Policy Learning in Response to Extreme Flood Events in the Tisza and Pannonian Central Danube River Basins

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The Danube River basin has had numerous extreme flooding events over the past decade, causing high levels of economic and ecological damage. Hungary, situated in the central region of the Danube River basin, historically has had a high level of flood risk exposure and has recently experienced an increase in extreme floods. Environmental policies across local level institutions in the central Danube River basin vary greatly (Pickvance, 2003). Research suggests that a high level of variation may also be present in the policy response to extreme floods at the local level in this region (Vari, 2003; Slávic, 2003). Successful responses to extreme events often reflect policy learning, the evolution of beliefs, attitudes, behaviors and goals in response to new information and experiences (Sabatier and Jenkins-Smith, 1999; Busenberg, 2001). To understand factors that promote policy learning, this research examines the following questions: (1) What factors are associated with observed variations in policy change and learning related to flood mitigation and prevention at the local level? (2) To what extent has scientific and

technical information affected policy learning? (3) In what ways do different professionalized fora and group decision making processes, such as watershed partnerships and river basin management decision processes, influence policy learning? Responses to severe floods in two Danube River subbasins: the Tisza and the Pannonian Central Danube, subbasins that have experienced some of the most extreme flooding events in the region over the past decade will be analyzed. The research includes two phases. First, a large N, cross-sectional survey of cities in the basins will examine (1) the extent of past flooding, (2) policy change and learning in response to flooding, and (3) the roles of scientific and technical information and group decision processes influence policy learning. To further understand the critical factors in policy learning, the second phase of the research consists of in depth case-studies of three smaller sub-catchment areas.

1.0 Introduction: Floods and the Danube River Basin

The Danube River basin has experienced a number of extreme flood events over the past decade. The Tisza River, the longest tributary of the Danube, flooded at the 100 year level in 1998, 1999, 2000 and 2001, while the main stem of the Danube (Central Pannonian Danube River Basin) reached its highest levels in history in 2002. While a formal multi-national regime for the protection of the Danube River was established with the Bucharest Declaration for the Protection of the Danube River in the mid-1980s, the

success of international management has been mixed – with greater success in navigation management but weaker in water quality management (Murphy, 1997). Until the extreme flood event of 2002 in the Danube River Basin, the International Commission for the Protection of the Danube River had not comprehensively addressed the issue of flooding throughout the basin. As a result of the flooding in the late 1990s and early 2000s, multiple international organizations and political entities have developed flood management initiatives calling for increased local level involvement in flood protection, greater international cooperation and increased use of expert knowledge in flood management systems (ICPDR, 2004a; Budapest Initiative, 2004; Tisza Forum, 2005; Tisza Vásárhelyi Plan, 2002). At the local level, a high level of variability is present in the degree to which environmental policies have been developed and implemented in this region (Pickvance, 2003). Research suggests that a high level of variation may also be present in the policy response to extreme floods in this basin (Vari, 2003). As a city's response to an extreme flood may determine whether it will endure continuing flood vulnerability or experience long-term adaptability to extreme climatic events, it is critical to understand the variability in local level response to floods.

Many researchers suggest that successful responses to extreme events may be due to policy learning – changes of beliefs, attitudes, behaviors and goals in response to new information and

experiences (Sabatier and Jenkins-Smith, 1999; Busenberg, 2001). By examining the occurrence of and response to extreme flooding events, this study seeks to illuminate the important factors explaining variation in local level policy learning. This research examines the following questions: (1) What factors are associated with observed variations in policy change and learning in flood mitigation and prevention at the local level? (2) To what extent has scientific and technical information affected policy learning? (3) In what ways do different professionalized fora and group decision making processes, such as watershed partnerships and river basin management decision making processes, influence policy learning?

To analyze how the severe floods over the past decade have affected local-level policy learning in a transnational setting this research I am examining two subbasins in the Danube River basin: the Tisza and the Pannonian Central Danube River basins. The Tisza River basin includes land in five nations (Ukraine, Romania, Hungary, Slovakia and Serbia and Montenegro) and the Pannonian Central Danube River basin encompasses area in Hungary, Austria, Slovakia, Croatia and Serbia. Among European nations, Hungary, a nation that covers the majority of the study area, is second only to the Netherlands for flood exposure; approximately fifty percent of the geographic area of Hungary (2/3rds of the arable land) is at risk of flooding (Vari et al., 2003). Hungary receives 95% of its water resources from outside of its borders, making the nation's water

resources extremely vulnerable to the actions of other nations (Ijjas and Botond, 2004). These two subbasins were selected because of the presence of extreme flooding events over the past decade, although their patterns of flooding differ. The Tisza River basin has had a series of a hundred year level floods from 1998-2001, occurring throughout all times of the year.

Over the last two decades, shifts in the external political context (e.g., accession into the European Union of Slovakia, Slovenia and Hungary) have affected water policy making processes within the central Danube River area. In Hungary, a decentralization in government control occurred post 1989. Three thousand new local governments were created with direct election of mayors (Pickvance, 2003; O'Toole and Hanf, 1998). With the adoption of the Fundamental Law on Local Self-Government, a shift in environmental management decisions occurred where now the local governments have responsibility for environmental management decisions and programs, which has led to an implementation gap in Hungary (O'Toole and Hanf, 1998; Pickvance, 2003). Along with this shift towards local and county authorities, there has been an increase in local variation in environmental regulation and enforcement (Pickvance, 2003). Pickvance (2003) posited that "… whereas at national level the Hungarian government is developing the necessary legislative framework, institutional capacity, and infrastructure investment required in the environmental field by its 'accession strategy,' when one

examines local government the picture is perhaps less optimistic. The complex decentralized governmental structure and limiting resourcing available have held back local government environmental policy" (Pickvance: 2003: 143). This decentralizing shift towards local government renders understanding of policy learning at the local level even more necessary to environmental management.

Understanding the factors that encourage learning in local policy contexts may prove critical, since this can mean the difference between ongoing flood vulnerability as a consequence of extreme weather events as opposed to long-term resilience. Climate scientists have predicted that extreme weather events in several areas in Europe and in specific areas throughout the world that may lead to an increase in severe floods (Christensen and Christensen, 2003; Changnon and Easterling, 2000). Determining what encourages policy learning in response to these extreme events will produce policy-relevant knowledge that may encourage long-term local-level adaptability and resilience to extreme climatic events. In addition, this research will examine the efficacy of various stakeholder processes in nations that do not have a long history of democratic practices, but have recently adopted a national legal framework for public participation in decision making processes (e.g., the Aarhus Convention). As a result, it will provide greater insight into the way that participatory approaches to policy formation affect policy learning in a post state-socialist political context.

1.1 Policy Learning in the Central Danube River Basin Area:
Policymaking in Response to Shifts in Political Context and Focusing Events

The advocacy coalition framework (ACF), one of several policy frameworks, attempts to explain long term policy change and learning over a period of a decade or more. This framework examines the interaction between advocacy coalitions within policy subsystems and is based on the assumption that individuals are limited by information constraints and may not be consistently self-interested utility maximizers (Sabatier and Jenkins-Smith, 1999). A policy subsystem encompasses the group of actors or individuals who are involved in a specific policy problem (Sabatier and Jenkins-Smith, 1993). An advocacy coalition occurs within the framework of a policy subsystem and is defined as "…people from a variety of positions (elected and agency officials, interest group leaders, researchers) who (1) share a particular belief system – i.e., a set of basic values, causal assumptions, and problem perceptions – and who (2) show a non-trivial degree of coordinated activity over time" (Sabatier and Jenkins-Smith, 1993: 25; 1999: 138).

I will utilize the advocacy coalition framework (ACF) developed by Sabatier and Jenkins-Smith (1993, 1999) to examine the process of water policymaking in the central Danube River area. ACF was selected because of its ability to explain changes in policymaking through time by explicitly including hypotheses regarding effects of external events on policymaking. Additionally, this framework provides a theoretical lens to examine the roles of scientists and technical information in the policymaking process (Sabatier, 1988; Sabatier and Jenkins-Smith, 1993, 1999; Leschine et al., 2003; Weible and Sabatier, 2004).

Sabatier and Jenkins-Smith (1999) suggest several areas for potential growth in future research on the advocacy coalition framework, including the need for additional empirical research to test the framework's many hypotheses. These areas in need of further development include the role of 'watershed events' and their effects on the nature and transformation of subsystems and the role of institutions in the policy process (Sabatier and Jenkins-Smith, 1999). The floods in the central Danube River basin area provide an opportunity to examine the role of such 'watershed events' in policy transformation and learning, providing insight into when local governments utilize these events to develop policies that encourage long-term adaptability to extreme climatic events. In addition, Sabatier and Jenkins-Smith (1999) assert that further refinement of the understanding of the belief systems of the coalitions is needed, as well as a cross cultural and national examination of membership in advocacy coalitions. Because the advocacy coalition framework focuses on the role of ideas, values and beliefs in influencing policy change and learning, it underemphasizes the role of institutions and group decision making processes (Jones, 2003). By combining insights from ACF with alternative theoretical perspectives, including the behavior decision theory literature, focusing event literature, and the group decision making literature, this research not only will extend the ACF, but also will provide new insights into the role of group decision making processes in encouraging policy learning.

1.1.2 Environmental Policymaking and Water Resource Management in Hungary: Background on Advocacy Coalitions within the Policy Subsystem

Throughout much of the twentieth century, environmental issues remained a low priority in the central Danube River basin area (Nunn, 1996a; Murphy, 1997). Between WWII and the uprising of 1956, the Hungarian government focused on economic development, including heavy industrialization and intensive agriculture, by and large ignoring the environmental consequences of these development practices (Nunn, 1996a). Water pollution control was first established as a national law in 1964 with the adoption of the Water Act, providing a framework for pollution management and pollutant discharge fee system until the end of the communist regime (Nunn, 1996a). The Water Act established

an institutional water management structure at the national, regional and local levels, establishing a national water authority (OVH) and twelve district water authorities (VIZIGS), based on watershed delineations (Nunn, 1996a). Effluent standards were established and the Act mandated the issuance of fines for non-attainment of water quality standards. However, the adequacy of the fines to induce behavioral changes of dischargers and the enforcement of the regulations has been criticized (Nunn, 1996a).

Although environmental legislation was enacted starting in the 1960s with the regulation of dischargers to surface waters, environmental legislation was largely seen as "paper institutions," regulations that existed on paper but were rarely if ever implemented or enforced (Greenspan Bell, 2004; Pickvance, 2003). Throughout this period there was minimal public participation in the environmental policymaking process (Greenspan Bell, 2004). While the former Eastern Bloc countries did not participate in the 1972 Stockholm Conference, the Hungarian Academy of Sciences held an environmental conference, which included a revision of the constitution to incorporate the right to a healthy environment (Greenspan Bell, 2004). Kadar's socialist regime loosened slightly throughout the 1960s and 1970s and allowed for scientific input into the environmental policymaking process. Throughout this period local governments held very little autonomy and decision making authority (O'Toole and Hanf, 1998; Pickvance, 2003).

In 1974, a greater emphasis was placed on environmental issues at the national level and, as a result, the National Council for Environment Protection and Nature Conservation (OKTT) was established to integrate the management of pollution across different media throughout Hungary (Nunn, 1996a). Prime Minister Kadar and his National Patriotic Front used environmental issues to increase public support, which led to the adoption of the 1976 Act on Environmental Protection, representing a shift in environmental management in Hungary to a more holistic approach (Greenspan Bell, 2004; O'Toole and Hanf, 1998; Nunn, 1996a). As a result of the 1976 Act, the National Authority for Environment Protection and Nature Conservation (OKTH) was responsible for air quality, hazardous wastes, and nature conservation. However, the national water authority (OVH) remained the national institution responsible for water management and the VIZIGS (district water authorities) were granted power to monitor water quality throughout their districts. Nunn (1996a) asserts that this overlapping institutional structure between the OVH and OKTH caused poor management of water resources.

In the 1980's environmentalists throughout Hungary criticized the water resource management agencies over proposed water resource projects for the lack of opportunity of input into the planning process and in adequate consideration of environmental and social impacts of the projects (Ijjas and Botond, 2004). Throughout this period, the environmental movement in Hungary was

highly centralized, with a concentration of organizations in Budapest, where environmental groups typically stemmed from intellectual and academic communities. Throughout this time period intellectuals and citizens opposed to the Soviet-style socialist regime often embraced environmental issues, such as the Gabcikovo-Nagymaros Dam project, as a means to express their opposition to the political regime (Lipschutz, 1996; Pickvance, 2003).

In 1988 the OVH and the OKTH merged to become the Ministry for Environmental Protection and Water Management (KVM), however, difficulties in this arrangement soon developed over the conflicting objectives of water quality protection and water supply/control projects, such as the Gabcikovo-Nagymaros Dam (Nunn, 1996a). This project brought to a head the conflict between those advocating environmental protection and those focused on economic development of water resources (Hanf and Roijen, 1995). As a result, two national ministries were formed in 1990: the Ministry of the Environment and Regional Policy (KTM) and the Ministry of Public Transportation, Telecommunication and Water (KHVM) (Nunn, 1996a). The district authorities, which had been merged in 1988 to manage both environmental protection and water resource management, were again divided into water management and environmental protection. These reorganizations caused difficulties in the management of the environment and water resources, particularly affecting the personnel involved in the two transformations

(Nunn, 1996a). This period of water management was marked by competing interests between environmental protection and the economic use of water, where typically economic development interests prevailed (Hanf and Roijen, 1995). On December 31, 2005, Országos Környezetvédelmi, Természetvédelmi és Vízügyi Főigazgatóság (the National Environment, Conservation and Water Authority which was formerly known as OVF – Országos Vízügyi Főigazgatóság/ National Water Authority) was dissolved. The Center for Water Management (Vízügyi Központ és Közgyűjtemény) is newly responsible for national water management.

The political and economic transition period, initiated in 1989, has witnessed trends towards democratization, marketization and governmental decentralization. This transition period has brought about the development of political parties, multiparty elections and a stable legal and institutional framework throughout most of the study area (excluding the war-ridden nations of the former Yugoslavian Federation) (Murphy, 1997; Pickvance, 2003). As a part of the transition, the Hungarian federal government has decentralized. A focus on economic and governmental restructuring in Hungary after 1989 reduced the attention placed on environmental management issues. During this period, environmental organizations in Hungary were often supported by international organizations (e.g., REC, USAID, WWF-USA) (Lipschutz, 1996). Local government reform included the formation of and increased power of local

governments, doubling the number of local governments (Pickvance, 2003).

An environmental framework law was enacted in 1995 granting the twelve regional environmental inspectorates the following responsibilities: establishment of allowable pollution levels from sources (industry and agriculture); issuance of pollution permits; establishment of fines for exceeding permitted pollution levels; preparation of environmental plans; correspondence with citizens regarding status of environment; and monitoring of general environmental status (Pickvance, 2003: 35). The twelve environmental inspectorates have experienced financial difficulties in carrying out their legislated tasks. In order to increase funds, the inspectorates can consult with industry, frequently bringing about a conflict of interest between their consultancy work and their environmental monitoring and enforcement activities (Pickvance, 2003). Over the past decade, a shift in focus has occurred in environmental policy due to the accession of Hungary into the European Union. An increased emphasis has been placed at the national level on transposition (translating EU law into Hungarian law) and implementation of the *acquis communitaire* (body of EU law) into the national framework of Hungarian law, while generally ignoring the administrative and implementation capacities of local governments (Pickvance, 2003).

This brief summary of the history of water policymaking describes a diverse group of policy actors in Hungary including federal and local authorities, water and environmental authorities,

scientific and technical experts (e.g., Hungarian Academy of Science), and European Union institutions. Throughout the evolution of water policymaking in Hungary, conflicts have arisen between economic development and environmental protection interests, while the governmental level of policymaking and implementation has shifted from federal to local control, followed by a recent shift to supranational policymaking.

Policy Learning in Response to the Flood Events

The advocacy coalition framework offers an understanding of policy-oriented learning, defined as "…relatively enduring alterations of thought or behavioral intentions that result from experience and/or new information and that are concerned with the attainment or revision of policy objectives" (Sabatier and Jenkins-Smith, 1999: 123). Within the advocacy coalition framework, Sabatier (1988) hypothesizes that policy learning will occur between advocacy coalitions when (1) there is an intermediate level of conflict, (2) the coalitions possess technical information, and (3) the conflicts focus on either the secondary aspects of beliefs of the coalitions or on the policy core of one coalition and secondary aspects of another. In addition, policy-oriented learning is more likely to occur in policy systems in which theories are well understood and quantitative data exist, when the conflict between coalitions involve natural systems

(as opposed to social systems), and where forums exist in which professionals from different coalitions can participate. Due to the 'devil shift' – perceiving the opposing coalition as the enemy and holder of stronger opposing views than are actually true – Sabatier et al. (2005) hypothesized that learning across coalitions is rare .

Policy making can either work gradually, through slow and systematic change, or in bursts, in response to the occurrence of a rare or extreme event that attracts attention to a specific policy problem (Baumgartner and Jones, 1993). The role that institutions and coalitions play in encouraging or discouraging policy learning in response to focusing events is a research area ripe for expansion (Sabatier and Jenkins-Smith, 1993; Busenberg, 2001). Birkland (1997: 22) establishes a definition of potential focusing events:

I define potential focusing event as an event that is sudden, relatively rare, can be reasonably defined as harmful or revealing the possibility of potentially greater future harms, inflicts harms or suggests potential harms that are or could be concentrated on a definable geographical area or community of interest, and that is known to policy makers and the public virtually simultaneously.

Focusing events may elevate issues on policy agendas and encourage formation of new institutions (Kingdon, 1995; Baumgartner and Jones, 1993; Busenberg, 2001). These events may be captured, interpreted and promoted as symbols by policy entrepreneurs to forward their

agendas (Kingdon, 1995; Birkland, 1997; Busenberg, 2001). However, not all focusing events lead to policy learning and change. Birkland (1997) asserts that the more dramatic the polarization between policy communities, the less likely that a focusing event will influence policy. When policy communities are less polarized, one community may be able to use the focusing event to push forward their causal beliefs about the event and advance their policy agenda (Birkland, 1997).

Policy Learning in Response to the Extreme Flood Events in the Tisza Basin

In response to a series the series of extreme floods in the Tisza River basin in 1998-2001, which incurred over 120 HUF billion in expenditures, the Hungarian national government adopted a revised Vásárhelyi Plan for the management of floods and regional development in the Tisza River Basin. The plan has been summarized as follows:

Prompted by the results of extensive, careful preparatory studies,
the government has adopted on the 15th of October 2003 a decision
on the most ambitious rural development program of past decades.
According thereto, in Stage I of the new Vásárhelyi Plan, which covers
the period terminating with 2007, six emergency reservoirs would be

built along the Upstream and Middle-Tisza sections to enhance the level
of flood safety in the region. The program reflects a new government
philosophy, in that it takes as far as possible into consideration the
interests of environmental protection and nature conservation. (Vízügy, 2004)

As described above, policy oriented learning has been defined as "…relatively enduring alterations of thought or behavioral intentions that result from experience and/or new information and that are concerned with the attainment or revision of policy objectives" (Sabatier and Jenkins-Smith, 1999: 123). In a preliminary analysis of the newly revised Vásárhelyi Plan, I suggest that policy learning, as defined above as demonstrated shifts in attitudes and beliefs, has occurred at the national and regional level. The revised Vásárhelyi Plan is currently being translated from English into Hungarian by one of my assistants for further analysis. A series of interviews I have conducted with agency offials at the Ministry of the Environment and Water Management, environmental organizations, and the Water Resource Research Center (Vituki) are currently being transcribed and translated. Further analysis of these will provide further insight into the presence of policy learning as demonstrated in the New Vásárhelyi Plan.

Professionalized Fora, Group Decision Making and Policy Learning

Several professional and technical meetings and decision making processes have occurred throughout the study region regarding the management of water resources. These include two transnational Tisza River stakeholder processes: Tisza Forum and Tisza River Basin Integrated Sustainable Development, both resulting from the floods of the past decade, and several other national and transnational river basin management planning processes (e.g., Hortobagy-Beretto River Basin, Hungarian portion of the Maros River Basin, Sajo-Bodva River Basin) (Ijjas and Botond, 2004). By examining how various types of professionalized fora and group decision processes influence policy-oriented learning at the local and sub-catchment level, this research will seek to illuminate the critical factors that encourage policy learning.

Sabatier (1993) defines professionalized fora as those "….which admit participants on the basis of professional training and technical competence. Ideally, such a forum would be made up of analysts committed to scientific norms who shared common theoretical and empirical presuppositions and could thus resolve a wide range of analytic disputes" (Sabatier, 1993: 53). Open fora, as opposed to professionalized fora, encompass all meetings that are open to a variety of active participants of varying levels of scientific and technical expertise. Sabatier (1993) emphasizes the role of the more constrained professionalized fora in

enabling policy-oriented learning, while neglecting the role of more open fora in policy-oriented learning. Munro (1993) asserts that while professionalized fora may lead to policy-oriented learning, the extent of learning across coalitions due to professionalized fora varies across cases and therefore needs further study. Recent applications of the ACF examine the role of scientific information and group decision making on policy-oriented learning (Sabatier et al., 2005; Weible and Sabatier, 2004; Weible et al., 2004), however, further empirical tests of their hypotheses are needed.

The advocacy coalition framework suggests that scientists, technical experts and administrative agencies involved in a policy decision belong to an advocacy coalition in which they share a set of beliefs and values with other coalition members (Leschine et al., 2003). Adversarial policymaking occurs when stakeholders of divergent belief systems work through policy problems without a formalized institutional forum to bring together stakeholders to share information and discuss technical and scientific information and differences in value systems (Weibele and Sabatier, 2004). Scientific uncertainty can exacerbate the level of conflict between stakeholders (Policansky, 1998). Adversarial policymaking allows the competing groups to distort and manipulate scientific information they produced to support their policy positions, often causing gridlock in negotiations between coalitions (Habermas, 1984; Dryzek, 1990; Fischer, 1993; Busenberg, 1999).

Sabatier and Jenkins-Smith (1999) outline criteria for successful fora in which consensus between formerly antagonistic scientists and technical experts is reached. Sabatier and Jenkins-Smith (1999) define successful fora as those "…(1) in which consensus is reached among previously disagreeing scientists on whatever technical and policy issues are placed before it, and (2) in which the forum's decisions are accepted by the major coalitions involved" (Sabatier and Jenkins-Smith, 1999: 146). The participation of scientists from all coalitions, as well as neutral scientists, is needed for a successful forum, along with funding provided by a neutral source (Sabatier and Jenkins-Smith, 1999). According to the ACF, regular meetings, at least six over period of a year, are needed in order for the scientists to form trusting relationships and analyze the scientific information from all sides.

In the most recent literature on ACF, Sabatier et al. (2005) examine the alternative dispute resolution (ADR) literature (Bingham, 1986; Carpenter and Kennedy, 1988; Susskind et, 1999; O'Leary and Bingham, 2003) to further delineate aspects of professionalized fora needed for policy-oriented learning. One caution that has been raised about over-reliance on alternative dispute resolution techniques in collaborative decision making is that it may (1) exacerbate cognitive biases of stakeholders, leading to inferior decisions, (2) limit creativity in finding potential policy alternatives and (3) neglect to examine the values and objectives of

the stakeholders (Maguire and Boiney, 1994; Gregory et al., 2001). Negotiated outcomes, determined through classical ADR techniques, frequently depend on the individual personalities of the stakeholders involved and may not reflect the values of the citizenry at large (Strasser and Titus, 1985; Turner and Pratkanis, 1998; Gregory et al., 2001). Humans do not typically make rational decisions; they often use heuristics which lead to biases in decision making. Group decision making may magnify these individual biases if they are not explicitly recognized and countered in the group decision making process (Turner and Pratkanis, 1998; Gregory et al., 2001). As an alternative or an adjunct to traditional ADR, decision aiding, a more structured stakeholder decision process, guided by value-focused thinking (Keeney, 1992) and the use of a structured multiattribute decision analysis, may lead to superior policy outcomes (Gregory et al., 2001; Maguire and Boiney, 1994; Maguire, 2003; Ananda and Herath, 2003; Failing et al., 2004).

Value-focused thinking (Keeney 1992) emphasizes the need to articulate stakeholder values and objectives prior to the determination of potential alternatives. By first concentrating on values, decision opportunities and creative alternatives may become apparent that would not have been recognized if the decision maker had focused on alternatives first. This approach to value and objective delineation has been used in a number of stakeholder processes (Maguire and Boiney, 1994; McDaniels et al., 1999; Borsuk et al.,

2001; Avrai et al., 2001; Gregory and Wellman, 2001; Bierle, 2002; Gregory, 2002; Maguire, 2003). These theoretical insights into successful group decision processes provide a framework with which to examine the role these processes play in local-level policy learning. By examining group decision making processes in the study area through the lens of decision aiding and value focused thinking, further elucidation of relevant factors that promote successful fora and collaborative decision making may occur. Sabatier and Jenkins-Smith (1999) posit that policy-oriented learning occurs, in part, through successful professionalized fora. Therefore, a more nuanced understanding of the factors that promote successful decision making processes will provide a more robust understanding of policy learning.

Role of Science and Technical Information in Professionalized Fora

Sabatier and Jenkins-Smith posit that "Problems for which accepted quantitative data and theory exist are more conducive to policy-oriented learning across belief systems than those in which data and theory are generally qualitative, quite subjective or altogether lacking" (Sabatier and Jenkins-Smith, 1999: 124). While Sabatier and Jenkins-Smith address the type of data and theories encourage policy-oriented learning, the authors generally underemphasize the methods by which data and theories

are incorporated into policy making processes. The decision sciences literature may be able to inform and improve upon the advocacy coalition framework as outlined by Sabatier and Jenkins-Smith. Several studies have examined the use of science and technical information in policy dilemmas, including use in group decision making and stakeholder processes (Ozawa, 1993; Policansky, 1998; Korfmacher, 2001; Maguire, 2003; Leach et al., 2002; Kinney and Lischine, 2002; Lubell et al., 2002; Weible et al., 2004). Modeling scientific processes, such as watershed dynamics, involves not only technical knowledge and assumptions, but incorporates judgments involving social concerns (Korfmacher, 2001; Poff et al., 2003). Several scholars have developed guidelines for 'good practices' of incorporating scientific information into decision making processes. These guidelines suggest the following: (1) use a transparent and simple modeling process (Korfmacher, 1998, 2001; Maguire, 2003); (2) include stakeholder involvement in modeling process (Grayson et al., 1994; Korfmacher, 1998, 2001; Maguire, 2003); (3) clarify role of stakeholders (Korfmacher, 2001; Maguire, 2003); (4) explicitly address and account for scientific uncertainty (Reckhow, 1994; Ragas et al., 1999; Huang and Xia, 2001; Borsuk et al., 2001; Maguire, 2003; McDaniels and Gregory, 2004); and (5) use an adaptive management approach to decision making (Walters, 1997; Lee, 1999; Shindler and Cheek, 1999; Borsuk et al., 2001; Maguire, 2003; Smith and Bosch, 2004; Failing et al., 2004). These guidelines, while

generally developed for the use of models in watershed management, can be applied to the broader context of development and use of scientific information in a stakeholder process. The scientific information used in a professionalized forum should be understandable, clear, and updatable. Stakeholders should be involved in decisions regarding the production of scientific information and the role of stakeholders in this process should be clearly delineated (Korfmacher, 2001).

Decision Making Processes in the Central and Eastern European Context

The majority of the studies of decision making processes mentioned above are based in North America, a region with a relatively long history of democratic practices compared to the nations in the research area. Democratic practices are relatively new phenomena in the majority of the nations of the study area. The environmental movement in Central and Eastern Europe (CEE) reached its crescendo with the failing of the Soviet-style socialist states in 1989 (Jancar-Webster, 1993; Pavlinek and Pickles, 2000; Pickvance, 2003). Environmental concerns were often allowed to be verbalized pre-1989; this was one of a few avenues citizens had to actively participate in civic society. Frequently these environmental protests evolved into protest against the state-complex (Fitzmaurice, 1996; Lipschutz, 1996).

Environmental concerns throughout the CEE, which were often trumpeted as a symbol against the state-socialist complex, were generally replaced with economic concerns that were brought along with the process of marketization after 1989. The vibrant green movement (particularly in Hungary with the over 40,000 turnout in protest of the Gabcikovo-Nagymaros dam) withered (Lipschutz, 1996).

With the removal the Soviet-style socialist regimes across CEE in the late eighties and early nineties, the motivation to participate in the environmental movement diminished (Pavlinek and Pickles, 2000). Additionally, fragmentation of the environmental movement occurred as distrust between groups increased. At the same time a professionalization of the movement occurred with a shift from protest politics to participation in the policy process (Baker and Jehlicka, 1998; Jancar-Webster, 1993). The role of environmental organizations and the public in general have been by and large been narrowly defined in the process of implementing the *acquis communitaire* (Kramer, 2005). Kramer (2005) suggests that the democratic deficit stems from both the legacy of the communist era of weakened civil society and from the approaches taken by the European Union in managing the accession process. Hallstrom (2004) points to a trend towards the use of technical expertise in the EU Directorate General Environment while viewing the role of non-governmental organizations in the decision making process as very narrow (i.e., information providers).

However, the nations of the European Union (including Austria, Hungary, Slovenia and Slovakia), along with Ukraine and Romania, are signatories to the Aarhus Convention (Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998). The Aarhus Convention mandates governmental institutions to ensure open access to information, facilitate public participation in decision making processes and recognize and support environmental groups and organizations, while attaining access to justice for its citizens (Aarhus, 1998). This research offers the opportunity to examine the efficacy of various stakeholder processes in nations that do not have a long history of democratic practices, but have recently adopted a national legal framework for public participation in decision making processes.

2.0 Research Design

The research project consists of two phases: (1) a large-N cross-sectional survey of cities; and (2) in depth case analysis of selected sub-catchment areas (three sub-catchment areas). By utilizing a static group comparison where some cities and sub-catchment areas have experienced different degrees of flooding, it will be possible to examine the influence of flooding and flood risk perception on policy learning (Stanley and Campbell, 1963). However, cities and sub-catchments may differ in policymaking regardless of whether floods occurred or not, so much

care needs to be taken to test potential alternative hypotheses explaining variation in water policy learning throughout the study area. A cross-sectional study that incorporates both surveys and in-depth semi-structured interviews and qualitative analysis will be used. Analyzing empirical findings through multiple methodologies should improve the validity of the study. In addition, the generalizability of the case study analysis can, in part, be ascertained by comparing its results to the results of the large-N survey.

Surveys of City Mayors

The primary units of analyses for the proposed survey are local governments (cities). I have conducted a database of cities to be included in the sample frame constructed from national atlases, a database developed by Department of Cartography at the Eötvös Loránd University, Budapest, Hungary, the internet and geographic information system data. These sources of information provide not only the names and sizes of the towns in the nations, but also, from sub-basin maps of the region, a means to categorize the cities according to location in the sub-basin. Mayors and addresses of mayors will be determined through internet searches, as well as library searches if necessary. A stratified random sample of cities in the study area will be selected from an estimated 5,000 cities. Similar to the stratification used by Pickvance (2003) in his study of Hungarian communities, cities will be stratified into six categories based on population size:

(1) less than 1,000; (2) 1,000 – 4,999; (3) 5,000 – 9,999; (4) 10,000 – 24,999; (5) 25,000 – 49,999; (6) greater than 50,000. This stratification is based in part on the distribution of cities in the various classes and the structure of local government and election processes which differ across size classes in Hungary.

I have stratified the sample by sub-basin area, nation and size of city. The stratification will help ensure that each of the sub-catchment areas and nations are represented and that cities of all sizes are included. My sample consists of a total of approximately 1,000 cities. Within each sub-basin area I have selected 30% of the cities located within its geographic area. On average, the sub-basins encompass approximately 300 cities (e.g., 90 cities will be selected in a sub-basin that contains 300 cities). In cases when there are multiple nations within a basin, I have selected the proportionate number of cities within each nation, based on the number of cities in each nation that are in each sub-basin. The selection of cities in each sub-basin have been stratified by the population categories described above. Proportionally, larger cities will be overrepresented, in part due to the resource limitations of reaching a representative number of villages in the study area.

The surveys will be targeted to the mayors of the cities. In Hungary, the mayor serves as both the administrative and political leader of the city. Each city in the survey population has a mayor, and therefore, by sending the survey to the mayor in each town, bias that may occur

by different officials answering the survey in different towns may be reduced. While mayors may not have as much in-depth knowledge of some of the technical issues of flooding and flood management as some of the city bureaucrats, the mayors may know more about the role of floods and flooding in their larger political and economic context and may be in the position to have made or plan to make policy changes in response to flooding activities, and therefore may be in a better position to represent the level of policy learning for each city.

The primary mode of survey dissemination is through the internet. This is appropriate given the cost of mail surveys and difficulties associated with transnational mailings (Couper et al., 2001). Internet availability in Hungary and surrounding nations has increased drastically over the past few years (Risztics and Jankovits, 2005). Therefore, I believe that this is a viable and unbiased method of implementation. I will contact respondents about the survey via email. In cases where an email address cannot be found, a survey will be mailed or hand delivered to the mayor. The survey has been developed and is currently being translated into five languages (Hungarian, Serbo-Croat, German, Slovak, and Romanian) with the assistance of translators.

Survey Measurement

The survey includes a series of questions regarding past flood occurrences, perceived damages resulting from the floods (both ecological and economic), risk attitudes concerning future flooding, and preferred policy alternatives for managing future flood risks. A series of questions will measure values, beliefs and policy positions and preferences regarding water policy and flood management. To identify advocacy coalitions within the water policy subsystem, a measurement of coordinated activity is needed. Mayors will be asked about (1) current and past (pre-floods) level of communication regarding water policy issues with other municipalities (within the same nation and other nations), with water authorities, with non-governmental organizations, and with scientists and experts; and (2) collaborative decision making processes and professional fora in which they participated both before and after floods (e.g., flood management plans, river basin plans). Mayors will be asked to list (1) their most important sources of scientific and technical information and; (2) any formalized meetings and group decision processes in which they participated. Additional questions will be asked regarding participation in coalition activities including (1) impetus for participation; (2) resources captured by participating (e.g., financial, institutional and informational resources); (3) resources shared as a result of coalition activities.

Survey Measurement: Policy-Oriented Learning and Professionalized Forum Variables

Sabatier and Jenkins-Smith define policy-oriented learning as "…relatively enduring alterations of thought or behavioral intentions that result from experience and/or new information and that are concerned with the attainment or revision of policy objectives" (Sabatier and Jenkins-Smith, 1999: 123). This construct will be operationalized through a series of questions regarding the adoption of new policies, changes in values or belief systems, amendments to previous policies, number of discussions/meetings held regarding potential for new policies, and adjusted policies in response to other actors' preferences. If the city has not witnessed any flooding in the past ten years, the respondents will be asked a separate list of questions regarding new water policies over the past ten years (not in response to floods

Quantitative Analysis of Data

The large-scale survey data will be analyzed using statistical techniques such as logistic regression, structural equation modeling and multilevel modeling. A measurement model captures the relationship between a latent variable and one or more observed or measured variables (Bollen, 1989). Latent variables cannot be directly measured, but are inferred from the measurement of indicator variables, which can be directly measured (Schumaker

and Lomax, 1996: 77). Policy-oriented learning has been defined within the advocacy coalition framework as the "… relatively enduring alterations of thought or behavioral intentions that result from experience and/or new information and that are concerned with the attainment or revision of policy objectives" (Sabatier and Jenkins-Smith, 1999: 123). I posit that policy-oriented learning cannot be directly observed, and therefore should be conceptualized as a latent variable that is measured through the use of indicator variables. For example, the survey instrument might contain multiple measurements (ordinal categories) of policy-oriented learning, or responses to a series of questions might be coded into five or more ordinal categories. These indicator measures may include a measurement of changes in beliefs about the causes of the floods, changes in policies as a result of the floods, and changes in financial resources dedicated to flood management and protection policies.

Multi-Level Modeling of Ordered Categorical Responses

The survey data I am collecting are nested; cities are located in sub-catchment areas and sub-catchment areas are located in sub-river basins. Multilevel modeling predicts a dependent variable based on independent variables at multiple levels (e.g., policy-oriented learning at the city level, based in part on a set of sub-catchment variables in

which the city is nested) (Luke, 2004). Explanatory variables at different levels may be highly correlated and therefore difficult to deal with in a typical multiple regression analysis. Multi-level analysis allows for more accurate model specification (Steenbergen and Jones, 2002). Non-continuous and non-normal dependent variables, such as ordinal categorical dependent variables (e.g., policy-oriented learning), can be handled using multilevel modeling (Luke, 2004). Multilevel models that include latent variables (e.g., policy-oriented learning) can be developed using GLLAMM (General Linear Latent and Mixed Models) within statistical package Stata (Rabe-Hesketh et al., 2004). Multilevel models will be developed to examine variation in policy-oriented learning between municipalities based on variance in variables at the sub-catchment level in which the cities are situated (e.g., advocacy coalition polarization, presence and type of professionalized fora and group decision making processes at the sub-catchment level).

In-Depth Case Study Analyses of Selected Sub-Catchment Areas

The overall study area includes two sub-river basins: Tisza and Pannonian Danube. These basins have been divided into sub-catchment areas based on the European Union Water Framework Directive and previous watershed delineations throughout Hungary and neighboring nations. I am conducting three in-depth case studies of selected sub-catchment areas. While the large N-survey will provide insight into patterns of flood occurrences, risk perception and policy learning for local governments, the case studies will further elucidate how and why policy learning has occurred and further explain the role of floods, flood risk perception, advocacy coalitions, professional fora and group decision making processes in policy learning. The in-depth case studies will allow for further testing of the hypotheses developed above.

The selection of cases is critical to the research design and type of inferences I will be able to draw from the research (Yin, 2003). The sub-catchment areas will be selected to capture variation in (1) past flooding (i.e., floods, no floods); (2) type of watershed planning process, and (3) number of nations in the sub-catchment. The three regions that I have selected for my case studies include: 1) Upper Tisza River Basin; 2) Middle Tisza River Basin and 3) Upper Danube/Mosoni Duna/ Raba River Basin.

For each case study I am conducting semi-structured interviews with (1) water and environmental authorities; (2) environmental and industrial organizations; (3) follow-up interviews with city and county officials; and (4) locally based scientific and technical experts. The six broad objectives of the semi-structured interviews are similar to those described for the survey developed to test the hypotheses stated above: (1) obtain a history (recent and long-term) of flood occurrence including perceived causes, frequency and level of damage; (2) assess perceived risk of future flooding and policy alternatives; (3) determine belief systems (before and after floods) of policy actors; (4) determine level of contact and communication between policy actors in governmental and non-governmental, and expert communities including presence of professionalized fora and collaborative decision processes; (5) identify the actors, institutions and organizations in the water policy subsystem throughout the three case studies, and identify potential advocacy coalitions; (6) assess level of policy-oriented learning by policy actors and at the sub-basin level. To buttress any findings in the cross-sectional analysis, longitudinal data of past beliefs and values of local institutions (e.g., cities, water authorities) will be ascertained. To capture this information I will use multiple approaches: (1) semi-structured interview questions regarding water policymaking and enforcement patterns before flooding (but after 1989); and (2) analysis of documentation (e.g., documentation of historical flood events, previous river basin plans) at the water authority level regarding past water policymaking and enforcement of regulations.

Summary

This research project seeks to illuminate the critical factors in local level policy learning by addressing three broad questions: (1) What factors are associated with observed variations in policy change and learning related to flood mitigation and prevention at the local level? (2) To what extent has scientific and technical information affected policy learning? (3) In what ways do different professionalized fora and group decision making processes, such as watershed partnerships and river basin management decision processes, influence policy learning?

This research project, which will serve as the foundation of my dissertation, will take approximately 16 months to implement (09/2005-12/2006). The implementation of the survey instrument will occur during the first nine months of the project (9/2005-5/2006) including testing the instrument on a focus group, and translation and back-translation of the survey instrument. Interviews for the case studies are being conducted in the spring and summer of 2006. The case studies will include interviewing and surveying water resource managers, land use planners and local government officials as well as local non-governmental organizations in the three selected sub-catchment areas. Transcription and translation of the interviews will be completed between September and December of 2006.

A Trilogy Of Budapest Plays

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How to best construct a narrative that deals with Hungarian history, culture and present circumstance in a dramatic and stage-worthy manner is a difficult question. The writer must answer the demands of two unforgiving masters – the people in question, who call out for truth and a balanced portrayal, and the audience, who call out for excitement, drama and the magic of the theatre. The final results of the undertaking will be judged when the house lights go down and the actors speak the lines, but the process by which these plays came about is one marked by noteworthy collaboration, education and expanded artistic reach. The following paper investigates that process: how A Trilogy of Budapest Plays went from imagined possibility to concrete production.

1. Act One: Beginnings

It is written that Hungarian theatre suffered two juggernaut steamrollers in fifty years: nationalization in the late forties and commercial television in the late nineties. It is said to have profited from the first… and god only knows what will happen as a result of the second.[1] In America we never knew the first, and are firmly in the shackles of

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1   A Shabby Paradise. Fabri, Peter. Ester Press, 2004.