The Role of Third Parties in Promoting Collective Action among Riparians

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I. Introduction

As noted elsewhere,[1] regional institutions set up to manage shared water resources are a crucial component in the development of stable and effective collective action, the prerequisite to the sustainable use of such resources. These institutions replace the arms'-length, slow and rigid treaty-making process that includes largely unstructured and veiled negotiations, followed by an insufficiently informed ratification process where the deal is almost imposed upon domestic political institutions in a "take it or leave it" fashion. The traditional treaty-making process is too slow and cumbersome to respond to the challenges of sustainable management of shared freshwater. Moreover, this process is susceptible to manipulations. In contrast, institutions provide (or should provide!) a well defined, widely accessible, transparent, and flexible decision-making procedure[AE1] . Institutions can reduce small interest capture by allowing wide representation and providing scrutiny of the negotiation process throughout its elaboration.[2] Eliminating the subsequent ratification would reduces the potential of smaller groups to concentrate their capture efforts in the national institutions. Moreover, the personal composition of the institution's bureaucracy can, if properly structured, also contribute significantly to a decision-making process that is less adversary and permits less capture. Because the structured decision-making process should rely on the accumulation and assessment of data, decisions wouldill involve less-politicized personnel. Scientists wouldill process the data, thereby providing common ground that politicians could cannot avoid in their deliberations[AE2] .[3] These institutions would have their own bureaucracy who would in turn identify the institution's success and reputation with their own. As transnational bureaucrats inevitable try to extend their powers, they will naturally push towardform an innate thrust toward more intensified cooperation.[4] The information disseminated to the general public will constrain the range of options open to the politicians on the board, and operate as check on their choices.[5] These mechanisms will provide a voice for all affected interest groups. Institutions that provide for equal voice are more likely to resolve the collective action problems they face.[6] In addition to voice, such institutions will be able to hold domestic officials accountable for their acts or omissions by drawing the domestic publics' attention to ineffective domestic regulation of private activities.

The vital importance of transboundary institutions should therefore be the focus of third parties – governments, IGOs and NGOs – seeking to promote cooperation among states sharing freshwater resources. Therefore the analysis of the role of third parties must begin by outlining the challenges that such institutions face in their quest to establish effective and long-term cooperation mechanisms, and the modalities through which those challenges could be addressed. Part II delineates the challenges. Part III describes the institutional responses to them and suggests opportunities for third party involvement in their creation and maintenance. Part IV concludes.

II. The Scope of Transnational Collective Action in the Management of Shared Freshwater

As demands for such resources grow and diversify and supplies become increasingly depleted, more and more states may be unable to afford unilateral action and may, therefore, seek cooperation. Cooperation in the context of shared freshwater implies transnational institutions governing the almost daily decisions that riparians must take. Management of freshwater and their ecosystems consists of a constant, almost daily balancing of a myriad of demands on a relatively fragile and scarce shared resource. This Part examines the particular tasks and constraints of ecosystem management, in an effort to identify the scope of collective action required for an optimal and sustainable use of the shared transboundary resources. I focus on three questions: What are the purposes of shared management of transboundary freshwaters? Who are the beneficiaries of such an enterprise? And third, what normative constraints exist in the management of the diverse interests involved? The responses to these questions lay the groundwork for analyzing the "how to" questions to be dealt with in Part III.

(a) The Subject Matter to Be Managed: Natural Resources, Conflicting Claims, and Risks

The immediate task of shared freshwater management is, first and foremost, allocating the shared resource or resources among the diverse uses and users. But freshwater management is often much more than that. Due to the often-versatile character of freshwater and their diverse uses, questions of allocation usually entail making value judgments among competing demands. Furthermore, freshwater management also requires management of risks that are generated by the high level of uncertainty surrounding management decisions. Hence, our discussion of management tasks reflects these three distinct matters: supply management, demand management, and risk management.

Supply Management

Frequently we speak of several resources that are inter-linked in a wide range of ways: sub-basins interact within a larger basin; air, soil, and water are interdependent. The quality of one resource influences that of the others; a problem in one component -- for example, deforestation that creates soil erosion -- leads to problems in related resources -- loss of arable lands and flooding.[7] Use of water for drinking or irrigation reduces the water supply for maintenance of estuarine ecosystems. This interdependency between water, air, and soil is captured by the term "ecosystem" and by the call for "ecosystem management."[8] As Jutta Brunnee & Stephen J. Toope suggest, "An 'ecosystem approach' requires consideration of whole systems rather than individual components. Living species and their physical environments must be recognized as interconnected, and the focus must be on the interaction between different sub-systems and their responses to stress resulting from human activity."[9]

It may seem awkward to adopt such an inclusive approach, which may increase the number of participants in joint management processes and thereby render cooperation more cumbersome. However, although the inclusive approach does, indeed, portend this risk, on the other hand, it also carries the promise of better management opportunities for internalizing the entirety of the consequences of the policies pursued. Collective decision-making concerning the complex inter-relationships among the various related resources, such as freshwater, air, and soil, as well as concerning the diverse activities and

demands with regard to these resources is essential for eliminating the import and export of externalities among members and non-members of the transnational institution. Moreover, the inclusion of control over several resources under the aegis of a single institution often increases the incentive to cooperate. For example, a slanted upstream-downstream relationship with respect to a shared river – the classic example of intransigence – will be rectified if in addition to management of the shared river, the shared institution also encompasses the management of transboundary air pollution drifting in the upstream direction.[10]

The management of shared ecosystems involves a variety of decisions: on the allocation of quantities of the given resource or resources to different consumers; on the quantities and types of pollutants and/or pesticides that industries or farmers may discharge directly or indirectly into the ecosystem; on the establishment of rehabilitation projects, such as waste-water treatment facilities, to protect the affected resource(s) and increase the yield. Shared ecosystems are highly idiosyncratic. Their efficient and equitable management requires intensive investment of resources in long-term planning of both the physical infrastructure and the institutional mechanisms for decision-making regarding allocation and pricing, compliance monitoring, enforcement, dispute settlement, and crisis management. This section analyzes and elaborates on the challenges involved in ecosystem management.

Demand Management

Several natural resources -- including clean air, fresh water, arable lands, and rainforests -- are vital to human subsistence. Unlike minerals and other shared resources of strictly economic value, these resources are responsible for a wide array of natural and human processes and have diverse uses, as captured by the Koran verse "We made from water every living thing."[11] In contrast to the uses of such natural resources as gas and oil, only a few of the uses of these vital resources can be easily translated into economic value.[12] Beyond subsistence, these resources also provide a plethora of uses, including commercial uses in agriculture, aquaculture, industry, power generation, tourism, and recreation. The diversity of interests in these natural resources and, especially, in freshwater has shaped the wide range of possibilities open to regulators for allocating and managing the resources. The regulation of water or air is different from the regulation of whaling and straddling stocks, of nuclear reactors, and of navigation on international rivers. The former type of regulation is all-encompassing, requiring that a proper balance be struck among the conflicting demands of individuals, groups, and corporate actors and involving diverse concerns, from human subsistence, to

economic welfare and cultural needs, to recreational activities. Regulation is constrained by social and cultural factors. In some Moslem countries, for example, religious edicts dictate that water be freely accessible to all, thereby depriving regulators of the possibility of reducing demands through pricing mechanisms. Hence, the traditional and religious objections to full pricing of water prevent the governments of Egypt, Jordan, and Syria from curtailing the rising demands on Allah's gift.[13]

Prominent among the unique challenges faced by regulators of demand and supply management is contending with the policy of ensuring "food security" taken by certain countries. Many governments, particularly in developing countries with unstable water supplies, tend to maintain a strategic interest in food security. They seek to reduce their dependency on foreign supplies. Strong domestic agricultural lobbies often press for adoption of policies aimed at protecting their produce. As a consequence, governments strive to ensure sufficient water supplies for providing fresh produce and milk, which might not be easily obtainable through international trade: The very same agricultural lobbies are responsible for protectionism in international trade norms related to trade in agricultural products. When imports are not a reliable source of basic foodstuffs, a wider margin of food security is necessary, at the cost of raising the demand for water for irrigating crops. A policy of food security in arid and semi-arid countries is wasteful, compared to a policy of enhanced trade. But uncertainties with respect to reliance on foreign sources lead many governments to pursue that inefficient policy.

A further concern for governments in many developing countries is the impact that restricted access to water has on peasants' livelihoods. For peasants in these countries, water means employment and maintenance of their livelihoods in their remote villages. Insufficient or costly water supply means dislocation; and governments are concerned with demographic changes and heightened social pressures as cities become crowded beyond capacity. Such considerations may weigh against privatizing resource management. Thus, for example, the establishment in 1981 of a system of private transactions in water entitlements effectively precluded the poor peasants from this market.[14]

To obtain an optimal and sustainable utilization of vital resources and meet the diversified and constantly increasing demands on these resources, decision-makers must collectively and continuously juggle the manifold and conflicting demands on and supplies of the resources in their ecosystems. Management of ecosystems is, to a large extent, a matter of redistribution of a natural resource, given certain physical, economic, environmental, social, and cultural constraints. It is also a matter of setting priorities among different uses and different users and of designing the optimal structures for making the most of existing supplies.

Often the management of ecosystems entails much more than balancing supplies against demands. At times, ecosystem management requires weighing additional considerations, including even cultural and religious factors when a specific natural resource is a religious symbol for a specific group or when the resource is a necessary element in the preservation of a group's culture.[15] Thus, for example, the preservation of the Sami minority's practice of reindeer husbandry, an essential element of Sami culture, requires the conservation of forests in Finland.[16] Ecosystem management may thus require attention

also to the issue of group representation, especially the representation of indigenous peoples, in decision-making processes.[17]

Risk Management

Ecosystem management is fraught with uncertainties and, therefore, with risks. This means that decision-making must constantly seek new information and analyses on the possible impact of certain uses and practices on the resource or resources in question. These risks pertain to the impact of diverse activities – use of pesticides and fertilizers in agriculture, different uses of water, water reuse after treatment, water installations (such as dam diversion or irrigation systems), different land uses -- on the survival of the ecosystem, the availability of water quantity and quality, and consequential health effects. Some risks are beyond human control, such as those imposed by natural disasters. Other risks are beyond the control of those managing the specific ecosystem, such as the risks involved in climate changes due to global warming. But many other risks may be addressed by the institution in charge of managing the shared ecosystem. Some of these manageable risks can be reduced by, for example, investing in monitoring the compliance of users or providing incentives for users to employ environment-friendly methods. But often such decisions are hampered by uncertainties as to the impacts of alternative uses or the certainty that alternative uses pose alternative risks.

Many known risks can be eliminated only at the cost of increasing the potential of other risks. As a result, decisions often involve weighing the tradeoffs between risks. Take, for example, the ubiquitous question of whether or not to chlorinate drinking water. Studies have indicated that chlorination increases the likelihood of cancer. But reducing the risk of cancer (by ceasing chlorination) will increase the likelihood of microbial diseases.[18] Often, such decisions entail tradeoffs between specific groups in society. If water chlorination is ceased, adults will be at lower risk, while children and the elderly will be more highly exposed. When, for example, the U.S. Environment Protection Agency banned the use of ethylene dibromide (EDB) to prevent the development of molds on grain and other foods, the growers used other fungicides which exposed the workers who applied them to greater hazard than presented by EDB.[19] Decisions also could involve tradeoffs between countries, as, for example, would be the case where political boundaries separate growers and consumers.

Science cannot eliminate the uncertainties surrounding the potential risks of certain uses of a shared ecosystem.[20] In some cases, experiments can establish relationships of cause and effect. Often, however, it is unclear how to evaluate the laboratory findings and what measures should be adopted based on that knowledge. Not only does science fail to resolve many uncertainties, it in fact frequently creates new ones, as new findings question the safety of previous policies, or as new technologies generate new risks. Thus, science does not release decision-makers – whether legislators, regulators, courts, or individuals -- from applying discretion in the adoption of policies. Management of shared resources, therefore, involves not only allocation of shares in the scarce resource among its several users: it also entails allocation of the known risks posed by that allocation of shares, as well as allocation of the unknown or insufficiently researched risks of the approved uses and practices.

Sometimes the good intention to avoid one risk leads unwittingly to an even graver risk. In Bangladesh and in the neighboring Indian state of West Bengal, tens of thousands of villagers are slowly being killed by the water they drink because it contains high levels of natural cancer-causing arsenic. The villagers haul the water by hand-operated pumps, distributed as part of a joint effort by UNICEF and the Bangladeshi and the Indian governments to end the villagers' reliance on polluted surface water. The surface water used previously by the villagers caused widespread and deadly diarrhea and cholera, claiming the lives of hundreds of thousands each year. Instead, the pumps draw water from a shallow aquifer, which has turned out to be naturally contaminated. Neither UNICEF nor either of the governments ever tested the aquifer and were slow to react to scientific warnings already sounded in 1988. Still, villagers are slow to demand change: most of them do not know what they are drinking and attribute their diseases to supernatural causes.[21]

In environmental law – both domestic and international – the function of risk management is captured in the so-called "precautionary principle." Under this principle, "[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as reason for postponing cost-effective measures to prevent environmental degradation."[22] This principle appeals to the human instinct to follow such rules of thumb as "Better safe than sorry" and "Do no harm."[23] It calls upon decision-makers to proscribe uses that could harm the environment or deplete resources, until the harmless effects of such uses are adequately proven.

The precautionary principle underscores the important role of risk management as integral in managing the environment and other shared resources. But this principle is, at best, irrelevant in terms of determining just how, precisely, risks should be managed. It fails to define the level of uncertainty that triggers the principle into operation; who bears the onus of proving such uncertainty; and which principles should inform decision-makers in their cost/benefit analyses. Moreover, beyond this vagueness, reliance on the precautionary principle may prove counterproductive to proper resource management. As unfortunately is too often the case, this principle is invoked to uphold the status quo. Under this rendition, the principle contributes negatively to sound resource management, which must constantly consider the tradeoffs entailed in any potential use. While it might not be sufficiently clear what the adverse consequences of a certain practice may be, it might be equally unclear what the adverse consequences of *prohibiting* that same practice or of resorting to an alternative one. As demonstrated by the above examples of water chlorination and EDB application to grains, managers should almost always weigh the adverse consequences of permitting a certain usage (chlorination, EDB application) against the adverse consequences of proscribing that usage. It is often rather uncertain whether "Better safe than sorry" is preferable to taking a calculated risk in anticipation of an unfolding crisis or to improving the

public's general health and living conditions. Uncertainties exist either way, and hesitant decision-makers may err on the side of safety only to later regret it.[24]

The difficulties mentioned above multiply in the transnational context. Different perceptions of risks and different aversions to risks can result both from economic and cultural differences. More importantly, the incentive to impose risks on the neighboring community, to whom there is no accountability, is strong in inter-state settings.

(b) The Beneficiaries of Transnational Ecosystem Institutions

The beneficiaries of transboundary resource management are the individuals who rely on the resource for whatever purposes. But their interests frequently clash. Hence, transnational institutions must prioritize the different and often conflicting claims.

Out of these individuals, special attention should be given to two groups that are disadvantaged in many societies: future generations and members of minority groups. Equity requires due regard to the demands of future generations as well as to the often unique interest of minority groups – especially indigenous peoples – in the preservation of natural resources. Efficiency also supports this requirement: the short-term policies of many governments and the sometimes gross human rights violations associated with such policies in relation to the management of natural resources place in doubt the willingness and ability of states to commit themselves to long-term cooperation. When riparians resort to short-term policies, policies that reflect internal political instability or create such instability in their infringement of human rights, the incentive of neighboring riparians to cooperate diminishes.

The demands of future generations pose unique questions. The principle that future generations are entitled to equal concern and respect in making decisions concerning the ecosystem is widely accepted.[25] It is recognized as a legal obligation in both national legal systems[26] and international law.[27] But although the validity of the principles of inter-generational equality or sustainable development is uncontested, the practical meaning of these principles remains less certain. First, it is not clear to whom exactly "future generations" refers: Does it include the immediate successive generation, a few generations down the line, or continue *ad infinitum*? Second, what must the present generation actually do: [28] to what extent may the current generation modify the environment it bequeaths to the future generations? Can it offset the deteriorating ecosystem against the improving economic and technological conditions and can it defer the protection of the ecosystem to a later stage, when economic conditions are improved? Who – we, they, or both – should bear the burden created by our predecessors who misused or depleted our resources?[29] Finally, and more concretely, which discount rates should we use in evaluating the costs of investments necessary to prevent future harms?[30]

These are difficult questions that can stir deep philosophical debates.[31] In practice, however, these questions call for striking some sort of balance between the conflicting interests. Different societies will respond differently to many of the questions. Developing and developed societies pursue different sets of priorities. No *a priori* rule can be imposed on decision-makers. Hence, choosing the responses should be relegated to the participants in the decision-making processes within the relevant institutions.

(c) Normative Constraints on Transnational Ecosystem Institutions

Not only nature imposes constraints on transnational ecosystem institutions. Basic normative constraints – resulting from either the national constitutional order of participating states or from international law – must be respected as well. These constraints are imposed on the institutions either directly or indirectly, as a consequence of the normative constraints imposed on the state parties to the institution. Despite the transfer of significant authority to supranational joint management bodies, the participating governments are required by their national legal orders to ensure that such bodies do not infringe their citizens' human rights that are protected by the national constitutional order.[32] Transnational institutions, as subjects of international law,[33] are also constrained directly by basic norms of international law.[34] Besides the rather vague mandate to pursue outcomes that would be optimal and sustainable, the major constraint on the discretion of the transnational decision-makers imposed by international law is the duty to respect and ensure basic human rights. Thus, either through national law or international law, indirectly as a duty borne by participating states or directly imposed on the institution, transnational ecosystem institutions are bound by the obligation to respect and ensure the human rights of those subject to their territorial jurisdiction.[35]

There are only a few references in existing national constitutions and international human rights conventions linking human rights and ecosystem management. The 1989 Convention on the Rights of the Child enumerates the right to "clean drinking-water" among the rights of the child.[36] The 1997 South African Constitution stipulates that "[e]veryone has the right - (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that - (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."[37] Another section guarantees the right "to have access to… sufficient food and water."[38] Despite the dearth of explicit individual rights, it is widely accepted that such rights derive from well-recognized, more general provisions.[39] The right to drinking-water can be deduced from the right to life and the right to be free from inhumane or degrading treatment,[40] as well as from the right to food.[41] The link between natural resources and the human right to life has been recognized by the International Court of Justice, when it declared that "[t]he environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn."[42] These individual rights are, at the same time, positive duties of the authorities, including the duty to improve current conditions and to provide -- whenever possible -- an adequate supply of good-quality water and food.[43] The 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses ("the Watercourses Convention")[44] recognized the states' duty to give "special regard … to the requirements of vital human needs"[45] in the event of a conflict between different uses of an international watercourse. One of the *Statements of Understanding pertaining to certain Articles of the Convention* addresses that provision, suggesting that "in determining 'vital human needs', special attention is to be paid to providing sufficient water to sustain human life, including both drinking water and water required for production of food in order to prevent starvation."[46]

The human rights perspective sets three guidelines for decision-makers in structuring and implementing

the procedures of the transnational ecosystem institutions. First, the decision-makers are under a clear obligation to provide a safe environment for all individuals who depend on the managed ecosystem and to ensure them the minimum share of good-quality freshwater for a decent human subsistence. States may not agree to join institutions that provide less than this minimum to their citizens. This minimum share must include enough water for domestic uses, for drinking and sanitation, as well as enough water to produce food in those countries that have insufficient resources for importing food.[47] Because this duty extends to the good of both the present and future generations, it prescribes only uses that are sustainable. States also are prohibited from agreeing to impose, via the transnational institutions, unreasonable risks to the lives of their citizens resulting from poor risk management or unequal risk allocation.

The second guideline calls for equal treatment of the individuals dependent on the resource. Transnational institutions may not discriminate between different individuals and communities in providing access to such resources and in the allocation of quantities and risks.[48] Decisions on projects that could lead to the displacement of populations -- for example, dam construction -- must undergo strict and careful scrutiny, give voice to the potentially affected populations during the decision-making process, and provide full compensation, including a resettlement scheme, acceptable to the majority of the displaced people.

Finally, because ecosystems also are often crucial for preserving indigenous societies, their cultural rights, as recognized under international and national law, must be respected.[49] The right of religious or cultural minority groups to the conservation of specific water-related sanctuaries may be founded on their internationally recognized cultural and religious rights.[50] Managers should therefore give ample weight to the demands of indigenous peoples to maintain and strengthen their relationship with their land, territories, waters, and other resources and to their right to participate in decisions affecting these resources.

These human and group rights place major constraints upon states and, hence, upon the transnational institutions' margin of possible outcomes. Any decision with potential impact on the transboundary resource must undergo careful scrutiny and a balancing of the conflicting rights and interests. For example, the damming of rivers or the diversion of flows from one basin to another may increase the availability of water for some people but, at the same time, create adverse environmental and social effects for others. Such cases will necessitate reaching an equitable balance between the interests of the different communities.

This Part explored the complex tasks of transboundary ecosystem management. Ecosystem management requires a constant balancing of conflicting interests and even human rights, under constraints imposed by nature and by the limited ability of humans to assess risks. To meet these challenges, it is necessary to structure the decision-making processes in transboundary ecosystem institutions in ways that will ensure informed and unbiased decisions. Such institutions could sustain markets for some of the uses of the resource, say, for trade in pollution permits, for water for irrigation, or for reclaimed sewage water intended for agriculture, provided the institution can ensure the attainment of the tasks of resource-, claims-, and risk- management and can comply with the external normative constraints discussed in this Part. In light of those tasks and constraints, Part III examines the principles and procedures according to which transnational ecosystem institutions should be designed.

Part III. Institutional Responses to the Challenges of Transboundary Collective Action

This Part discusses the modalities through which transnational institutions could respond to the challenges of transboundary ecosystem management. The same discussion highlights the different opportunities for third parties to take part in the setting up and in the management of those institutions. The first section examines the structure of transnational ecosystem institutions, addressing such issues as subsidiarity, the relationship between the transnational and the national processes, and the relationships between different institutions with overlapping competences. Emphasis is placed on the possibilities for reducing the likelihood of skewed or uninformed decisions. The second section studies the decision-making processes within transnational institutions, focusing on the effort to provide flexibility and mutuality in a transparent process that ensures voice to the interested public.

The Structure of Transnational Ecosystem Institutions

National policies and procedures affect the possibility of regional cooperation with regard to shared air, freshwater, and other natural resources. The national legal and institutional arrangements for the domestic allocation and monitoring of the uses of such resources shape each state's ability to commit itself to international obligations and to comply with them. These domestic policies and institutions are relevant in a number of ways. First, the method for allocating shares among individual users, ranging from a rigid system of inalienable property rights to a flexible system of revocable permits, impacts the government's ability to undertake to implement a reduction of its share of a transboundary natural resource. The existence of property rights to the resource may tie the hands of state negotiators, willingly or unwillingly, or increase the enforcement costs due to litigation of expropriation cases. In contrast, a revocable, permit-based system provides more leeway for decision-makers.[51] Second, different internal allocation methods shape differently the incentives for users to intervene in the political process. The more rigid the allocation system, the greater users' reliance on their "property rights," and hence, the greater users' incentives to invest in protecting those rights through obstruction of an international agreement. Finally, poor administration and ineffective monitoring of uses and users by the government may further burden the difficult task of implementing the international undertakings or be used as an excuse for failure to comply with them. Not surprisingly, powerful domestic groups are usually behind the existence of rigid allocations and poor governmental controls.

The operation of transnational institutions, which must be based on the principles of flexibility and mutuality, must not be constrained by the methods used by the participating states in the domestic allocation of their shares of the transboundary natural resource. This implies two further principles: first, the policies of transnational institutions must enjoy supremacy over domestic policies; and second, transnational institutions must have the competence to dictate changes in domestic law relevant to the management of the transboundary resource. The legal precedence given to institutional policies implies, first, that these policies will take effect within the national legal systems without a need for securing prior ratification from the national legislatures or governments as though each policy is a new treaty in itself.

Second, supremacy of institutional policies also requires states to modify their domestic legislation regarding resource use in order to enable transnational policies to take effect. One important implication of the principle of supremacy is that instead of rigid systems that provide owners with inalienable property rights in specific shares of a transboundary resource, each participating state must establish a flexible system of revocable permits for individual users of the resource.[52] Although governments are usually empowered to take private property and, hence, can also take property rights in shares of a resource from their owners, the process of taking, especially when protected by constitutional guarantees and judicial scrutiny, is more complex and expensive than the termination or non-renewal of temporary permits.

Such a flexible, permit-based system is vital to transnational cooperation for three reasons. First, it is a prerequisite for the regional management of transboundary resources, which must remain flexible in order to endure.[53] Second, a permit-based allocation system requires an institutional framework that assigns, amends, and revokes permits. Such an institution could lower the likelihood of skewed domestic allocations to powerful groups of users by providing procedural guarantees for accountability in decision-making. Finally, a permit-based system and its institutions encourage equal respect for the demands of all users, because they have to base allocative decisions on notions of basic human rights and equal access to national resources.[54]

A potentially effective way to enhance collective action in transboundary institutions is to establish direct, low-level interaction among sub-state actors, such as regional governments, municipalities and even villages. Lower-level decision-making and interaction lower-level interaction can increase regulators' understanding of the particular natural attributes of a local resource and the potential impacts on it by the suggested policies. Capture by interest groups may be less effective in local settings, whereas public participation could be less costly and more capable of influencing outcomes in conformity with the public good.[55] Public participation may also have a positive influence on locals' commitment to compliance.[56] The existence of numerous sub-basins may provide the foundation for an efficient market between sub-basin institutions.[57] Additional support for delegation of authority to sub-state levels derives from the perspective of democracy: delegating authority to local institutions increases the opportunities for citizens to take an active part in influencing their lives.

These considerations of efficiency and democracy can be further bolstered by considerations of human rights and group rights. As mentioned in Part II, there is a growing recognition in international law towards respecting and promoting the claim of minority groups, especially indigenous peoples, to the right to autonomous management of natural resources in their vicinities as part of the claim for self-determination and protection of their cultures. Delegating authority over transboundary ecosystem management may, therefore, be beneficial not only economically, but also socially.[58] The promise of sub-state cooperation is of relevance at the stage of designing joint institutions for transboundary ecosystem management. Instead of relying on member states as the basic building blocks of such institutions, these institutions could be based on a system of smaller sub-units that coordinate the use of the resource in the different sub-components of the ecosystem. Thus, for example, instead of a river commission headed by representatives of all participating national governments, the system could alternatively be based on a cluster of sub-basin institutions, each comprising representatives of the local communities in each sub-basin. The existence of a number of smaller institutions, each responsible for a single sub-basin, could facilitate efficient intra- and inter-basin trade in shares of the resource.[59] The higher institution could serve as a forum for negotiations and even a clearinghouse for transactions

among sub-basin representatives. In politically sensitive areas, such small-scale de-politicized ventures could prove the only plausible means of cooperation.

Decision-making Procedures

Thus far, we have discussed the structural aspect of transnational ecosystem institutions and their relationship with the national legal systems. This section examines the basic principles that the decision-making process within the institution must adhere to: flexibility and mutuality; the provision and analysis of information; public participation; control of the institution's agenda; and review of the institution's decisions. These principles are designed to secure two interrelated goals: to increase state parties' reliance on the institution and each other and to reduce the propensity of governments to adopt short-term goals as a result of special interest influence. In other words, the objective is to reduce the costs of collective action.

These principles are only the very basic ones for the structuring of transboundary ecosystem institutions. When designing each specific institution, states should consider a number of more detailed rules concerning its operation. These should include rules of procedure regarding the budget, size, and makeup of the institution's bodies; procedures for approving unilateral or joint policies of the participating states and non-state entities; voting rules (unanimity or majority); and rules on the nature of the institutional decisions (ranging from findings of fact, to recommendations, through to decisions that bind the member states). These rules should include normative guidelines as to the weight to be given to conflicting considerations, such as, for example, the balance between existing and potential uses or between development and conservation. Finally, the question of whether to provide opportunities for trading in shares also should be dealt with as a specific feature of the particular institution. Many of these details depend on the specific characteristics of the ecosystem in question and on the parties sharing it. Moreover, for the reasons explored below, institutions that are based on the basic principles discussed in here can function successfully even without power to bind governments or enforce decisions.

Flexibility and Mutuality: When designing institutional arrangements, emphasis should not be placed on minutely defined and rigid obligations, such as, for example, with regard to allocation of quantities of water or of permitted emissions. Due to the uncertainty with regard to future conditions and the inability to foresee complex adaptations, the parties, when constructing the joint institution, are incapable of reducing important terms of the arrangement to well-defined obligations.[60] The greatest attention therefore, should be directed at structures and procedures for future exchanges. Moreover, flexibility in the institutional design is also important.[61] This observation, derived from the theory of collective action, conforms to the theory of relational contracts that distinguishes between discrete and relational contracts.[62] As relational contracts theory suggests, the regional cooperation agreement should be designed so as to maintain mutuality and flexibility in the relations between the parties. More specific obligations should be decided upon by the institutions to which the agreements assign governance.

Flexibility in the context of transboundary resource management implies that allocation decisions

will be subject to periodic amendments in light of new conditions or knowledge that arises. This is particularly important in the sphere of freshwater management. Adjustment of shares in freshwater is often necessary because relative demands for water change constantly, reflecting economic and social developments in the member states, while the supply side also fluctuates with unpredictable droughts or floods. The flexible standard of "equitable and reasonable use," the core standard for allocating water resources under international law, should, thus, be understood as permitting reallocations during the lifetime of the agreement, without demanding that the party seeking modification of the allocations resort to the strict doctrine of *rebus sic stantibus*.[63] The application of the standard of "equitable and reasonable use" means that all allocations are subject to future adjustment: whenever an allocation becomes inequitable or unreasonable, the standard mandates reallocations adjusted to the new circumstances. This standard does not assign property rights in water shares, but, rather, rights subject to reevaluation that is based on objective criteria. When renegotiating allocations, existing beneficial uses are granted only a qualified priority. This standard helps to ensure flexibility and mutuality among the riparians in their future interactions and, hence, creates incentives for the parties to undertake long-term commitments and to cooperate.

Data Collection, Analysis, and Dissemination: The key to successful fulfillment of the tasks of transnational ecosystem institutions is their ability to collect, analyze, and disseminate information concerning the performance of state and non-state parties, the conditions of the resource, the risks involved with present uses, and the available alternatives. Provision and dissemination of information, as well as reliance on scientific findings, can ensure the institution's accountability. Furthermore, accurate and comprehensive information enables governments to assess one another's compliance with the obligations under the agreement. In addition, the dissemination of information enables the general public to monitor the performance of its government and reduce the latter's opportunity to cater to special interests. Such a transparent decision-making process can foster domestic public deliberation within all the participating countries regarding the range of options available to the governments, thereby increasing the governments' ability to assess public support and, at the same time, constraining attempts to deviate from long-term national interests.

Shared institutions should, therefore, accumulate and provide "the widest exchange of information"[64] with regard to each member state's current and expected supplies of and demands from a shared ecosystem, as one means to ensure effective communication among state actors as well as effective monitoring by NGOs and the public at large. They should assess potential risks of existing and alternative practices and provide the basis for enlightened debate.

Transparency requires also reasoned decisions. The process of reasoning and persuasion that precedes an actual vote on policy decisions and subsequently appears in the published decision is effective in eliminating inefficient outcomes and providing for more equitable distribution of resources. Such a deliberative process legitimizes the decisions taken and thus ensures greater compliance.[65] At the very minimum, the requirement that transnational institutions supply reasons for their decisions increases the accountability of the decision-makers similarly to how the reasoning requirement for court opinions serves to constrain judicial power.

Finally, when disputes arise between state parties or between a state party and the institution, special inquiries by the institution or by a special fact-finding commission within the institutional

structure can prove an effective deterrent against defection. Enforcement through judicially supported sanctions is an extremely cumbersome process for state parties to shared institutions and is thus counterproductive.[66] Because enforcement is a costly collective action problem, it tends to be under-produced as parties tend to take a free ride on the sanctioning state's back, usually the strongest of them all. Instead, finding factual evidence of a state's non-compliance, with the reputational costs it entails, may prove sufficient deterrence.[67] For this reason, enforcement and sanctions are not included on the list of the crucial components of a transnational ecosystem institution.[68] In contrast, the provision of information with regard to defectors is a vital component, along with the other information-related functions of the institution.

Public Participation: Both when negotiating the establishment of joint institutions and when operating within such institutions, the acoustic separation between negotiators and the public at large is susceptible to exploitation by special interest groups. Governments, taking advantage of the relative secrecy of international negotiations, often find it quite easy to pursue partisan, short-term policies at the expense of larger constituencies. As a result, inter-governmental negotiations often yield agreements that are skewed, sub-optimal, and unsustainable.[69] As suggested earlier, ensuring easy access to information and its unrestricted dissemination is pivotal in preventing such an outcome. But the provision of information is not enough to bridge the acoustic separation. A more meaningful way would be to allow the general public active participation in the decision-making process. A need has, therefore, been expressed to allow representation of the "other voices" in the negotiation process, primarily representatives of small communities directly affected by certain uses of the shared ecosystem or NGOs that represent the larger domestic groups that are incapable of making their voices heard. Such direct involvement can provide an opportunity for representatives of less-organized interest groups to have their concerns presented and examined not only by their governments, but also by the domestic groups of the other negotiating states. This opportunity may lower the cost of communication between environmentalists across national borders and increase their effectiveness.

Once the agreement has been ratified by the participating states and the shared ecosystem management institution established, public involvement in the on-going decision-making processes of the institution, through consultations, hearings, or even sharing in the actual decision-making, is instrumental for similar reasons. Public participation in institutional decision-making has been widely recognized as crucial for responsible decision-making. It has been observed that NGO participation improves the work of environmental decision-making bodies.[70] In addition to monitoring against interest group capture, NGOs provide useful information to decision-makers and otherwise contribute to improving the quality of decisions.[71] In fact, the managing institution itself is likely to promote the involvement of non-governmental voices so as to obtain relevant information and overcome governmental resistance to its policies. For example, the U.S.-Canada International Joint Commission, the body charged with overseeing the two countries' shared water resources since 1909, has recognized that "the challenge becomes increasingly one of engaging public support for new approaches and programs that are needed."[72]

For these reasons, the public's right to be represented or consulted during negotiations on the formation of a joint management institution or, at the very least, a right to be heard before an agreement is signed, especially for those who may be personally adversely affected by the agreement, should be recognized.

The need to ensure effective public participation in the decision-making processes within the institution implies that all affected groups must be fairly represented among the decision-makers as well. This is especially true with regard to minority groups. Minority groups' interest to be fairly represented at the institutional level derives from the failure of the national political process to allow "discrete and insular minorities" due representation and to exert influence.[73] Minorities are prone to be misrepresented by governments, their perspective lost on decision-makers, and, hence, their interests and values disproportionately affected by the institution's bodies. This is most acute in the case of indigenous groups whose well being is closely linked to ecosystem management. Procedural guarantees -- primarily of a right for fair representation -- are, therefore, crucial for promoting their interests. The World Bank provides a striking example of an institution where the opportunity has been granted to indigenous groups to take part in decisions affecting them.[74]

Note that recognition of the right to participate gives rise to questions related to the definition of who has standing to participate and which modalities of participation would be optimal. Experience, especially in the United States, provides us with a range of examples of participatory options.[75] Another difficulty involved in recognizing this right is that increased importance of NGO participation in transnational institutions would necessitate paying more attention to the identity of the participating NGOs, to prevent possible abuse of their standing by unscrupulous actors.[76] As nonprofit organizations gain influence in the management and allocation of natural resources, taking on functions that are both more governmental and more entrepreneurial, questions of their accountability and fairness are bound to arise.[77] In transnational institutions, the question of who should be granted standing and who should be denied standing would be yet another matter for joint decision.

Control of the Agenda: Transnational ecosystem institutions must have the authority to initiate actions. They should have discretion to launch studies on the condition of the shared resource and of the risks of its uses, to conduct inspections of activities that affect or may affect the resource, as well as to embark on long-term planning of future uses. When one party requests its intervention, the institution should have the authority to comply with the request without the consent of the other parties. Controlling its own agenda enables the institution to respond promptly to crises that escape the attention of the national governments. More importantly, it reduces the likelihood of inter-governmental collusion to impose unreasonable burdens on politically disenfranchised groups. Moreover, governments often choose to turn a blind eye to other governments' violations not necessarily due to collusion: there are always political costs entailed in initiating rebukes, and therefore, governments tend to under-produce them.[78] Empowering the institution to react to violations instead of governments can resolve this prevalent collective action failure.

The experience with the U.S.-Canada International Joint Commission reinforces the imperativeness of such discretion. Under the 1909 treaty, the IJC does not control its own agenda and, hence, must await a reference from both governments. The two governments have often waited too long before referring to the IJC, and the delays have resulted in damage to the environment. This has prompted "widely expressed frustration" within the IJC, which has been prevented from taking timely action against oncoming crises due to its lack of authority to initiate action. This deficiency has motivated calls to empower the IJC to intervene in emerging conflicts of its own initiative.[79]

Review Procedures: The question of judicial review becomes crucial when transnational institutions are granted the authority to issue decisions that have binding force on the participating states. We cannot expect such institutions, despite their careful design, to maintain absolute impartiality. Power corrupts, and transnational institutions that are not subject to any external scrutiny will be no exception. Two questions arise. First, what role could judicial review play? More specifically, can adjudicators second-guess institutions' decisions? Second, what type of review process is most appropriate? Specifically, are transnational courts preferable to national ones?

It is my view that judicial review may be beneficial to ensuring the proper functioning of transnational institutions. Although national governments and NGOs can be effective in monitoring the activities of these institutions, their cries of protest may be deemed motivated by self-interest and thus dismissed by other actors as false or illegitimate. Judicial review could and should emphasize the procedural aspects outlined in this Chapter, rather than second-guess issues of substance.[80] In general, a wide margin of appreciation should be given to the institution's balancing of the different claims and considerations, provided all interests have been properly discussed in due process. Adjudicators are less qualified than the experts and bureaucrats in the institutions to reach an appropriate balancing of competing claims. Yet, they are more qualified to examine whether procedural rules have been adhered to. They also may be more sensitive to procedural shortfalls that hinder the full presentation and weighing of claims of minorities, especially indigenous groups, whom the political process may place at a disadvantage and whose interests in the ecosystem are often disregarded. When such groups are affected, adjudicators could prove crucial to ensuring that their interests are properly considered. Therefore, while the margin of appreciation doctrine may theoretically be justified as motivated by the necessity to relegate authority to specialized bodies, a caveat must exist for cases in which minority interests are implicated. A more searching judicial inquiry, without recourse to the margin rhetoric, will clear the way for more effective international protection of minority interests in matters concerning the allocation of resources or burdens.[81]

This concern with minority interests also weighs heavily in favor of transnational adjudication as opposed to national judicial review processes. The gist of the argument is that there are often several groups within every community that tend to be consistently outvoted and, hence, underrepresented in the political process. They are the "discrete and insular minorities" who are, in a very real sense, the political captives of the majority. These groups usually include members of ethnic, national, or religious communities, who are at numerical disadvantage to the rest of the population.[82] In addition to having different cultures, traditions, and, sometimes, appearances from the majority, the loyalty of these groups to the majority-controlled institutions is often called into question by members of the majority, and wariness with regard to potential irredentism and secessionism is rife. Absent political influence and faced with widespread resentment, minorities rely upon the judicial process to secure their interests.[83] But because the national judicial process – in itself dominated by judges belonging to the majority -- may fail to protect them, international judicial and monitoring organs are often their only reliable and final resort. In conflicts related to ecosystem management, which often have outcomes that exclusively or predominantly place a burden on the rights and interests of minorities, no preference for national adjudication is warranted. In such conflicts, supranational institutions that are staffed not only by representatives of governments are preferable for ensuring the rights of nationally under-represented groups. Good precedents for this point have been set by international human right bodies that were able

to safeguard minority interests also with respect to the allocation of resources between the minority and majority groups. National plans to reduce, for example, grazing areas crucial for maintaining the culture of the Sami minority in Finland[84] were scrutinized strictly by the Human Rights Committee, which refused to defer to the state's margin of appreciation.

Other considerations that support the preference for a transnational, rather than national, review process emphasize aspects of efficiency. Decisions by a transnational body would be final and binding upon both the institution and the participating states. The panel of adjudicators would include also representatives with expertise in the specific matter at issue. The above-mentioned concern for minority rights requires that their representatives also be included on the panel of adjudicators.

IV. Conclusions: The Role of Third Parties in Promoting Collective Action

The previous discussion outlined the goals of transboundary collective action in the area of shared freshwater, and the modalities for initiating and maintaining collective action in their optimal and sustainable management. This identification of the goals and modalities provides a list of avenues open to third parties who seek to promote and support transboundary collective action. We can identify three main areas of third party involvement:

(a) Third party involvement can start with the very first efforts to set-up a transnational institution, which is in itself a collective action problem and can entail attempts to capture opportunistic gains. The process of designing such institutions – deciding its scope of authority, its internal sub-components and procedures – should be approached in a way that is accessible to potentially affected groups. This designing process is not an easy task. A delicate balance must be found to accommodate governmental, intergovernmental, and non-governmental representation and to ensure that narrow interests, including those advanced by NGOs, do not gain dominance. This process must therefore allow for the participation of the wider public, both through representative NGOs and through the dissemination of accessible information.

(b) The decision-making process within the established institution could be based on the involvement of third parties – foreign governments, IGOs or NGOs – in facilitating informed communication – the essential element in effective collective action – among the riparians. Third parties can be instrumental in data collection, assessment, and dissemination; in ensuring and promoting public participation, including the representation of otherwise underrepresented minority interests; in monitoring compliance with the institution's decisions; and in amending the institution's procedure or scope to accommodate new demands.

(c) Ultimately, of course, third parties can support the institutions from the outside, by encouraging cooperative behavior (as defined above) and discouraging non-cooperative one through monetary and other inducements. Well-informed NGOs could, stage domestic public opinion campaigns, thereby exerting effective political pressure on governments and members of the domestic legislatures. They could also, although probably with less success, petition the domestic courts for judicial review.

Recent literature highlights the growing awareness of organizations such as the World Bank, USAID, UNDP and of NGOs to the manifold opportunities for third parties to influence cooperation in the management of transboundary resources.[85] There is even indication of a symbiotic cooperation between the different third parties, as NGOs win access to grassroots level, or provide technical assistance, to complement foreign governments' and IOs' efforts at the governments level.[86] Obviously, third parties contemplating their involvement must coordinate their activities with their partners, and explore the relative advantage of each of them. This is yet another collective action problem that must be negotiated carefully.

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[1] Eyal Benvenisti, *Collective Action in the Utilization of Freshwater: The Challenges of International Water Resources Law*, 90 Am. J. Int'l. L. 384 (1996) (hereinafter: "Collective Action"); Eyal Benvenisti, Sharing Transboundary Resources (2002) (hereinafter: "Book") Chapter 5.

[2].The preamble to the Aarhus Convention on Access to Information, Public Participation in Decisionmaking and Access to Justice in Environmental Matters (1998), emphasizes these points:

Recognizing that, in the field of the environment, improved access to information and public participation in decision-making enhance the quality and the implementation of decisions, contribute to public awareness of environmental issues, give the public the opportunity to express its concerns and enable public authorities to take due account of such concerns, *Aiming* thereby to further the accountability of and transparency in decision-making and to strengthen public support for decisions on the environment, ...

(The text is available at http://www.un.org/Depts/Treaty/collection/notpubl/27-13eng.htm).

[3].This has proven crucial even in the context of Canada-U.S. relations, in which "informal intelligence gathering [by low level officials] helps to provide an early warning of impending issues, and permits actions before issues become too politicized." David G. LeMarquand, *Preconditions to Cooperation in Canada-United States Boundary Waters*, 26 Nat. Resources J. 221, 232 (1986).

[4].In its 1998 proposal, "The IJC and the 21st century," the U.S.-Canada IJC suggested establishing permanent IJC international watershed boards to manage additional major transboundary basins. *See IJLC to Further Examine Watershed Approach* (press release, November 23, 1998) <http://www.ijc.org/news/h2oshed1198.html>.

[5].*See* Institutions for the Earth, (Peter M. Haas et al. eds., 1993), at 14 ("If there is one key variable accounting for policy change, it is the degree of domestic pressure in major industrialized democracies, not the decision-making rules of the relevant international institution."); *see also id.* at 399-400.

[6].*See* Elinor Ostrom, Governing the Commons (1990), ch. 6. For examples of a successful institution providing voice to both producers and consumers of water, see Barton H. Thompson, Jr., *Institutional Perspectives on Water Policy and Markets*, 81 Cal. L. Rev. 671, 687-93 (1993). For successful water institutions in ancient societies, see Benvenisti, Book, Chapter 1.

[7] On the link between deforestation, soil erosion and freshwater, see Benvenisti, Book, Chapter 1 ##, pp.####.

[8] George Francis, *Ecosystem Management*, 33 Nat. Res. J. 316 (1993) (describing the emergence of "ecosystem" rhetoric in the management of the Canada-U.S. transboundary region during the 1970s and 1980s, as reflected in the 1978 Great Lakes Water Quality Agreement). On the development of the "Ecosystem approach" since the 1972 Stockholm Conference on the Human Environment see Ludwik A. Teclaff, *Evolution of the River Basin Concept in National and International Law* 36 Nat. Res. J. 359, 378-81 (1996).

[9] Jutta Brunnee & Stephen J. Toope, *Environmental Security and Freshwater Resources: A Case for International Ecosystem Law*, 5 Yb. Int'l Envnt'l L. 41, 55 (1994)). The 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes (*reprinted in* 31 ILM 1312 (1992)) adopts a broad approach recognizing the link between freshwater and the ecosystem (see the definition of "transboundary impact" in Article 1(2)).

[10] This is the situation, for example, in the Israeli-Palestinian context: the Palestinians are upstream to a shared aquifer, but the winds blow from Israeli territory to the Palestinian side.

[11] (the Koran, XCIX, verse 30)

[12] On the management of shared gas and oil resources, see, for example, Rodman R. Bundy, *Natural Resource Development (Oil and Gas) and Boundary Disputes*, *in* The Peaceful Management of Transboundary Resources 23 (Gerald H. Blake et al. eds., 1995) (maintaining that the law on the exploitation of oil and gas reserves is still based largely on the law of capture, but arguing for a right of consultation and notification); Charles Robson, *Transboundary Petroleum Reservoirs: Legal Issues and Solutions*, *in* The Peaceful Management of Transboundary Resources 3 (explaining the fluid nature of oil and gas, the failure of the law of capture, and the solution of field unitization by agreement). *See generally* Hazel Fox, Joint Development of Offshore Oil and Gas Vols. 1 & 2 (1989).

[13] Abdul-Karim Sadik & Shawki Barghouti, *The Water Problems of the Arab World: Management of Scarce Resources*, *in* Water in the Arab World 1, 25 (Peter Rogers & Peter Lydon eds., 1994). *See also* Chibli Mallat, *Law and The Nile River: Emerging International Rules and the Shari'a* in The Nile: Sharing a Scarce Resource 365, 372-378 (P.P. Howell & J.A. Allen, eds., 1994); *id., The Quest for Water Use Principles: Reflections on the* Shari'a *and Custom in the Middle East*, in Water in the Middle East: Legal, Political and Commercial Implications 127 (J.A. Allen & and Chibli Mallat eds., 1995); A.M.A. Maktari, Water Rights and Irrigation Practices in Lahj (1971).

[14] Carl J. Bauer, *Bringing Water Markets down to Earth: The Political Economy of Water Rights in Chile, 1976-95* 25 World Development 639 (1997), describes Chile's 1981 Water Code as a reflection of a conservative backlash against the agrarian reforms of the 1960s. This Code allowed private transactions in water and a weak regulatory system.

[15] United States federal courts dismissed suits brought by Native American tribes against water projects that inundated sacred sites and cemeteries; *see, e.g.*, Sequoyah v. Tennessee Valley Authority, 620 F.2d 1159 (6th Cir. 1980); Badoni v. Higginson, 638 F.2d 172 (10th Cir. 1980). In 1997, a Japanese district court invalidated a decision to construct a dam that would have impinged on cultural interests of the Ainu minority: Yuji Iwasawa, International Law, Human Rights, and Japanese Law 52 (1998). *See also* S. James Anaya, *Maya Aboriginal Land and Resource Rights and the Conflict Over Logging in Southern Belize* 1 Yale H.R. & Dev. L.J. 17 (1998).

[16] See the view of the Human Rights Committee under the Optional Protocol of the 1966 International Covenant on Civil and Political Rights (ICCPR) (finding that reindeer husbandry is an essential element of Sami culture and, as such, protected under Article 27 of the Covenant): Lansman et al. v. Finland, Communication No. 511/1992, U.N. Doc. CCPR/C/52/D/511/1992 (1994).

[17] See the Draft United Nations Declaration on the Rights of Indigenous Peoples, adopted by the Sub-Commission on Prevention of Discrimination and Protection of Minorities, U.N. Commission on Human Rights, on August 26, 1994, (*reprinted in* 34 I.L.M. 541 (1995)). The Declaration recognizes the value of water resources to indigenous peoples' social structure, culture, and tradition (see the Preamble). The draft Declaration sets out to ensure, *inter alia,* indigenous peoples' right to maintain and strengthen their relationship with their land, territories, waters, and other resources (Article 25), to own and to manage these resources (Article 26), and their right to participate in decisions affecting these resources. *See also* Article 22 of the Declaration of the UN Conference on Environment and Development (the "Rio Declaration"), Doc A/CONF 151/5/Rev.1 (1992).

[18] Susan W. Putnam & Jonathan Baert Wiener, *Seeking Safe Drinking Water in* Risk versus Risk: Tradeoffs in Protecting Health and the Environment 124 (John D. Graham & Jonathan Baert Wiener eds., 1995). Frank B. Cross, *Paradoxical Perils of the Precautionary Principle,* 53 Wash. & Lee L. Rev. 851, 883 (1996), provides evidence that when Peru responded to the chlorine scare by halting the chlorination of the water supply, thousands died of cholera.

[19] *See* Cross, *supra* note 18, at 875-76.

[20] On the uncertainties involved in water management, see Larry Canter, Konard Ott & Donald A. Brown, *Protection of Marine and Freshwater Resources, in* Sustainable Development: Science, Ethics, and Public Policy 158-214 (John Lemons & Donald A. Brown eds., 1995).

[21]*Death By Arsenic*, New York Times, Nov. 10, 1998, at A1.

[22] Article 15 of the Rio Declaration (##). *See also* Article 5(a) of the 1992 Helsinki Convention, *supra* note 9: "action to avoid the potential transboundary impact of the release of hazardous substances shall not be postponed on the grounds that scientific research has not fully proved a causal link between those substances, on the one hand, and the potential transboundary effect, on the other hand." On the origins of the principle and its standing in contemporary international law, see, e.g., The Precautionary Principle and International Law: The Challenge of Implementation (David Freestone & Ellen Hey eds., 1996).

[23] *See* Howard Margolis, Dealing with Risk (1996) (people tend to be prudent, follow rules like "Do no harm" or "Better safe than sorry").

[24] *See* Cross, *supra* note 18 (questioning the precautionary principle by showing many instances where

environmental and public health regulations, based on this principle, frequently produce health or other environmental harms); Daniel Bodansky, *Scientific Uncertainty and the Precautionary Principle,* 33 Env't 4 (Sept. 1991) (critical of the principle due to its indeterminacy as to when it must be applied, what it requires be done and at what cost).

[25] John Rawls, A Theory of Justice 137 (1972).

[26] For reference to this principle by national systems, see the 1997 South African Constitution, Section 24(b) ("Everyone has the right - … (b) to have the environment protected, for the benefit of present and future generations"), and the Philippine Supreme Court's decision in the case of Minors Oposa v. Secretary of the Department of Environment and Natural Resources, *reprinted in* 30 I.L.M. 173 (1994).

[27] The International Court of Justice recognized that "generations unborn" are among those whose "quality of life and the very health depend on sound environment." Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, at 241-42, para. 29. *See also* Institut de Droit International, Resolution on International Responsibility and Liability under International Law for Environmental Damage (Preamble): 67 Annuaire de l'Institut de Droit International 311 (1997); Edith Brown Weiss, In Fairness to Future Generations: International Law Common Patrimony and Intergenerational Equity (1989); Alexander Gillespie, International Environmental Law Policy and Ethics 107-26 (1997); Agora*: What Obligations Does Our Generation Owe to the Next? An Approach to Global Environmental Responsibility*, 84 A.J.I.L. 190 (1990).

[28] *See* Lothar Guendling, *Our responsibility to Future Generations*, 84 AJIL 207, 210 (1990) ("The major problem is what we have to do today to meet our responsibility to future Generations.").

[29] One approach is suggested by Brown Weiss, *supra* note 27, at 37-38 (1989) ("each generation has an obligation to future generations to pass on the natural and cultural resources of the planet in no worse condition than received and to provide reasonable access to the legacy of the present generation").

[30] On this problem, which economic theory cannot determine, see Daniel A. Farber & Paul A. Hemmersbaugh, *The Shadow of the Future: Discount Rates, Later Generations, and the Environment,* 46 Vand. L. Rev. 267 (1993); Edward R. Morrison, *Judicial Review of Discount Rates Used in Regulatory Cost-Benefit Analysis,* 65 U. Chi. L. Rev. 1333 (1998).

[31] Rawls, *supra* note 25, at 118-42.

[32] *See* Benvenisti, Book, at ##

[33] *See* Reparation for Injuries Suffered in the Service of the United States (Advisory Opinion), 1949 I.C.J. 173, 178-79 (April 11); Henry G. Schermers & Niels M. Blokker, International Institutional Law §§ 29-45 (3d rev. ed. 1995).

[34] Peter H.F. Bekker, The Legal Position of Intergovernmental Organizations 54-61 (1994).

[35] I do not discuss here the obligations of the institution towards affected third parties. On this matter see Moshe Hirsch, The Responsibility of International Organizations Toward Third Parties (1995).

[36] Convention on the Rights of the Child, 1989, Article 24(2)(c).

[37] 1997 South African Constitution, Section 24.

[38] *Id.* Section 27.

[39] Stephen S. McCaffrey, *A Human Right to Water: Domestic and International Implications*, 5 Georgetown Int'l Envt'l L. Rev. 1, 12 (1992); Dinah Shelton, *Human Rights, Environmental Rights, and the Right to Environment*, 28 Stan. J. Int'l L. 103 (1991).

[40] As recognized, for example, by Articles 6 and 7 of the 1966 International Covenant on Civil and Political Rights. On a similar inference with respect to the right to food, see Phillip Alston, *International Law and the Human Right to Food, in* The Right to Food 9, 24-25 (Philip Alston & Katarina Tomasevski eds., 1984). Alston refers to the General Comments of the Human Rights Committee with regard to Article 6, which urge states to take positive measures to protect the right, including "measures to eliminate malnutrition and epidemics." (Report of the Human Rights Committee, UN Doc. A/37/40 (1982) Annex V, para. 5).

[41] 1966 International Covenant on Economic, Social and Cultural Rights, Article 11. For a thorough legal analysis of this right, see Alston, *supra* note 40, at 9, 29-49.

[42] Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, at 241-42, para. 29; see also Case concerning the Gabcikovo-Nagymaros Project (Hungary/Slovakia) (1997), *reprinted in* http://www.icj-cij.org/idocket/ihs/ihsjudgement/ihsjudframe1.htm; 37 I.L.M. 167 (1998)).

[43] On the difference between "negative" human rights and "positive" rights (which impose on state parties obligations to provide, *inter alia*, food), see, for example, Godfried van Hoof, *The Legal Nature of Economic, Social and Cultural Rights: A Rebuttal of Some Traditional Views, in* Alston & Tomasevski, *supra* note 40, at 97; Guy S. Goodwin-Gill, *Obligations of Conduct and Result, in id.* at 111; E.W. Vierdag, *The Legal Nature of the Rights Granted by the International Covenant on Economic, Social and Cultural Rights*, 9 Netherlands Yb. Int'l L. 69 (1978).

[44] *Reprinted in* 36 I.L.M. 700 (1997).

[45] Article 10(2).

[46] *Reprinted in* 36 I.L.M. 700, at 719 (1997).

[47] In particular, this consideration will require enough water to provide fresh produce and milk, which may not be easily obtained through international trade. On the supremacy of domestic needs, see the Commentary to Article 6 of the International Law Association's Helsinki Rules of 1966 (ILA Report of the Fifty-Second Conference 484, 491-92 (1967)): "[I]f a domestic use is indispensable - since it is in fact the basis of life - it would not have difficulty in prevailing on the merits against other uses in the evaluation of the drainage basin." *See also* Gunther Handl, *The Principle of 'Equitable Use' as Applied to Internationally Shared Natural Resources: Its Role in Resolving Potential International Disputes Over Transfrontier Pollution*, 14 Rev. Belge de Droit International 40, 51-52 (1978); Connecticut v. Massachusetts, 282 U.S. 660, 673 (1931) ("Drinking and other domestic purposes are the highest uses of water.").

[48] On the duty to share water equally for domestic uses in the Israeli-Palestinian context, see Eyal Benvenisti & Haim Gvirtzman, *Harnessing International Law to Determine Israeli-Palestinian Water Rights*, 33 Natural Resources Journal 543, 561 (1993); Sharif S. Elmusa, *Dividing the Common Palestinian-Israeli Waters: An International Water Law Approach*, 22(3) J. Palestine Studies 57, 68-69 (Spring 1993).

[49] Article 26 of the 1966 ICCPR.

[50] Article 27 of the 1966 ICCPR. On minorities' dependence on water resources, see *supra* notes 15-17 and accompanying text.

[51] For a similar suggestion in the context of U.S. state law, see The Regulated Riparian Model Water Code 200 (Joseph W. Dellapenna Ed., 1997).

[52] The elimination of allocation of shares protected by property rights does not preclude trade in such allocations. There can be, for example, markets for revocable permits issued periodically by the managing institutions.

[53] See Benvenisti, Book, at ##.

[54] On the human right to the environment, see *supra* notes 35-51.

[55] Michael C. Dorf & Charles F. Sabel, *A Constitution of Democratic Experimentalism* 98 Colum. L. Rev. 267, 314-23 (1998); Timothy P. Duane, *Community Participation in Ecosystem Management*, 24 Ecology L.Q. 771 (1997); Neil A.F. Popovic, *The Right to Participate in Decisions that Affect the Environment*, 10 Pace Envtl. L. Rev. 683 (1993).

[56] Daniel C. Esty, *Revitalizing Environmental Federalism* (1996) 95 Mich. L. Rev., 570, 625; Daphna Lewinsohn-Zamir *Consumer Preferences, Citizen Preferences, and the Provision of Public Goods*, 108 Yale L. J. 377, 398 (1998).

[57] On this subject, see Benvenisti (Book), Chapter 5, pp. ##.

[58] More on subsidiarity in transboundary management *see* Benvenisti (Book) at ##

[59] *See* Eyal Brill, Applicability and Efficiency of Market Mechanisms for Allocation of Water With Bargaining 102 (Ph.D. dissertation, submitted to the Senate of The Hebrew University of Jerusalem, 1997) (Hebrew).

[60] Hurrell & Kingsbury, *Introduction*, *in* The International Politics of the Environment (Andrew Hurrell & Benedict Kingsbury Eds., 1992) (flexibility because knowledge develops over time).

[61] *See* Barbara Koremanos, Charles Lipson & Duncan Snidal, *Rational International Institutions* (Rational International Institutions Project, at http://www.harisschool.uchi, 1998) (suggesting that two kinds of flexibility are necessary: flexibility of the norms and of the institutional procedures to enable the institution to modify its work).

[62] *See* Benvenisti (Book), at ##.

[63] On this doctrine, see Article 62(1) of the 1969 Vienna Convention on the Law of Treaties. See also the Gabcikovo-Nagymaros Case, *supra* note 42, paras. 49-59.

[64] Article 6 of the 1992 Helsinki Convention, *supra* note 9.

[65].*See* James D. Fearon, *Deliberation as Discussion, in* Deliberative Democracy 44, 56 (Jon Elster ed., 1998). On the benefits of deliberation, see generally the contributions in Deliberative Democracy, *supra;* Joseph M. Bessette, The Mild Voice of Reason: Deliberative Democracy and American National Government (1994); Cass R. Sunstein, The Partial Constitution (1993).

[66] *See, e.g.*, Abram Chayes & Antonia Handler Chayes, The New Sovereignty: Compliance with International Regulatory Agreements (1995).

[67] Chayes & Chayes, *id.* at 111; Oran R. Young, *The Effectiveness of International Institutions: Hard Cases and Critical Variables, in* Governance Without Government 160, 176-78 (James N. Rosenau & Ernst-Otto Czempiel eds., 1992).

[68] In general, adjudication is a rather problematic technique for settling disputes related to ecosystem management. For discussion of this point see Benvenisti, Book, Chapter 7, ##.

[69] On this tendency, see Benvenisti, Book, Chapter 3.

[70] Kevin Stairs & Peter Taylor, *Non-Governmental Organizations and the Legal Potection of the Oceans: A Case Study, in* The International Politics of the Environment 110 (Andrew Hurreell & Benedict Kingsbury eds., 1992) (describing the contribution of environmental NGOs in the development and implementation of international agreements on environment protection); Kal Raustiala, Note, *The "Participatory Revolution" in International Environmental Law*, 21 Harv. Envtl. L. Rev. 537 (1997) (describing NGOs as "major actors in the formulation, implementation, and enforcement of international environmental law" and arguing that states benefit from NGOs' informational and legitimization services).

[71] Lee P. Breckenridge, *Nonprofit Environmental Organizations and the Restructuring of Institutions for Ecosystem Management*, 25 Ecology L.Q. 692 (1999) (pointing out that NGOs "constitute a logical place for governmental out-sourcing for technical, resource management, training and other work"). An extensive listing of recent publications addressing the formation in the U.S. of partnerships between governmental and non-governmental groups in the environmental field may be found in Kris Bronars & Sarah Michaels, Annotated Bibliography on Partnerships for Natural Resource Management (1997), *available at* <http://www.icls.harvard.edu/ppp/contents.htm#sources> (the website is maintained by the Institute for Cultural Landscape Studies of the Arnold Arboretum, Harvard University).

[72] The International Joint Commission (IJC), Second Biennial Report Under the Great Lakes Water Quality Agreement of 1978 to the Governments of the United States and Canada and the States and Provinces of the Great Lakes Basin 1 (1984), *cited in* Robert D. Hayton & Albert E. Utton, *Transboundary Groundwater: The Bellagio Draft Treaty* (1989) 29 Nat. Res. J., 663, at 710. On the work of the IJC, see, for example, Patricia K. Wouters, *Allocation of the Non-Navigational Uses of International Watercourses: Efforts at Codification and the Experience of Canada and the United States* 30, Can. Yb. Int'l L. 43 (1992).

[73] For this approach, see John Hart Ely, Democracy and Distrust (1980) (Chapter 5). *See also* Robert M. Cover, *The Origins of Judicial Activism in the Protection of Minorities*, 91 Yale L. J. 1287 (1982); Bruce A. Ackerman, *Beyond Carolene Products*, 98 Harv. L. Rev. 713 (1985); Owen M. Fiss, *The Supreme Court, 1978 Term -- Forward: The Forms of Justice*, 93 Harv. L. Rev. 1 (1979).

[74] Benedict Kingsbury, 'Operational Policies of International Institutions as Part of the Law-Making Process: The World Bank and Indigenous Peoples' in Guy S. Goodwin-Gill & Stefan Talmon (eds.), *The Reality of International Law: Essays in Honour of Ian Brownlie* (Oxford, Clarendon Press & New York, Oxford University Press, 1999), p. 323.

[75] *See, e.g.*, Jane Mansbridge, *What Does a Representative Do? Descriptive Representation in Communicative Settings of Distrust, Uncrystallized Interests, and Historically Denigrated Status, in* ### 99 (###); Melissa S. Williams, *The Uneasy Alliance of Group Representation and Deliberative Democracy, in id.* at 126; John S. Applegate, *Beyond the Usual Suspects: The Use of Citizens Advisory Boards in Environmental Decisionmaking*, 73 Ind. L.J. 903 (1998).

[76] Breckenridge, *supra* note 71, at 698.

[77] Burton A. Weisbrod, *The Future of the Nonprofit Sector: Its Entwining with Private Enterprise and Government*, 16 J. Pol'y Analysis & Mgmt. 541 (1997).

[78] Anne-Marie Slaughter, Andrew S. Tulumello & Stepan Wood, *International Law and International Relations Theory: A New Generation of Interdisciplinary Scholarship* 92 A.J.I.L. 367 (1998).

[79] *See* Hayton & Utton, *supra* note 73, at 694.

[80] *See also* Francois du Bois, *Social Justice and the Judicial Enforcement of Environmental Rights and Duties*, *in* Human Rights Approaches to Environmental Protection 153, 173-74 (Alan E. Boyle & Michael R. Anderson eds., 1995).

[81] *See* Eyal Benvenisti, *Margin of Appreciation, Consensus and Universal Standards*, 31 NYU J. Int'l L. & Pol. 843 (1999).

[82] Compare Capotorti's widely accepted definition of minorities as "[a] group numerically inferior to the rest of the population of a State, in a non-dominant position, whose members -- being nationals of the State -- possess ethnic, religious or linguistic characteristics differing from those of the rest of the population and show, if only implicitly, a sense of solidarity, directed towards preserving their culture, traditions, religion or language." Francesco Capotorti, *Study on the Rights of Persons Belonging to Ethnic, Religious and Linguistic Minorities*, E/CN.4/Sub.2/384/Rev.1, at 96 (1979).

[83] *See* Ely, *supra* note 73.

[84] *See* the view of the Human Rights Committee under the Optional Protocol of the 1966 International Covenant on Civil and Political Rights (ICCPR) (finding that reindeer husbandry is an essential element of Sami culture and, as such, protected under Article 27 of the Covenant): Lansman et al. v. Finland, Communication No. 511/1992, U.N. Doc. CCPR/C/52/D/511/1992 (1994).

[85] *See e.g.* Erika Weintal, State Making and Environmental Cooperation (MIT, 2002), Chapter 6

(discussing the post Communist evolution of cooperation in the Aral Sea basin.

[86] *Id.* At 138-39, 151-52.

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[AE1] We could not find the second source as listed in footnote, but did find a book entitled “Openness and Transparency in the EU Institutions” published in 1996. Please let us know if this is correct so we can fix the error.

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[AE2] We would like to request a copy of Howse’s unpublished manuscript if possible, as we do not have a copy.