed market forces and more egalitarian environmental and social movements (for example, an environmental NGO opposing the Gabčíkovo dam, the Danube Circle, played a central role in the Hungarian transition). Although the government has changed radically, this struggle continues. Thus, we witness opposition to the state's traditional role in providing flood protection from, among others, the market-oriented voices of some interest groups and the egalitarian voices of the environmentalists - but for different reasons. The notion that institutions and individuals may argue for the same policy, but for different reasons, is the core concept behind the search for clumsy policy paths. In the long

run, a viable flood risk policy can only be achieved by including and carefully considering the viewpoints offered by adherents to each of the perspectives (and as noted above, these adherents may switch their loyalty depending on the circumstances). A clumsy policy can be thought of as one that commands wide stakeholder support but for different reasons and based on different (and shifting) perceptions of the problem, values and worldviews.

It can be recalled that a challenge for this pilot study was to develop a citizen participatory process that can accommodate the different perspectives and articulate a clumsy way forward. In rounds 3-5 of this study (see Figure 4), our goal was to test a deliberative participatory process that could lead to a clumsy 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 that appeared consistent with the majority and minority views of the stakeholders. These paths, which are illustrated on Figure 4, 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 but significant individual responsibility and insurance. The three policy scenarios for a nation-wide public/private insurance system are 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 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** reduces the role of private insurers with the creation of a fully public insurance system (government disaster fund) financed by mandatory, flat-rate contributions from all property owners throughout Hungary. The government subsidises insurance premiums for low-income households.

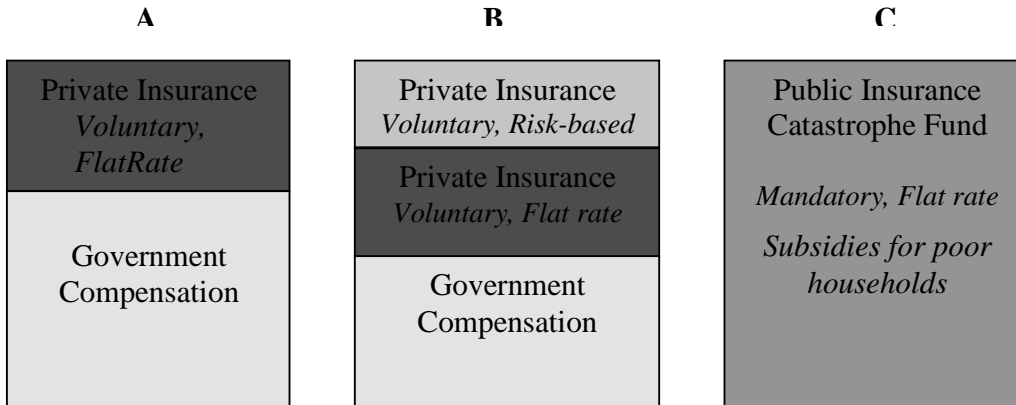
Armed with model simulations of these three options, the IIASA team returned to the key stakeholders (see Ekenberg, et al., 2002) to refine the policy options based on the

interviewee's values, knowledge of the political playing field and the economic constraints. A slightly different picture emerged from the more detailed discussions with the stakeholders informed by the model results. There continued to be a great deal of solidarity with low-income victims of floods, *but this solidarity need not mean extensive post-disaster compensation*. It could also take the form of subsidies for pre-disaster loss reduction and insurance. 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 clumsy policy package.

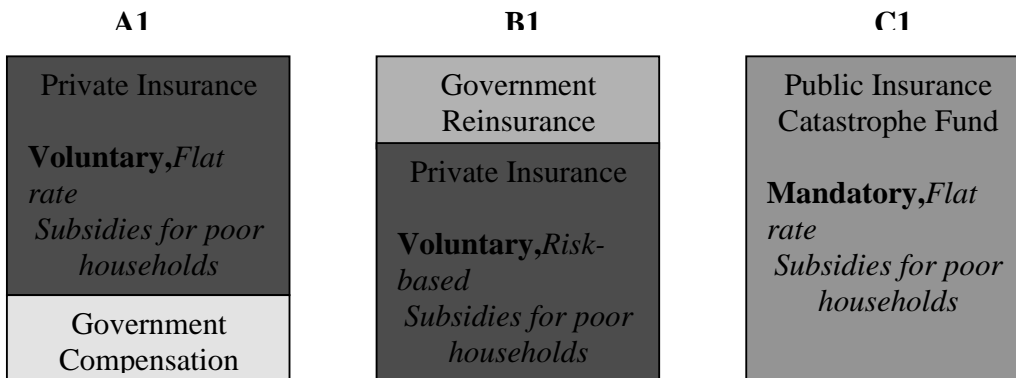
Another interesting view, which is counter to the economist's emphasis on building incentive structures to dissuade people from locating in high-risk areas, is the wish to keep people in risky areas. Keeping in mind that a significant part of Hungary is at high risk to flooding, relocation might be much 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 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).

Figure 4: Insurance Program Options

Rounds 1&2: The interviews and public survey led to the following proposed options:

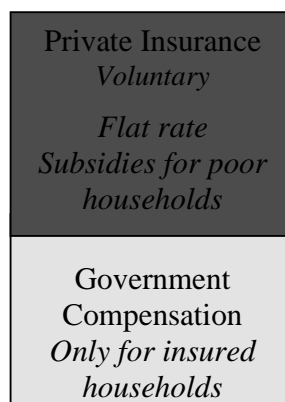


Round 3: From repeated interviews with key stakeholder, the following revised options emerged:



Round 4: Refinements of Options A1, B1 and C1 at the stakeholder workshop

Round 5: The clumsy solution D



There was generally broad support for assisting low-income households in high-risk areas. The mayor of a local town expressed this as a clumsy combination of state protectionism and subsidized market: “The government must either award 100% compensation or aid low-income households with high exposure to purchase private insurance” (Interview with a local mayor, 2002). The director of a local environmental organization took another clumsy view. He saw a necessity to compensate households in high-risk areas and to protect them from floods, but with limits to this “economic irrationality, for example, in an extreme case we are protecting 5 billion Ft value with a 30 billion Ft. investment” (Interview with the director of a local environmental NGO, 2002). But some views were solidly rooted in only one perspective: : “If we don’t want people to build in the high-risk areas, this should not be tied with decisions on compensation. Regional development decisions should be made by the government, which should decide what kind of activities should be encouraged and how many people should stay.” (Interview with the representative of the Szabolcs-Szatmar-Bereg county Chamber of Agriculture, 2002). The environmentalist had less trust in government authority, as shown by his remarks about instituting a government catastrophe fund: “Certainly the catastrophe fund should not be located in a ministry” (Interview with the director of a local environmental NGO, 2002).

The divergent and mixed stakeholder views on the role of the government, the individuals and insurance industry in absorbing flood losses led to a revised set of options for the nationwide insurance program. 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 details of the three revised options are shown in Figure 4. The revisions reflect 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.

- **Option A1** is essentially a combination of the previous Options A and B, which continues the mixed public-private system. The revised version provides less post-disaster victim relief (than current practice) and encourages households to purchase voluntary, flat-based insurance that is reinsured by the government. Contrary to the early Option B, however, there is no risk-based insurance layer, and the government subsidizes premiums for poor households.
- **Option B1** places considerably more responsibility on property owners by discontinuing post-disaster government aid altogether and relying on voluntary, private, risk-based

insurance. At the same time the government continues to absorb a portion of the losses by subsidizing the insurance premiums for poor households and reinsuring the private insurance companies.

- *Option C1* continues to increase government control and authority by replacing private insurance with a government fund with mandatory contributions on the part of property owners and for which the government fully underwrites the risks. In this revised version, the government subsidizes premiums for poor households.

6. Round Four: 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 industry 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. Theorists argue⁶ that decision-making based on “.... discussion among free and equal citizens” (Elster, 1998, p.1) can produce outcomes that authentically and genuinely reflect the public interest. Deliberation is supposed to provide a space for reasoned discussion and the opportunity for critical reflection (Fearon, 1998). One view of deliberative democracy is that discussions lead to a transformation of citizens’ preferences by persuasion, and, thus, deliberative outcomes are legitimate because they are based on what Jürgen Habermas (1984) calls a “rationally motivated consensus” that grounds policy decisions on reasons that every citizen can, on rational reflection, accept (Dryzek, 2000). Another view of citizen deliberation that finds support from cultural theory is that complex societies give rise to fundamentally conflicting values, perspectives and worldviews that cannot be reconciled into a common view of the public interest (Thompson et al., 1990). This does not mean that a compromise is not achievable, but it is a clumsy compromise made up of contending values. The idea of the stakeholder workshop was thus to explore the terrain where citizens can

⁶ This discussion draws on Ney (2002).

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 the flood risk management issues in the region, after which the three revised options for a flood insurance program (A1, B1 and C1 as shown on Figure 4) were introduced. This discussion was aided by the results of the computer (catastrophe) model of the Upper Tisza region that simulated flood losses in a pilot area to generate a probabilistic flood risk profile (Brouwers, 2002; Ekenberg, et al., 2002; Ermolieva, 2002, Galambos et al., 2001; Hansson, et al., 2001). The model demonstrated the incidence of the compensation/insurance-program options on the three main stakeholder-victim groups: the residents in the pilot area, the insurance companies and the government. With this demonstration, 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 a 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). In what follows we describe the three options that emerged from the stakeholder deliberations.

Option A1: A mixed public-private system

The option most closely resembling current practice in Hungary is a mixed public-private system, but compensation is reduced to assure only a subsistence to the victims, and this victim relief is supplemented by voluntary, flat-rate insurance. The workshop discussions emphasized that the government and private insurance cover should be extended to include standing water and other natural hazards.

Four participants at the stakeholder workshop chose this option. The spokesperson justified this choice as follows:

We, who were victims of probably the largest flood of the century, feel there is no doubt about the responsibility of the government toward the local population. It wasn't a "vis major" situation that the state couldn't have managed. It wasn't an earthquake or a

windstorm you can't be prepared for. There is no doubt that in case of flood disasters the government has a key role and also has to assume full financial responsibility. Flood protection lines have been built, and theoretically .. no water should come out through the dikes...

While Group A placed the main responsibility on the government, the participants recognized the importance of a complementary role for the private sector in both sharing and mitigating the losses.

In order to reduce the share of responsibility of the government, partners should be found. Who are the potential partners? In all three options, the potential partners are the people and the insurance companies. They are the ones who may participate in jointly bearing the burden...High level involvement of the people in mitigation and remediation may be expected only if they are not subject to extremely large burdens, and a system of solidarity should be established that ensures an almost even distribution of these burdens. Although in principle, we agree that in regions with high flood risks, higher insurance premiums should be calculated, we should ask then whether premiums should be higher in hilly regions due to the higher risks of earthquakes and landslides? Therefore, we don't support a proposal suggesting that the extent of flood risk should be the basis for calculating the insurance premium. On the other hand, we strongly support the idea that not only the government should take the responsibility for mitigation/remediation, but also the citizen. Thus insurance companies should be involved. Mandatory insurance, however, would be a form of taxation, and it would be difficult to make it acceptable.

Instead of incentives for the reduction of risks by residents in the high-risk areas, this group proposed an interesting innovation: The government and insurance companies should contribute to a fund for financing preventive measures.

Our group also supports the establishment of a catastrophe fund, and especially a prevention fund, because we believe that flood risks may be significantly reduced by well planned interventions. If insurance companies consider their long-term interests, we might also make them pay a certain percentage of their profits into the prevention fund in order to support interventions like the new Vasarhelyi plan.

Finally, Group A rejected the idea that the government act as insurer of last resort for private insurance companies:

We can't accept a system where private insurance companies are reinsured by the government because this is essentially a burden on the citizen... We would rather welcome the international practice of reinsurance agreements with larger companies or even with international companies.

This group thus decided upon a mixed system of 50% compensation from the government and the rest dependent on the voluntary purchase of insurance, as detailed in the box below:

Option A1: A mixed public-private system

- Government compensation to private flood victims for 50% of their damages;
- A private insurance system with
 - voluntary policies,
 - bundled or separate policies for all types of natural disaster risks (flood, standing water, earthquake, etc.),
 - covering up to 50% of the damage, and
 - flat-rate premiums instead of risk-based;
- Government subsidies for poor households up to 100% of premium;
- The government does not act as reinsurer; and,
- Insurers contribute to a prevention fund.

Option B1: Private responsibility and insurance

It can be recalled that according to Option B1 (refer to Figure 4) significantly more reliance is placed on private insurance for post-disaster compensation than is currently the case; however, to protect poor households that cannot afford insurance the government would provide subsidies. This option has the advantage of discouraging (non-poor) people from locating in high flood-risk areas, and placing the burden on the pool of exposed persons rather than on taxpayers is one view of fairness.

Not surprisingly in light of the earlier evidence of weak Hungarian support for more individualistic policy paths, only one participant at the stakeholder workshop selected Option B1 as his preferred policy. He justified this choice as follow:

Option B1 is a concept that we can agree with, namely (based on) a French saying "L'état c'est moi" meaning "I am the state", and also "L'état c'est nous" meaning "we are the state". We have to consider that if the government covers all the costs with government funds, this actually means that the costs are covered from the pocket of the citizens, including us... Therefore, I agree with the proposal that the government should not directly provide compensation. ...

While the government should not provide compensation, taxpayers would be called upon in two important ways. First, poor households could purchase subsidized flood insurance and, second, a government emergency fund (a type of reinsurance) would cover claims in the case of very large or multiple catastrophes that go beyond the means of insurers.

The details of Option B1 as agreed by the stakeholders at the workshop are listed in the following box:

Option B1: Private property insurance with government subsidies and re-insurance

- No post-disaster government compensation to private flood victims;
- Private insurance system characterized by
 - non-mandatory policies,
 - cover for flood, standing water, and all hazards that can be purchased separately or bundled with property insurance policies,
 - up to 100% cover for damage without deductibles, and
 - risk-based premiums;
- Government subsidies for poor persons to purchase natural disaster insurance (can reach up to 100%);
- Government re-insurance fund financed by tax revenues.

Option C1: A public insurance fund

Option C1 is a public insurance system similar to the US National Insurance Flood Program, where the government fully underwrites the risks. According to this option, all property owners throughout Hungary are required to purchase flood insurance from the government via a flat-rate tax on their property, which will shift liability for disaster relief from taxpayers to property owners. Private insurers administer the system on a commission basis by collecting the premiums/taxes and by assessing and honoring claims after a flood disaster. The premiums contribute to a public catastrophe fund; however, in the case that tax/premium income is not sufficient to cover losses, the taxpayer will be called upon to supplement the fund. The taxpayer is called upon again to subsidize poor households (up to 100%) in their purchase of insurance.

Four members of the focus group selected this option. The spokesperson for this small group justified the choice as follows:

In Hungary, the floods have already shown that there are risks for which insurance companies are unwilling to offer coverage on a market basis, and that's why we need a catastrophe fund...operated according to non-market principles ... but not necessarily funded by the central budget. It's pretty obvious that private insurance companies will not offer coverage for standing water, neither for adobe houses, and so on... At the same time

we find the involvement of the government very important. The issue is not that I want to grow wheat at the wrong place, but it's rather that I won't be able to restart my life. This should not be managed on a market basis, and that's why I support Option C. There are regions that will never represent good business for the private insurance companies.

In discussing this option, the issue of risk-based versus flat-rate premiums arose:

At first, I found it a good idea to have uniform payment throughout the country, saying that if a relatively high number of people pays, then the premium can be lower. But then we started to think about how we could introduce something that will reflect the risks at the same time. Actually, we found this whole issue quite complicated, especially because not only floods and standing water should be considered, but other types of natural disasters, like earthquakes, windstorms, etc. Therefore, we should consider the implementation.

Notwithstanding the implementation problems, it was recognized that incentives should be in place to discourage households and businesses from locating in high-risk areas. As another member of Group C put it:

Maybe (the system) shouldn't be based on uniform taxation, but operated as an insurance policy. If not, then regulations should be very stringent especially with regard to standing water risks. The government's guarantee should only apply to buildings that have a building permit.

The eventual agreement on the details of the system by Group C are shown in the box below:

- | |
|--|
| <p style="text-align: center;">Option C1: Mandatory public insurance with government subsidies</p> <ul style="list-style-type: none">• A public insurance system administered by private insurance companies with<ul style="list-style-type: none">• mandatory policies,• cover extending to all natural disasters (flood, standing water, earthquake, etc.),• cover extending up to 100% of the damage (no deductibles, although possible), and• fund covered by a flat-rate tax on all property owners;• Government subsidies of up to 100% for poor households;• Government underwrites all risks including the risk of diverting the catastrophe fund. |
|--|

7. Round Five: A Clumsy Policy Path

After arguing for their policy perspectives, the workshop participants turned to a lively and heated discussion on a possible compromise. This deliberation led to an imaginative new

system: *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 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 show in the box below:

Consensus Option D: Conditional government compensation

- Government compensation only to insured households;
- A private insurance system with
 - bundled or separate policies for all types of natural disaster risks (flood, standing water, earthquake, etc.),
 - covering approximately 50% of the damage, and
 - flat-rate premiums instead of risk-based;
- Government subsidies for poor households up to 100% of premium;

In what ways is Option D a clumsy solution? Returning to the starting point - the original contested terrain – we see that the process moved incrementally and quite significantly from the prototypical positions (the corners of Figure 1) to a middle ground. According to cultural theory, the opportunity sometimes exists to create ‘win-win’ situations – to develop public policies that do not only satisfy the policy priorities of some dominant perspective, but that simultaneously achieve goals favoured by alternative perspectives as well. The resulting policies are clumsy in the sense that they are not neatly based on a single rationale or value set, but are a creative mix of perspectives. By giving an equal voice to all the stakeholder perspectives, a creative, clumsy compromise emerged from the iterative, deliberative process for design a nation-wide Hungarian insurance system.

A careful look at this middle ground shows that it has important win-win elements. First, taking a medium-term view, the hierarchical position gained. The ministries can continue their role of compensating victims with all the ensuing bureaucratic control, but at lower cost and thus not undermined by externally imposed budget considerations. The additional expense of subsidizing poor households means that in the short run the government’s fiscal problem is not solved (and the model demonstrated this). But in the medium term, as fewer households require subsidization, the government budget will improve. As one of the participants remarked, this policy will cost the government dearly in the short term, but it will create a culture of

responsibility and insurance in the region over the medium term. Secondly, it appears that the heavy subsidization of insurance premiums for poor households placated those who are concerned mainly about social justice and sustainable development. This is a somewhat surprising since these voices had expressed a great deal of suspicion about private insurers. Interestingly, as the process developed there appeared to be more trust in insurance companies, perhaps with recognition that most insurers in Hungary are foreign based and financially more secure than their Hungarian counterparts. Finally, the individualistic voices – mainly the insurers – found the compromise appealing since it will translate into greater markets for flood insurance.

However, many caveats are in order. The nine persons at the workshop may not have adequately represented the full range of stakeholder perspectives and interests. The Hungarian insurance representative was not able to attend, and a representative from the London-based Benfield-Greig brokerage company played his role. It is doubtful that Hungarian insurers would embrace the compromise laid out in Option D, which requires them to offer much expanded cover at flat-based rates. Indeed, the main insurance company has recently withdrawn from high-risk Tisza areas (based on flat-rate premiums) since it has suffered extensive losses from the cascade of recent floods, and the residents cannot afford to pay the risk-based premium. Moreover, in a follow-up interview with a high-level insurance representative, it was recently learned that the insurance industry is currently negotiating directly with government representatives in the Prime Minister's office. It seems that they are suggesting yet another variation: Insurers would withdraw entirely from high flood-risk areas, where insurance would be offered by the government on a highly subsidized basis. This variation, not surprisingly, slants the rewards more in the direction of the insurers at the expense of the taxpayers. A second stakeholder workshop, with improved insurance-industry representation (and this new perspective) would be desirable.

8. Conclusions

For this pilot study, the final clumsy solution is not so important as the demonstration of a participatory, deliberative *process* that respects and builds on the conflicting stakeholder perspectives, 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

(at the meso level) of the worldviews and perspectives as set out by cultural theorists. The process gradually moved from the contested terrain characterized by arguably non-viable policy “corners” to increasingly clumsy options, culminating at the stakeholder workshop with agreement on a single clumsy policy recommendation. This agreement was achieved through a process of deliberation and argumentation, first in the mini-groups structured around a similar perspective and then between the different perspectives of the three groups. There was thus a process of reasoning based on argumentation, but this process did not tend towards a non-coercive transformation of preferences, nor was there agreement on a public interest. 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 on economic interests. Importantly, however, there were exceptions where participants transcended their own economic interests to argue for one or the other concepts 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 clumsy solution was the eventual recognition by the key stakeholders that this assistance need not be in the form of direct compensation or rebuilding houses. Rather, it could take the form of subsidizing insurance payments – a clear mix of hierarchy and market for an egalitarian cause.

This process, which was aided with a simulation model illustrating the economic consequences of the policy options over the future decade, showed that personal views are not cemented in one stable worldview. Rather, individuals tend to argue clumsily and pragmatically, adjusting their positions to accommodate political realities. This does not mean that solidarities and single worldviews did not exist, but they characterized the meso rather than the personal level. In this study, the water authorities un-relentlessly argued for state protectionism, the insurance companies for risk-based insurance premiums and the environmentalists (to an important extent) for sustainable development policies that rejected both state protection and the market. By identifying the extreme (and hybrid) perspectives and their points of intersection, cultural theory provided a useful categorization for setting out the essence of the policy terrain and as a conceptual anchor for moving from the contested terrain to a clumsy solution.

The resulting clumsy solution 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 value of this pilot study rather lies in pointing to a new form of policy analysis that makes use of information technology and concepts of clumsy policy solutions in participatory, stakeholder settings. This will not substitute for conventional policy analyses, such as cost-benefit or environmental impact statements that arguably support one or the other perspectives. Rather, this clumsy and participatory analysis is respectful and mindful of the different views of the problem and solutions. The five-round process was concluded in a deliberative setting that provided an opportunity for the citizens, policy actors and other stakeholders to meet on equal terms and debate their perspectives – aided by a thorough understanding of the policy terrain and a model of the policy options provided by the earlier rounds. As this study shows, there is also potential for these forums to articulate a clumsy way forward.

References

- Brouwers, Lisa (2002). Spatial and Temporal Modelling of Flood Management Policies in the Upper Tisza Basin, Draft paper, International Institute of Applied Systems Analysis, Laxenburg, Austria.
- Dryzek, John (2000), "Introduction: the Deliberative Turn in Democracy Theory" in John Dryzek (2000), *Deliberative Democracy and Beyond*, Oxford, Oxford University Press.
- Ekenberg, Love; Brouwers, Lisa; Danielson, Mats; Hansson, Karin; Johansson, Jim; Riabacke, Ari; Vári, Anna (2002). Flood Risk Management Policy in the Upper Tisza Basin: A System Analytical Approach. Simulation and Analysis of Three Flood Management Strategies. Interim Report, International Institute for Applied Systems Analysis, Laxenburg, Austria
- Elster, Jon (1998), "Introduction" in Jon Elster (ed.) (1998), *Deliberative Democracy*, Cambridge University Press, New York, Cambridge University Press.
- Ermolieva, Tatianna (2002). Alternative Flood-loss Sharing Programs in the Upper Tisza Region, Hungary: A Dynamic Multi-Agent Stochastic Optimization Framework, Draft paper, International Institute of Applied Systems Analysis, Laxenburg, Austria.
- Fearon, James D. (1998), "Deliberation as Discussion" in Jon Elster (ed.) (1998), *Deliberative Democracy*, Cambridge University Press, New York, Cambridge University Press.
- Ferencz, Zoltán (2001). Floods on the Tisza River – Policy Decisions Based on Public Views. Draft paper, International Institute of Applied Systems Analysis, Laxenburg, Austria.
- Habermas, Jürgen (1984), *The Theory of Communicative Action I: Reason and the Rationalisation of Society*, Boston, Beacon Press.
- Galambos, István, Yuri Ermoliev and Tatiana Ermolieva (2001). *Flood Risk Management Policy in the Upper Tisza Basin: Mathematical and Numeric Modelling*, Draft IIASA Report.
- Halcrow Water (1999). Flood Control Development in Hungary: Feasibility Study. Final Report. Halcrow Group Ltd.
- Hansson, Karin and Love Ekenberg (2001). *Modelling Policy Options for Flood Management*, Stockholm University/KTH, Sweden. Submitted to the *Natural Hazards Review*.
- Horváth, Gábor, Sándor Kisgyörgy, Jan Sendzimir and Anna Vári (2001). The 1998 Upper Tisza Flood, Hungary: Case Study Report, Draft paper, International Institute of Applied Systems Analysis, Austria.
- Kunreuther, Howard and Richard Roth, Sr. (1998). *Paying the Price: The Status and Role of Insurance Against Natural Disasters in the United States*, Washington, D.C: Joseph Henry Press.

Linnerooth-Bayer, Joanne, Simon Quijano, Ragnar Löfstedt and Shirin Elahi (2001). The Uninsured Elements of Natural Catastrophic Losses: Seven Case Studies of Earthquake and Flood Disasters, Paper prepared for the TSUNAMI project on “The Uninsured Elements of Natural Catastrophic Losses”, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria.

Ministry of Transportation and Water Management (KVM) (2001). The Development of the New Vásárhelyi Plan. Background material for the press. (<http://www.vizugy.hu/vasarhelyi/sajtokozepkozep.htm>) (In Hungarian)

Ney, Steven (2002). Focus Groups, Citizen Participation and Governance in Europe, Synthesis Report for EU Project on Pension Reform and Citizen Participation. <ftp://ftp.iccr.co.at/penref/d4-synthesisreport.pdf>

Pecher, I., Stoiko, S. and Kichura, U. (1999). Conception for the Regeneration of the Upper Forest Boundary and for the Optimization of Hydrological Regime in the Ukrainian Carpathians, 1997, In J. Hamar and A. Sárkány-Kiss (eds) *The Upper Tisa Valley: Preparatory Proposal for Ramsar Site Designation and an Ecological Background*. Szeged: Tisza Klub, pp. 207-213.

Quijano, Simon (2000). The 1993 Midwest Floods, USA, Paper prepared as part of the TSUNAMI Project on “The Uninsured Elements of Natural Catastrophic Losses,” International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria.

Renn, Ortwin and Thomas Webler (1995), “A Brief primer on Participation. Philosophy and Practice” in Ortwin Renn, Thomas Webler, and Peter Wiedemann (1995), *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse*, Dordrecht, Kluwer.

Renn, Ortwin, Thomas Webler, and Peter Wiedemann (1995), “A Need for Discourse on Citizen Participation: Objectives and Structure of the Book”, in Ortwin Renn, Thomas Webler, and Peter Wiedemann (1995), *Fairness and Competence in Citizen Participation: Evaluating Models for Environmental Discourse*, Dordrecht, Kluwer.

Strippel, J. (1998). Securitizing the Risks of Climate Change: Institutional Innovations in the Insurance of Catastrophic Risk, IIASA Interim Report IR-98-098, International Institute for Applied Systems Analysis, Laxenburg, Austria.

Thompson, Michael, Richard Ellis and Aaron Wildavsky (1990), *Cultural Theory*, Boulder, Co., Westview Press.

Várad, József (2001). *How to Proceed After Floods and Before New Floods? Development of the Vásárhelyi Plan*. Budapest: Ministry of Transportation and Water Management. (In Hungarian)

Vári, Anna, Joanne Linnerooth-Bayer and Zoltan Ferencz (forthcoming). Stakeholder Views on Flood Risk Management in Hungary’s Upper Tisza Basin, *Risk Analysis*

Vári, Anna (2001). Flood Risk Management in the Upper Tisza Region: Results of Stakeholder Interviews, Draft Report, IIASA.