

# Conflict and Cooperation over International Rivers: A Global Governance Proposal

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ALEX STARK, DEC 31 2010

*"Water is affected by everything, and water affects everything and everyone."*

-World Commission on Water for the 21st Century, A Water Secure World[1]

### Background

The world is drying out. A multitude of sources, including the UNDP's 2006 Human Development Reports entitled "Beyond Scarcity: Power, Poverty and the Global Water Crisis," state that the world's freshwater resources, particularly in the Middle East and Africa, are rapidly dwindling. According to the report, in 2004, about 15% of the world's population had no access to an improved water source. In Sub-Saharan Africa those without access numbered almost 50% of people. In East Asia and the Pacific, more than 20% of people lacked this access, in South Asia, more than 15%, in the Arab states, more than 15% and in Latin America and the Caribbean almost 10% of people lacked access to an improved water source. In sum, 1.1 billion people in the world had no access to an improved water source, and this number has only grown.[2]

To a certain extent the causes of water scarcity can be explained by global problems, including population growth, climate change, pollution, urbanization and even changing diets due to economic growth: it takes 2,000 litres of water to grow one kilo of vegetables, but 15,000 litres to produce a kilo of beef. And these problems are only getting worse: farmers will need 60% more water than they currently use to feed the estimated 2 billion extra people who will be born by 2025. Scarcity will also be exacerbated by the fact that humans are currently withdrawing water from unrenowned underground aquifers at an unprecedented rate, putting more pressure on above-ground resources like lakes and rivers.[3]

In reality, the impending water scarcity crisis is a combination of two factors: population growth that causes actual scarcity, and wastage. On the one hand, although water is a renewable resource, there is only a fixed amount of it in the world and each human being needs a minimum amount of it to survive; thus there is a theoretical population threshold after which there will not be enough water for everyone in the world to survive. Further, humans are currently depleting unrenowned sources of freshwater at an unsustainable rate, which will only put more pressure on the fixed amount of aboveground sources that are already drying up. On the other hand, plenty of water is still wasted every year. Irrigation practices are probably the biggest culprit: it is estimated that changing irrigation practices globally could save 30% of the water that is currently consumed, for example.[4] Aging infrastructure is another problem: in water-poor Jordan, it is estimated that leaking sewage systems waste up to 50% of the clean water that is transported through them.[5] Most importantly, the present patterns of consumption by individuals and by states reflects a lack of emphasis on ideas like preservation and discourages sharing, thus encouraging wasteful patterns of use. There is a significant argument in the academic literature about whether water scarcity comes mostly from a simple lack of water or from wastage, and there are considerable gaps in our current understanding of how much water people use and how much can be used safely. Regardless, the drying out of rivers globally poses a unique and challenging problem to the international governance of rivers.

Rivers are an important source of water for the majority of the world's people, particularly for small-scale farmers and individuals in developing countries. From farmers in dry countries who use river water to irrigate their crops, such

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as along the Nile River basin, to religious groups who view river water as sacred, such as Hindus along the Ganges river, river water serves a vital purpose in the lives of people from different countries, cultures and religious backgrounds all across the globe. At the center of the issue of water scarcity in rivers for all of these different people is that water is vital to human survival: humans simply cannot live without it. Water also serves a multitude of integral functions in the life of every individual human being besides the main purpose of ingestion, from bathing to cooking to crop irrigation. Put simply, it is impossible to imagine a world that functions without enough water for everyone, and in which major rivers that serve all of these functions are being rapidly depleted.

And yet, the world is quickly moving closer to this scenario. Thomas Homer-Dixon predicts that freshwater scarcity will be “one of the chief resource issues of...the century”.<sup>[6]</sup> As water consumption increases exponentially due to population growth and industrialization amongst other factors, many countries, particularly those in the driest areas, are taking more and more water from rivers, depleting river water and causing shortages downstream. This classic Malthusian dilemma will cause more and more people to have to share the same amount of river water in the future, and many experts assert that “water wars” are an inevitable result. In 1995, the World Bank’s vice president for environmentally sustainable development famously asserted that, “the wars of the next century will be over water,” and the leading publication *The Economist* has predicted that river water shortages would constitute “the stuff of future wars...conditions are ripe for a century of water conflicts”.<sup>[7]</sup>

In river flows, downstream riparians, or states along a river that flows through international borders, are at a distinct disadvantage because states upstream have an opportunity to remove as much water as they want from the river before the downstream riparians have access to it. Water shortages have caused downstream riparians to make claims that counter upstream riparians’, causing intense conflict between states. Similarly, riparians that are located alongside one another often make claims and counterclaims to water allocations, at the extreme building diversions upstream to ensure their own access to water allocations. Homer-Dixon asserts that it is highly likely that water shortage disagreements between states will lead to regional crises by 2025, and historically we can see exponentially increasing instances of water conflict between states, particularly over the 20th century and continuing through the present. For example, the Nile River originates in Ethiopia and runs through 9 countries including Egypt and Sudan, and the particularly dry climate in the region has led to conflicts between states about how the river’s water should be allocated.<sup>[8]</sup>

This paper will outline the current governance, or in many cases the lack thereof, of international rivers. It will discuss the underlying norms that currently exist. Next, an entirely new set of norms, designed to make cooperation between states easier and more effective, will be proposed. Finally, it will outline the basic tenets of a global governance institution that would be based upon this shift in norms.

## Current Governance of International Rivers

The usage of water from international river basins is currently solely governed by bilateral, and occasionally multilateral, treaties between riparian states. The Transboundary Freshwater Dispute Database project of Oregon State University has identified a total of 150 accords involving 52 rivers or lake basins for the period 1874 to the present. 86% of these agreements are bilateral. This is out of a total of 263 existent international rivers, where 145 countries in the world have territory in at least one international river basin. River basin-specific treaties “constitute a large and growing body of international law”: 111 of these agreements occurred in the period since 1980 alone.<sup>[9]</sup> Thus, it is increasingly the norm for states to settle water scarcity conflicts concerning international rivers with agreements.

However, this growing body of international law does not by and large represent a converging global norm about how international rivers should be governed. The existing agreements represent a relatively small proportion of the total number of international river basins, of which the vast majority are bilateral, rather than constituting an overall regime for specific river basins. Further, an empirical analysis of the norms encoded in these agreements does not suggest the widespread diffusion of overall global norms. Some core principles related to developments in environmental law as a whole such as information exchange and consultation are represented in a majority of agreements, while principles such as equitable use and “no significant harm” are not. Further, 80% of agreements contained no enforcement mechanism, and more than half (54%) contained no mechanism for conflict resolution, rendering them

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relatively weak in the face of increasing scarcity.[10]

The closest approximation for global governance of international rivers is the 1997 UN Convention of the Non-Navigational Uses of International Watercourses, which was not ratified by enough member states to enter into force. The Convention represented the culmination of three decades of efforts towards developing a framework of globally applicable legal principles for the governance of international waters. After two decades of debate, the International Law Commission approved a set of draft articles on the Law of Non-Navigational Uses of International Watercourses, which formed the basis of negotiations within the Sixth (Legal) Committee of the UN General Assembly. These negotiations, meant to set out the general principles that should guide development of basic-specific agreements, resulted in a draft version of the Watercourses Convention that was voted upon by the General Assembly in 1997.[11]

The Convention articulates the principles by which basic-specific agreements should be negotiated and enumerates the rights that should be accorded to each riparian state within a shared river basin. It was meant to serve as a template for “the negotiation and strengthening of accords governing specific international river basins.”[12] Included in its principles is the right of every riparian state to be party to an agreement that governs the entire river basin, the “equitable and reasonable use” of a river as it passes through a state’s territory, regular consultation and information exchange, an obligation to cause no significant harm to other watercourse states and explicit principles for environmental protection and the prevention and control of pollution.[13] Thus the Convention set out to create a global normative structure for the methods by which international river basin agreements should be negotiated, as well as the norms that these agreements should be based on. The Convention’s failure to be ratified by the General Assembly, reflecting concerns from influential upstream riparian states including Turkey and China, reflect the difficulties inherent in the effort to establish global norms for the governance of international rivers. The Convention was also criticized because of a perceived lack of certain features that would have made it easier to implement. The Convention would have enforced “traditionally statist presumptions of authority,” leaving little room for the entry of non-state actors.[14] According to the Convention, the only legitimate actors in agreements over the governance of transboundary waters are “watercourse States” and “regional economic integration organizations...constituted by sovereign states”.[15] (See Appendix A for text of and resources on the Convention)

## Analysis of Current Riparian Relations

The current interactions between riparian states can be explained by aspects of two theories of global governance: structural realism and historical materialism. According to Peter Haas (1990), realist theories of environmental cooperation “will be driven by enduring patterns of international behavior”.[16] To realists, states are the primary units of analysis and the most important actors on the international stage. States interact in an anarchic context because of the absence of a higher authority, and their primary concern in these interactions is security: that is, according to Morgenthau, states “act in terms of interest defined as power”.[17] A realist analysis would see water scarcity and riparian rights to water allocations as part and parcel of state security. Especially in the driest areas of the world, having access to freshwater resources is essential to the survival of individuals, both because of direct consumption and for the purpose of farming, and is therefore intimately linked with an individual’s security. Citizens see their governments as having the responsibility to make sure that citizens have enough water and to protect their rights to water allocations abroad, and therefore regime survival is also linked to water scarcity issues. Finally, it is often the case that the most powerful state in an international river basin has the means to acquire the greatest water allocations, and the military means to back up this claim if other states contest it.

According to the realist analysis, states will be reluctant to engage in agreements with one another over water allocations because these agreements inherently require the accession of some part of national sovereignty. Given this reluctance, the myriad bilateral agreements that exist in the real world can be explained in two ways. First, agreements are often negotiated in a coercive manner by the more powerful states so that these states often receive the largest allocations of water. Second, Haas argues that negotiations concerning environmental issues occur when two state objectives are pitted against one another: even as states seek to preserve their own autonomy, under conditions of scarcity, a state’s access to water and through it the state’s ability to protect public health and amenities requires coordinated policy actions with other riparian states. In other words, “policy autonomy may only be preserved at the cost of endangering national survival”.[18] This is particularly true for international river basins,

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when upstream riparians states have more power over water allocations regardless of the power of each state in the international arena, and therefore it is necessary for downstream states to negotiate.

The historical materialist sees state interactions as occurring in the context of persistent political and economic exploitation of developing states by the developed world. This elite dominance occurs at multiple levels of interaction, and divides the world into three spheres, according to the international division of labor: the industrialized, developed West forms the core, partly industrialized, developing countries are in the semi-periphery, and developing countries that export raw commodities form the periphery. Historical materialists predict that outcomes are based on structural determinants. In other words, there exists a systemic bias based on the order of the international economic system that guarantees that international exchanges or conflicts will be resolved in favor of core states or individuals, often at the expense of the periphery. Thus, authoritative policy prescriptions will innately embody the preferences of the developed world. According to Haas, in terms of environmental issues, agreements that are reached will be reflective of the preferences of the developed world, and will "reaffirm and reproduce old colonial linkages." [19]

Thus historical materialists predict cooperation amongst states when it comes to water sharing, but that cooperation will be based on an 'unfair' allocation of water skewed towards more developed states or former colonial masters. This idea is played out in two ways when it comes to conflicts between riparians. First, agreements over water allocations were often created during colonialism or after decolonization, by developed states that play a large role in the region in terms of military aid, etc. These agreements often persist well beyond the end of colonialism even if the agreements are perceived of as 'unfair' because of the power of the former colonizing or dominant developed state. Second, on river basins in which more and less developed riparians coexist, the more developed state, which ostensibly needs more water to fuel industrialism, often ends up with greater allocations of water in an agreement, even if these allocations are perceived of as 'unfair' by the less developed states that are also party to the agreement.

## A Case Study: the Jordan River Basin

Competition over water resources has been particularly fierce in the Middle East, one of the world's driest regions. The Jordan River, which runs along the border between Israel and Syria and then along the border between Israel, the West Bank and Jordan before terminating in the Dead Sea, is a particular source of conflict, not least because it exists between states and never at any point within only one state. However, the Jordan River is a river basin that in many ways embodies 'typical' interactions between riparian states, because different aspects of the formal and informal agreements about water allocations that exist can be explained by structural-realist and historical materialist theories.

Israel, by far the most powerful state in the region in terms of military strength, backing by Western states and GDP/capita, considers water to be part of the integral question of the existence of the state itself. This is partly because Zionist theory requires the cultivation of desert lands using irrigation-intensive agricultural practices to increase productivity, but also because Israel has historically faced situations in which water was used as a weapon by Arab states. In 1964 the Arab diversion plan, championed by Syria and carried out by the Arab League, attempted to divert tributaries of the Jordan River before they reached Israel as part of the ongoing Arab-Israeli conflict. Theorists often speculate that one of the causes of the ensuing Six Day War in 1967 was this dispute over the waters of the Jordan, since Israel seized territories in Syria and the West Bank, thus eliminating this potential threat. Since then, Israel has exercised unilateral control over all of the water resources in the occupied territories, including the Jordan River, and meets over half of its internal need from resources outside of internationally recognized borders. As a result, in 1994 the total water supply for Israel and the Palestinian territories in the East was 2,130 MCM. 5.3 Israelis used 1,900 MCM/year of water, and 2.2 million Palestinians had access to just 230 MCM.[20] It is clear that in this specific case the most powerful state has succeeded in ensuring itself access to as much water as it demands, and therefore that the realist analysis is most prescient in explaining what is happening on the ground.

However, the story of how water is shared between Israel and another Jordan River riparian is different. From 1953 to 1955, Eric Johnston, a special envoy to then-American President Eisenhower, worked to negotiate a water sharing agreement between Jordan and Israel. The United States' purpose was to implement an agreement between the two states would decrease conflict and instability in the region. During this time, Johnston engaged in 'shuttle diplomacy,' going back and forth between the two governments to try to reach an agreement on how much water each state

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would be allocated annually from the river. The plan, now known as the Johnston Plan, was ultimately rejected by both Israel and the Arab League as unfair to Arab states. However, Israel and Jordan each unilaterally implemented the allocations prescribed by the Johnston Plan, and continue to withdraw this amount of water to this day. This is because of both states' post-colonial economic ties to the US: both states receive billions of dollars in aid from the US every year, and engage in extensive trade with the US. Each state therefore has a large stake in maintaining good relations with the US and is in many ways beholden to its political will. Further, Israel's water allocations based on the Johnston Plan are greater than Jordan's, reflecting a similar core-periphery relationship between the developed Israeli state and the less developed Jordanian one[21]. In this specific case, it is clear that the historical materialist analysis is therefore best at explaining the existing dynamics.

## A New Era: Global Governance

### *New Norms*

Out of Weiss and Thakur's five "gaps" in global governance, it is clear that global norms are the most important piece missing from the global governance of riparian systems. Of course global policy and institutions are also missing, but it will be impossible to establish those without first agreeing upon the norms that will dictate what they look like. Conca's study of international bilateral riparian agreements shows that there are no agreed-upon norms that exist in the majority of treaties, so these treaties cannot constitute a global regime of governance; rather, they represent a patchwork of oftentimes failed attempts at governance that have little in common. Furthermore, it is clear that the 'norms' that currently undergird water dynamics, realist power struggles and historical materialist core and periphery structures, do not result in agreements that are fair or remotely sustainable in the long run. In order to ensure the creation of sustainable water agreements, and therefore the long-term survival of the human race, global governance norms regarding water allocations between riparian states must be established.

These new norms should be based on Harlan Cleveland's "Nobody-in-Charge" society that envisions a loose, unhierarchical, "uncentralized," cooperative system. His analysis is based upon the structure of the International Organization for Standardization, ISO. ISO uses 30,000 "experts," including politicians, scientists and industry insiders, working on 2,867 committees. The committees operate by reaching consensus, which means that it is approved by 2/3 of those involved and ratified by three quarters of the ISO members, who are national standards setting bodies. The committees' task is to set international standards for everything from the specifications of freight containers to electronic data processing. These standards ensure that objects can be used in an international system, and that for example a freight container can be lifted onto any ship or railroad car in the world. The organization has been incredibly successful, creating more than 12,500 standards in less than half a century since its founding.[22]

Cleveland's "Nobody-in-Charge" theory is based on the idea that its name implies: that "no individual can be in charge of anything important." [23] Rather, each individual involved must be partly in charge of a certain aspect of decision-making or implementation. This ensures that each individual, working on a specialized part, can make expert decisions based on the facts in front of them, rather than simply enacting a decision that comes from a centralized hierarchy that has less knowledge about an individual situation. It also gives experts the space to collaborate with others about their ideas, making decisions into a positive-sum game rather than a zero-sum game where only one person's ideas will be implemented. Inclusion of the maximum number of people in the decision-making process is optimal, because the more people who feel as if they were consulted about the decision, the more likely they are to enact that decision wholeheartedly. Finally, Cleveland argues that information should be shared rather than hoarded. Allowing decision makers to have the maximum amount of information about their own situation, as well as about how others treated similar situations in the past and their results, allows them to make the best and most effective decisions.[24] The Nobody-in-Charge organizational structure is particularly pertinent in a world of emerging, extremely dynamic issues that affect the entire globe, because it frees global organizations from the static model in which the centralized top of the hierarchy makes all of the decisions. An uncentralized structure allows for flexibility by helping experts to respond to complicated, location-specific and quickly changing problems- such as conflict over international rivers and water scarcity- on the ground.

The new global governance norms of international waterways should be modeled after this approach because it will

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allow a paradigm shift away from the current realist and historical materialist tendencies that exist in the dynamics between riparian states. These tendencies of minimal cooperation, and of states to use maximal amounts of water, result in unsustainable patterns of usage. When states view water as a security priority, a tragedy of the commons scenario ensues, in which states hoard as much water as possible for their own relative gain. The key shift must be away from thinking about water as a security priority towards a human development-centered dialogue.

The current language of water conflict is centered around the idea of water as a security priority of the state. Superficially, this makes sense, as water is vital to human life and the state's security system exists to guarantee that its citizens ultimately survive. However, outside of the discourse of states and security this language makes less sense. After all, although we discuss states as being the primary consumers of water, in reality this is rarely the case (aside from an anomaly like the Arab Diversion Plan). What actually happens on the ground is that individuals extract water from rivers, not that states as a unit extract water. Thus, when we say for example that a certain state extracted a certain amount of water from a river last year, what we actually mean is that individual citizens of that state extracted a sum total of this amount of water. In order for an agreement about water sharing to work, states must not only agree to only use a certain amount of water, they must also enforce this within their borders. This situation can be complicated immensely when many of the individuals who use this water are impoverished subsistence farmers who live hours away from the nearest city: even if the state is able to communicate to them that they may only use a certain amount of water, it would be impossible to enforce this law everywhere at all times.

The Nobody-in-Charge method lends itself especially well to this kind of norms change on the individual level, because in essence the process of norms-setting because the process of norms-changing. If all of these individuals on the ground are involved in the decision-making process, they will become more aware of the problem in the first place and the necessity of making changes in their own behavior. Further, these individuals in many ways will make these norms self-reinforcing, as they monitor and educate one another. Local politicians and trans-national and local NGOs will also play an important role in educating individuals on the ground and promoting this norms shift on the individual level. This also explains why individual "experts" must be involved in the decision-making process. The individuals who actually use the water in question, as well as NGOs, scientists and local politicians, will understand the situation on the ground in a way that national politicians cannot. Thus, they will be better able to make decisions that are possible to enact. Further, if these people feel as if they are involved in the decision-making process, they will be more likely to actually enact those decisions.

The new norms must also be centered around the idea of water as a commons, a human right that is universally held and acknowledged. The current discourse emphasizes the rights of states to have access to water, thus provoking conflict between states that try to secure water for their citizens. Under the security-centered paradigm, states will try to acquire and consume as much water as possible, because this is seen as a positive contribution to the overall security of the state. When states try to hoard as much water as possible, the negative externality of not having enough water in the future is visited upon downstream individuals as well as future generations. This calculation is not taken into account when states strategize about water, and they therefore prefer to consume a maximum allotment of water. However, if the emphasis is shifted towards the idea of every individual having an equal right to water access, the onus is on states to ensure that not only their citizens have water, but that there is enough left for the people who live downstream. This norm would also encompass the idea that preservation is an important part of water allocation agreements, and that future generations' access to water is also important. This would encourage states to not hoard water by taking as much as possible, as states tend to do when security is their primary focus. Rather, states would focus on taking the minimal amount of water. This in turn would lessen the water scarcity crisis somewhat, which would make conflict between states over water resources less likely to occur in the first place.

Finally, a new global governance institution should emphasize maximum information sharing. The current security-centered paradigm encourages states to keep information about water usage to themselves. However, sharing information about how much water is currently used and by whom would make decision-making about water allocations easier. It would also allow states to share technologies that minimize water needs (see Appendix B), allowing states to need less water in the first place. These technologies would discourage hoarding behavior because at least a part of the current water scarcity crises is due to wastage through aging infrastructure or farming techniques. These technologies will also show states that there is in reality enough water for everyone, thus easing

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concerns. It would also facilitate the sharing of information between states from different river basins around the world, so that states could observe the best techniques for reaching an agreement, for deciding on a 'fair' allotment or for ensuring that they do not withdraw more water than their agreements stipulate. Finally, sharing information would encourage relationships between riparian states, which could lead to improved interactions and greater cooperation in the future. Working jointly on the 'low politics' issue of water allocation could eventually translate into cooperation on issues of 'high politics'.

## *The Outlines of a Global Governance Institution*

This shift to an entirely new set of norms would make cooperation over international freshwater resources easier, more effective and more sustainable. There are many different forms that a potential global governance institution, based upon the above outlined norms, could take. However, insights both from Harlan Cleveland's Nobody-in-Charge decision-making theory, and studies about collective action through Voluntary Environmental Programs in the United States, offer some broad features that a successful institution would most likely would incorporate in order to be successful.

Such an organization would be created by a decision-making body based on the structure of ISO, as described above. Each state would convene a national body, composed of the politicians who would legislate and enforce decisions about allocations in their own state, as well as the individuals who use the water resources in question, scientists and NGOs. These bodies would in turn send delegations to an international convention, which would establish the basic norms that would inform the governance of international rivers, much like the proposed 1997 UN Convention. These norms would incorporate the above-described new norms, and make specific decisions about how water allocation decisions would be made, whether it be based on the size of the populations that need to use the river, the location of the riparian state, the number of farms in a country, the level of industry, or a combination of any number of factors. This convention would also decide what other factors must be encoded in agreements, including environmental considerations, how preservation is defined and measure, and so forth. These norms enshrined by the convention would then be applied to every agreement made under the umbrella of the organization. These agreements would all be multilateral agreements, and in every case would have to involve all of the riparian actors that have access to the river. These multilateral agreements would override all of the current laws regarding allocations of water from these international rivers, both through bilateral treaties and through domestic law, incorporating the successful aspects of the current law and discarding unsuccessful aspects.

Why is it necessary to create a global governance institution to serve as an umbrella organization? A global governance institution would be more effective than simply a number of loosely affiliated bilateral treaties that follow the same norms for three reasons. First, many of the states that surround international river basins, particularly in dry areas, are often already deeply involved in conflicts for a number of reasons besides the river basin in questions. The states surrounding the Jordan River basin, which are heavily involved in the Arab-Israeli conflict, are a perfect example of this dynamic. In these cases states will not actively work with each other to cooperate over water issues, and often it is necessary to have an outside institution that serves as a 'mediator' to intervene. Second, most of these states are also in the developing world, and do not have the resources and the time to devote to negotiations and the active financing of institutions or water-preservation technologies. In this situation it is essential for the developed world to become involved, at the very least to provide financing and to share technology. In reality, it would probably be developed states that start this process and push other states into participating, using both positive incentives (as described below) and by putting soft power political pressure on these states. Since these basins involve multiple states, a kind of domino effect will probably take place: when a majority of the states in a basin have agreed to this arrangement, the rest of the states in the basin will see that the other states are interested in genuine cooperation and will probably cooperate themselves. Finally, water scarcity is an exponentially increasing problem. While it is currently most relevant for the driest regions of the world, it will become increasingly relevant for even the 'wetter' regions as more and more people need access to the same fixed amount of water. Already we see rivers drying up even in North America, one of the 'wettest' regions of the world. Thus, having a specified procedure and infrastructure already in place to deal with international conflicts over freshwater resources will be particularly helpful when the world must face this issue as a whole.

Prakash and Potoski (2007) argue that there are two collective action problems when it comes to Voluntary

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Environmental Programs, which are institutions that “induce firms to produce positive environmental externalities beyond what government regulations require”: attracting actors to participate in the first place, and making sure that actors adhere to the obligations that they have undertaken.[25] States as rational actors are unwilling to undertake private costs to produce positive social externalities, which is why positive incentives must be offered to induce actors to participate.

A global governance institution for international rivers would have to incorporate such positive incentives for the same reason. This institution could provide ‘water aid’ to states, first of all in providing funding for the institutions main functions in the first place, and second of all through technologies that would help states and individuals to consume less water, from desalination plants, to drip-irrigation systems to improved public plumbing (see Appendix B). This aid would be awarded only after states have reached an agreement that adheres to the already established norms with modifications that reference their particular situation, and that involve all of the actors that use the river in question. Further, this aid would be disbursed in installments, only after it is confirmed that states have continued to adhere to their agreed allotments. According to Koehler (2007), actors are more willing to join an association like this when “the associated costs are lower compared with the anticipated cost of compliance with current...mandates,” and this aid would help mitigate the costs associated with sharing water.[26] Overall, the costs for states to join the global institution will be less than the costs of preempting other states, escalating military conflicts that result from water shortages and the potential outcome that a state is left with not enough water for its citizens to survive, and therefore states will be much more likely to negotiate agreements under the auspices of this global institution when these financial and technological incentives are in place.

This institution must also incorporate negative incentives that will keep states from joining an agreement but failing to stick to the allocations that agreed upon. According to Prakash and Potoski, the best way for institutions to overcome this free riding problem, called “shirking,” is to establish mechanisms of monitoring and sanctioning, because an institution “with a reputation for effectively policing and sanctioning its participants is likely to have a stronger standing among its stakeholders” and be able to prevent shirking in the first place.[27] They argue that willful shirking is “facilitated by information asymmetries... [when] stakeholders cannot observe the levels to which an individual participant is adhering” to an agreement.[28] Thus, this global governance institution would have to incorporate some kind of monitoring organization, funded by participating states from the developed world. This monitoring organization would function much like the IAEA currently does, carrying out inspections and identifying which states are not sticking to their allotments. This organization would facilitate information sharing, and actively ‘name-and-shame’ the states that are willfully shirking.

However, there would also have to be some kind of stronger method of enforcement when states continue to willfully shirk, some kind of ‘Global Water Court’ like the ICC or the ICJ. The monitoring organization would recommend specific cases to this Court, and the Court would serve as an independent decision-maker as to what kind of sanctions should be chosen. Most likely, these sanctions would consist of a cessation in the transfers of ‘water aid’ until states resume observing their agreements. However, shirking and sanctioning will probably not be a frequent problem, because as Prakash and Potoski (2005) argue, “external audits [through a monitoring organization] may spur a cycle of trust begetting more trust, as members are more likely to contribute to maintaining the club’s reputation because they believe others will do so a well...[monitoring] may serve as an institutionalized, and therefore more credible, mechanism for building trust.”[29] Thus, the existing of monitoring and sanctioning organizations will build trust between states, ensuring that more states stick to their agreements in the first place.

## Conclusion

Water scarcity is an increasingly important issue in global governance today. As the world’s population grows exponentially, and underground water aquifers are rapidly depleted, international rivers as sources of freshwater are being stressed. Individuals’ and states’ reliance of these rivers as a main source of water will cause more and more conflicts between states in the near-future. This is because most states, particularly in the driest areas of the world, view water as a security issue. This encourages states to not only fight with other states in a river basin, but also to demand and use as much water as possible, so that the security of their citizens is guaranteed. However, the security-centered discourse promotes a vicious cycle: as states use more and more water, water scarcity becomes a more



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dire issue, and states are more likely to fall into conflict with one another over water resources and become entrenched in the security-centered discourse. Thus, a shift in the norms that currently dictate the governance of international rivers must take place. States must come to view water as an issue of human development, with preservation and sharing as a top priority rather than maximum consumption.

In order for this to happen, states must acknowledge the role of individuals in water consumption, as well as of scientists, NGOs and other experts in monitoring this consumption and in the research and development of new technologies that can help people use more water and mitigate the impact of individual water consumption. A global governance institution that embodies the principles of these norms would involve the input of all of these diverse individuals, as per Harlan Cleveland's Novody-in-Charge decision-making theory, and would ensure that all of the riparian states in an international basin are involved in an agreement. Further, this body would incorporate positive incentives, including 'water aid' in the form of technologies that would help states to consume less water in the first place, in order to encourage states to reach an agreement. It would also incorporate negative incentives, including monitoring, public disclosure and sanctions, in order to overcome the free rider problem associated with these agreements.

In discussions of the critical global challenges of the future, problems like terrorism, climate change, nuclear proliferation, the current financial crises or unconventional wars in the developing world are often mentioned. Yet in many ways, water scarcity and the potential conflict situations that exist in many international river basins are just as challenging and pertinent, if not more so. Although the world currently runs on fossil fuels, there are many more ecologically friendly and sustainable substitutes that humans can adopt to avert the worst consequences of climate change, yet there is no synthetic substitute for water. Stated bluntly, the survival of the human race is at stake if we are unable to negotiate a means of sharing and preserving water resources.

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