

continues to grow and evolve and in parallel as previously developing countries transformed into developed countries, it will be interesting to see if FOSS will carve a larger part of the software ecosystem or if the current dominant players will be able to adapt to retain control or even be displaced by new closed-source companies from the previously developing world. Will the focus on

FOSS in some countries lead to those who grew up with it to favour it, or will they instead take their skills learned from FOSS and apply them to creating the next Microsoft? Regardless of what happens, for many countries FOSS will have played some part in development, whether minor or major, free/open source software has become more than just an ideal.

Global Water Governance of Transboundary Rivers

Levels & Leakages: The Nile and the Implications for Global Water Policy

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A river can be the lifeline of a community, providing the most essential resource for human survival: water. This water is used for domestic consumption, agriculture and irrigation, industry, hydro-electricity and transport, and thus is crucial to a community's ability to meet the basic needs of its people as well as to the overall economic development of the region. When rivers cross the boundaries of states, conflicts can occur over a particular state's right to use and divert waters, potentially at the expense of other riparian states. The agreements for transboundary rivers at a global level are not widely supported or implemented nor do the corresponding institutions have sufficient legitimacy and authority to affect policy at regional, national and local levels. The fact that 263 watersheds crossing the political boundaries of at least two countries¹ are thus governed by complex and tense bilateral or multilateral arrangements. In order to move beyond the conflictual interests of the involved parties practicable coordination at the global level is needed.

This paper will examine the currently-existing global water governance structure of covenants and organizations. It will then review the circumstances and management of the Nile River, with a particular focus on resource use in Egypt, and Sudan, the riparian states with the firmest political and legal claim upon the river, as well as those taken on by Ethiopia, which has in the last two decades begun to assert itself and its rights to the Nile's waters. It will then examine the potential linkages and what stands in the way of these, ending with practical considerations for establishing effective global transboundary water governance. This paper will focus primarily on Nile development projects undertaken by Egypt and Sudan, the riparian states with the firmest political and legal claim upon the river, as well as those taken on by Ethiopia, which has in the last two decades begun to assert itself and its rights to the Nile's waters.

CURRENT GLOBAL WATER GOVERNANCE STRUCTURES

Modern transboundary river management has mostly evolved since the mid-nineteenth century in the form of bilateral or multilateral agreements between riparian states. While a reported 264 international water cooperation agreements have been set in place,² there remain 158 that lack "any kind of cooperative management framework in

1 United Nations Development Programme. "Transboundary Waters." Environment and Energy. Accessed November 12 2009. <<http://www.undp.org/water/priorityareas/trans.html>>

2 Water Governance Facility. "Transboundary Water Cooperation." Accessed November 11 2009. <<http://www.watergovernance.org/improvingwatergovernancereform/transboundarywatercooperation.html>>

place [and] so plenty of work lies ahead for the international community.”³

In advance of the landmark Rio Earth Summit in June 1992, “government-designated experts from a hundred countries and representatives of eighty international, intergovernmental and non-governmental organizations”⁴ gather to prepare a set of principles to present in Rio. These became known as the Dublin Principles and were to “urge all those involved in the development and management of our water resources to allow the message of those children to direct their future actions”⁵ and to “bring water resources firmly under the State’s function.”⁶ Subsequent water agreements have reflected the message of the Dublin Principles, which included equitable use, the role of women and the perception of water as an economic good.

In 1996 the World Bank, the United Nations Development Programme (UNDP), and the Swedish International Development Agency (SIDA) organized the Global Water Partnership (GWP) to promote and implement Dublin Principals.⁷ Working in thirteen regions and over seventy countries, this organization has an extensive portfolio on dealing with water issues. At the World Water Forum in 2000 in The Hague, the GWP Framework for Action “identified making water governance effective as one of the highest priorities for action.”⁸ The GWP also worked with the UNDP and the International Council for Local Environmental Initiatives (ICLEI) to establish a “Dialogue on Effective Water Governance,”

launched at the 2002 UN World Summit on Sustainable Development “to facilitate national and local level dialogues to help build distributed governance systems by adding value to existing processes.”⁹

At this Summit, states agreed to prepare a specific type of water governance labeled “Integrated Water Resource Management” (IWRM) by 2005, which would “take cognisance of prevailing governance systems and allow for necessary reforms.”¹⁰ IWRM “aims to be a comprehensive and interdisciplinary approach that recognizes and deals with the many social, economic, political, technical and environmental aspects of water issues” and focuses on river basins and watersheds as the primary units for water management.¹¹ The GEF is meant to be “foster IWRM” as a form of water administration¹² and it has been further popularized by the World Bank, drawing from IWRM’s relative success in Chile.¹³ Meanwhile, while certain focuses of Chile’s IWRM are progressive and broadly applicable, such as management on a basin-wide level, other aspects are not transferable and problems are becoming increasingly evident with its system. For example, “the first and clearest lesson” taken from IWRM is that state governments cannot ignore the need for “participation and openness.”¹⁴

Certain organizations such as the GEF and UNDP that deal with a full spectrum of environmental and water issues specify projects around the particular issue of transboundary rivers. The GEF assists collaborative efforts between riparian states “to modify human activities that place stress on these transboundary water systems and interfere with downstream uses of those resources” (International Waters, GEF). The intention is to ensure more sustainable and equitable use of resources, and the idea of common “global goals” is specifically referenced (International Waters, GEF). One of GEF’s specific projects regarding transboundary

3 UNDP “Transboundary Waters.”

4 Florida International University. (1992) “The Dublin Statement on Water and Sustainable Development.” EVR Graduate Certificate in Water, Environment, and Development. Accessed November 11 2009. Florida International University: 1. <www.fiu.edu/~mcclainm/iwrm/THE_DUBLIN_STATEMENT.pdf>

5 Dublin Statement on Water and Sustainable Development, pp 6.

6 Rogers, Peter and Alan W. Hall. 2003. “Effective Water Governance.” Global Water Partnership Technical Committee. The Background Papers No. 7: pp. 17

7 Bauer, Carl J. (2004) Siren Song: Chilean Water Law as a Model for International Reform. Washington DC: Resources for the Future: pp. 9.

8 Rogers, 15.

9 Ibid, 37.

10 Ibid, 16.

11 Bauer, 8.

12 Rogers, i.

13 Bauer, 15.

14 Rogers, 31-32.

waters is called IW:Learn and involves staff in different countries and regions who working on similar water projects and facing similar challenges to participate in exchanges and forums, “further increas[ing] the South-to-South exchange of experiences.”¹⁵

The UNDP's main programme for transboundary river governance is its Transboundary River Basin Initiative (TRIB). Created in 2000 its goal was to “support riparian countries in nationally owned efforts to improve their dialogues on shared rivers and build intra-riparian trust” as well as to develop capacity through the sharing of experienced learning. TRIB had completed nine of its proposed twelve components, including helping to establish the Nile River Basin Initiative, discussed later in this paper.¹⁶

Some existent covenants on international waters do exist. In 1966 the ILA's Helsinki Rules on Uses of International Rivers were created to “help shape regional arrangements, especially in developing countries.”¹⁷ However, these were not legally binding and the UN General Assembly did not endorse them, indicating that this shaping was tenuous and limited.¹⁸ These have been superseded by the 2004 Berlin Rules, which “integrat[e] domestic with international law.”¹⁹ Like the Helsinki Rules, these have not been officially adopted by the UN and thus commitment from a wide range of states is not ensured. “It is difficult to predict” if they will be widely accepted.²⁰

Three decades later, the UN Convention on Law of Non-Navigational Uses of International Watercourses was approved by the GA, but twelve years later, has yet come into force and has only been ratified by sixteen states.²¹ This may “reflect the unwillingness of upstream states to accept the

principle of equitable utilization and the obligation not to cause significant harm to other states” or may simply indicate a lack of innovation in the proposed solutions, and thus little incentive to ratify.²² Mostly, the Convent sets “an agenda for the future” without replacing previous agreements, unless party states choose to allow it.

Finally, in 2003 an organization entitled UN Water was formed to coordinate the various UN bodies concerned with water issues, including the UNDP, UNEP and UNICEF. With twenty-six members and numerous partners from without the UN system, UN Water is potentially situated in the position to govern water globally. However, states themselves are not members and thus national coordination may continue as a barrier.²³

GWP defines water governance as “the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society” and a “subset of the more general issue of the creation of a nation's physical and institutional infrastructure and of the still more general issue of social cooperation.”²⁴ However, according to the GWP “there is no blueprint for how transboundary water cooperation should be done.” They offer general guidelines as to the key elements to be included in bi- and multi-lateral agreements on transboundary waters, but without any formal treaty or convention, it can be extremely difficult for these guidelines, including developing “trust and personal relations” alongside “broad partnerships...for negotiated outcomes” while “shift[ing] focus and mov[ing] from challenges and constraints to opportunities” to be asserted.²⁵

15 The Global Environment Facility. “International Waters.” Accessed November 16 2009.

<http://www.gefweb.org/interior_right.aspx?id=236>

16 UNDP “Transboundary Waters.”

17 Dellapenna, 439.

18 Ibid, 445.

19 Ibid, 448.

20 Ibid, 448.

21 Ibid, 444.

22 Ibid, 447.

23 Thomas, Dave. 2009. “Global Governance and Water.” Lecture presented for INLR 3101: Global Governance, Mount Allison University, November 16. Sackville, NB.

24 Rogers, 16.

25 Water Governance Facility. “Transboundary Water Cooperation.” Accessed November 11 2009.

<<http://www.watergovernance.org/improvingwatergovernancereform/transboundarywatercooperation.html>>

REGIONAL MANAGEMENT OF THE NILE

The Nile River is 6485 kilometres long and passes through ten states: Burundi, the Democratic Republic of the Congo, Egypt, Ethiopia, Eritrea, Kenya, Rwanda, Sudan, Tanzania, and Uganda.²⁶ With this many riparian states, as well as the diverse level of economic development and political influence along the Nile's banks, the possibility of conflict over use of this valuable resource is a continuous possibility.

The Nile has always been essential to Egypt's survival and advancement. It rains rarely and therefore Egypt is dependent on the inflowing Nile water.²⁷ Ninety percent of the population lives on the banks of the river and all of its agricultural produce and additional export crops, such as cotton, are irrigated with Nile

waters. The Aswan Dam, finished in 1970 provides twenty seven percent of national energy demands.²⁸ As in many water-scarce countries, Egypt has tended to “(over)exploit the domestic water resources in order to increase water self-sufficiency.”²⁹ As a lower riparian state, it has a vested interest in what is being done with water resources further upstream. While it contributes no water to the Nile, “it needs every drop.”³⁰

Egypt also claims a “historic right” to the Nile, based on precedence despite the complications involved. In ancient Egypt, flooding and irrigation

were vital to the prospering of the culture.³¹ “Egypt has always used the waters of the Nile without restriction” and this was confirmed throughout legal international agreements³² made throughout the last century. Many of these were made under colonial rule, such as the accord between Britain (acting for Egypt) and Italy (acting for Ethiopia) in 1881 and then again in 1902 that forbade projects of any type that would affect the water flow from the Nile's tributaries.³³ Other significant treaties include the 1929 agreement negotiated while Egypt, semi-independent, was still largely under British colonial control. This treaty allocated 48 billion cubic metres of Nile water for Egypt's use, and gave four billion to Sudan.³⁴ In 1959 tensions arose as Sudan was no longer content to follow “an

agreement that was entered into on its behalf by an erstwhile colonial master, especially as the agreement was seen as being antithetical to its interest.”³⁵ The result was a new agreement between the two, increasing their legal rights to 55.5 billion cubic metres and 18.5 billion cubic metres respectively.

The main tributaries of the Nile meet in Sudan; however, this country is likely to reach water stress - defined by the Water Stress Index as “the minimum level of water per capita required to maintain adequate quality of life”³⁶ - by the year 2050.³⁷ There is also a complex relationship between the Nile and Sudan's north-south conflict. The Jonglei Canal, commenced in the 1970s would have resulted in “165 square kilometres of Sudanese territory flooded and a dislocation of 70 000 people,”³⁸ and drained the southern Sudd swamp. The project was seen as “insensitive to the plight of southerners who lived in the area”³⁹ and was halted in 1984 when overt conflict began. One

26 Abiodun, Alao. (2007) *Natural Resources and Conflict in Africa: The Tragedy of Endowment*. Rochester NY: University of Rochester Press, 54.

27 Hoekstra, A.Y. “The global dimension of water governance: Nine reasons for global arrangements in order to cope with local water problems.” UNESCO-IHE. July 2006: 16.

28 Abiodun, 217.

29 Rogers, 20.

30 Hagai, Erikn. (2002) *The Cross and the River, Ethiopia, Egypt and the Nile*. Lynne Rienner Publishers, Inc. Boulder Colorado: 2.

31 Dellapenna, 438.

32 Hagai, 6.

33 Abiodun, 217.

34 Ibid.

35 Ibid, 218.

36 Ibid, 210.

37 Ibid, 212.

38 Ibid, 218.

39 Ibid, 219.

reason for resistance to the dam was the suspected number of Egyptians who would be brought in to assist in construction.⁴⁰

Throughout Sudan's civil war, Egypt has retained friendly relations with both sides and tried "remodeling the Sudanese government's international image"⁴¹ in hopes of minimizing the conflict's impact on the resource they share. It has generally sided with the northern-based government, not desiring a break-off state of southern Sudan, which would be yet another riparian claiming the right to Nile waters.⁴²

Egypt and Sudan, although having disputes over the Nile, usually attempt to present a united front against the other riparian states "to ensure that the lower riparian states do not exploit the possible division...to acquire greater control."⁴³ Egypt and Sudan's exclusion of other Nile riparian conflicts with the Non-navigable Uses Convention, which requires that "all riparian parties have... [to] be involved in any agreements made with respect to the watercourse in question."⁴⁴ Unfortunately, political differences among these states have meant that they "have not been able to come up a coherent position against the domination of Egypt and Sudan."⁴⁵

The most vocal and problematic of relationships so far has been that of Egypt with Ethiopia. 85 percent of the Niles' water originates in Ethiopia (the other source being in the mountains of Burundi), including the Blue Nile and the Atabara River,⁴⁶ but it "is the worst affected" by river developments. Ethiopia has further argued for the nullification of the 1959 agreement on the grounds that it "impedes development."⁴⁷ Indeed, the INGO WaterAid has listed Ethiopia as making

only poor progress toward its sustainable water usage goals.⁴⁸

As of 1977 Ethiopia began to announce plans "to exploit hydrological opportunities in the Nile basin" and have progressed with the construction of several dams and irrigation projects.⁴⁹ Formerly, Egypt did not feel as threatened by these developments because it believed they were rather unlikely to be achieved on a large scale. However, "with the end of Marxism and the increasing access to international finance" Egypt's view had now changed, and it manifests this in its political support for Eritrea and Somalia in these states' difficulties with Ethiopia.⁵⁰

Ethiopia's ambitious projects include the El Salam Canal and Sheikh Zayed Canal to irrigate the Sinai and Nubian deserts respectively. These canals would increase Ethiopia's annual quota of Nile water to 71 billion litres.⁵¹ Furthermore, dams such as the Tekeze Project have been put in place to hopefully allow Ethiopia to "emerg[e] as a force in African hydroelectric power generation and become a major electricity exporter within a few years."⁵²

There has been no actual widespread violence over the sharing of the Nile; however, it is "undoubtedly one of the most politicized rivers in the world."⁵³ Egypt has clearly identified "its determination to go to war to protect its access to the Nile River" while lower riparian states claim "they are not having adequate reward for their contribution to the river."⁵⁴ Among the various uses of water listed at the beginning of this paper, "the industrial uses are important and more pronounced in larger

40 Ibid, 234.

41 Ibid, 219.

42 Thomas.

43 Abiodun, 218.

44 Dellapenna, 445.

45 Abiodun, 220.

46 Ibid, 216.

47 Ibid, 220.

48 WaterAid UK Site. "Governance and accountability/Tracking commitments." WaterAid UK.

<http://www.wateraid.org/uk/what_we_do/policy_and_research/governance_and_accountability/7262.asp>

49 Abiodun, 220.

50 Ibid, 221.

51 Ibid, 217.

52 International Water Power and Dam Construction. 2006.

"Turning Potential Into Power." Accessed November 17 2009.

<<http://www.waterpowermagazine.com/story.asp?sc=2037246>>

53 Ibid, 215.

54 Ibid, 219.

economies” such as Egypt, and yet, although domestic consumption is smaller in less developed countries, “obtaining the needed quantity is crucial”⁵⁵ and can be vital for transport or tourism purposes. Meanwhile, there is a “disparity in the extent of these countries dependence on the river and the inverse relation this may have to their contribution to the river” and these political differences have “ripple effects [which are]

“Despite the seemingly promising aspects of the NBI – its very existence is a clear sign of removal from Egypt's view of upstream development as a declaration of war – the real significance of the NBI is unclear.”

reflected in the politics surrounding the management of the river.”⁵⁶ In addition to Ethiopia, lower riparian states, such as Kenya, “have in fact been making subtle challenges to Egyptian domination”⁵⁷ further indicating a need for broader negotiations.

Water shortages in Nile riparians is evidently a problem of governance. “Sudan would be among the region's most developed economies, instead of being a low income country” if development were based on total water availability per person. Meanwhile “if total per capita availability of water resources not originating from outside a country was key....Ethiopia would be among the region's most developed economies, instead of the latter being one of the poorest countries on the planet.”⁵⁸

Recently Egypt “appears to have recognized that a fairer division is required, particularly as there is little short of declaring war that it could do to stop the construction of dams upstream” and the Nile

Basin Initiative (NBI) was formed to settle these kinds of disputes.⁵⁹

The NBI was formed in 1999 by the Council of Ministers of Water Affairs of the Nile Basin states to “develop the river in a cooperative manner, share substantial socioeconomic benefits, and promote regional peace and security.” It recognizes the complexity of managing an international river basin but that working together “holds the greatest prospects for bringing benefits to the entire region” and thus has developed a shared vision through a “participatory process” in which all of their projects are framed. There is a great focus on “confidence and capacity [building] throughout the basin” as well as bringing projects from planning into concrete action.⁶⁰

The Water Resource Planning and Management (WRPM) Project is one of the eight projects under the Shared Vision Program. It hopes to initiate or improve national IWRM practices, multi-country projects and create an operational Nile Basin Decision Support System to be “used by riparians to exchange information, support riparian dialogue, and identify cooperative investment projects.”⁶¹ Other positive signs include conferences on women's' role in the NBI and a Nile Basin Development Forum, both held for the first time in 2006.⁶²

Despite the seemingly promising aspects of the NBI – its very existence is a clear sign of removal from Egypt's view of upstream development as a declaration of war – the real significance of the NBI is unclear. The commitment of riparian states themselves may not be completely sincere, and “there is a gap between the laws on the books and actual practice.”⁶³ Outside guidance at a global and

55 Ibid, 55.

56 Ibid, 216-217.

57 Ibid, 220.

58 Selby, Jan. “The Geopolitics of Water in the Middle East: Fantasies and Realities.” *Third World Quarterly*, Vol. 26, No. 2 (2005): 335.

59 International Water Power and Dam Construction.

60 Nile Basin Initiative. “NBI Background.” Accessed November 16 2009.

<http://www.nilebasin.org/index.php?option=com_content&task=view&id=13&Itemid=42>

61 Water Resource Planning Management Project. “Project Components.” Nile Basin Initiative: Shared Vision Program.

Accessed November 16 2009. <<http://wrpmp.nilebasin.org/>>

62 “NBI Background.”

63 Dellapenna, 441.

international scale remains fragmented, with poor linkages between the bodies responsible and attentive to the transboundary issues faced along the Nile.

The example of the funding for the WRPM shows both of these issues. The sources of financial backing for this project comes from a multi-donor Nile Basin Trust Fund (NBTF) administered by the World Bank, the GEF resources provided from the SVP Nile Transboundary Environmental Action Program and “parallel financing provided by the Government of Germany and implemented by the German Agency for Technical Cooperation.”⁶⁴ While support from various sources is not uncommon, the diversity of actors who now have a vested interest in this project could potentially create conflict when those interests, attitudes and priorities differ. Additionally, with the funding coming from external sources – and even the NBTF being administered by the World Bank and not a committee formed of riparian states – the actual willingness and engagement of riparian states toward cooperation is not guaranteed.

This is not to discount the spirit and process in which the NBI and its Shared Values were made. However, a general agreement to cooperate for shared goals of sustainable and equitable development is easier to acquiesce than the existence of or specific details of a particular project. The NBI itself acknowledges that “the Nile Basin, [which] is characterized by water scarcity, poverty, a long history of dispute and insecurity, and rapidly growing populations and demand for water”⁶⁵ and it is likely to take time before the NBI truly changes the outlook and behaviour of riparian states, “reluctant to relinquish sovereignty or to honour international norms of equitable apportionment or utilization.”⁶⁶ Especially in developing countries, “different and contrasting legislations apply,” with twenty-two legal systems for water existent in the continent of Africa alone.⁶⁷

64 Water Resource Planning Management Project.

65 “NBI Background.”

66 Ingram, Helen, et al., ed. (2008) *Water, Place, and Equity*. Bogart GA: Massachusetts Institute of Technology, 20.

67 Dellapenna, 441.

THE ROLE OF A GLOBAL GOVERNANCE FRAMEWORK FOR MANAGEMENT OF TRANSBOUNDARY RIVERS

The Dublin Principles, the UN Convention on Law of Non-Navigational Uses of International Watercourses and the Berlin Rules are evidence of some documents toward a global water governance structure, while the UN has established UN Water as the authoritative body on water issues at a global level. However, these have done little to assist with the development of effective and peaceful transboundary river management along the Nile to the benefit of individual riparian citizens. One of the reasons for this may be that the right to water has only been emphasized in recent years.

The United Nation's 1948 Universal Declaration of Human Rights only implicitly includes water as a human right in its Article 25 pertaining to adequate standards of living. In 2002 efforts to establish the right to water led to the International Covenant on Economic, Social, and Cultural Rights' General Comment No. 15. This states that “the human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, to reduce the risk of water-related disease and to provide for consumption, cooking, personal and domestic hygienic requirements.”⁶⁸ Enshrining water as a human right is an attempt to at least recognize its importance and exert moral pressure on states to attempt to provide adequate resources for their people. As with other human rights, practicalities such as economic status often limit the application of this principle.

Water and sanitation also have a prominent place in the Millennium Development Goals,⁶⁹ unanimously agreed to by the UN member states. This outlines targets to halve the number of people without regular access to safe drinking water.⁷⁰ The right to

68 Hoekstra, 24-25.

69 Ingram, 2.

70 Hoekstra, 25.

water “is highly pertinent for the poorer countries”⁷¹ - such as Ethiopia - which may lack the physical infrastructure and the political will to ensure water for their citizens.

Despite this one formal definition, there are no evident means of enforcing this right to water, especially as it is only clearly specified in relation to domestic use while food, economic, energy and transport uses may be equally or more important to the wellbeing of individuals and a state as a whole.⁷² For the Nile, energy generation and irrigation for non-food purposes are some of the most controversial uses of water, accounting for problems with subsistence agriculture, thus the inclusion of these incidental rights is vital to those living alongside the river.

For transboundary water conflicts to be adequately understood, “a recognition of the multiple and incommensurable meanings of water in all of its specific geographical and historical sites of encounter”⁷³ is necessary. For example, in some African countries, rivers can represent or be the actually considered deities or means of connecting to a supreme being.⁷⁴ Water can be a “means of identity”⁷⁵ - such that the immigration of outsiders to change this resource, as Sudan intended to do using Egyptian workers, can be interpreted as threatening to locals who relate very personally to the river, more than to simply meet their basic-needs. Considering Africa has about eighty international rivers and lake basins⁷⁶ around which innumerable and diverse groups live and associate with each other and their environments, a framework for incorporating these various cultural views is pressing.

The participatory form of IWRM proposed by many water experts and water-issue organizations, such as the World Bank, the GEF and the NBI itself is one such framework. IWRM has a great

deal of strengths, including its focus on comprehensive and basin-wide approaches. Its advocates also want “a more ‘economic’ approach, making use of market incentives and other economic instruments to increase efficiency of water use and allocation.”⁷⁷ While an economic approach is not in itself negative, there is the potential for it to be overly focused on free market policies, to the detriment of certain parts of the population, especially those in the most marginalized social groups or geographical areas. The practical implementation of IWRM in Chile also “demonstrat[es] the critical limitations of a narrow approach to water economics and the failure of such an approach to adequately address the legal and institutional arrangements that are essential to IWRM” as advocated in theory.⁷⁸

Various actors are involved in managing river basins, and “consequently, a large number of rules apply and lots of conflicting interests interact at any given level of water management.”⁷⁹ While water governance is “clearly characterized by a bottom-up approach...tied as it is to livelihoods,”⁸⁰ in respect to individual ownership it faces classic public good challenges. Each person will use it as they like because the problems will be shared with others. This is another reason to have various levels of involvement in water governance.

Communities generally form alongside rivers to have easy access to water, to benefit from the more fertile land bordering rivers, to use the river for transportation and sometimes to be close to a powerful culture symbol, as such, “the predominance of the community's role in ensuring necessary regulations for its management is greater than any other natural resource.”⁸¹ A regional or basin-level perspective is required because “what happens at the headwaters of a river system has clear implications for downstream flooding, water

71 Dellapenna, 443.

72 Hoekstra, 25.

73 Ingram, 2-3.

74 Abiodun, 5.

75 Ibid, 208.

76 Ibid, 215.

77 Bauer, 7.

78 Ibid, 28.

79 Finger, Matthias, et al., ed. (2006) *The Multi-Governance of Water*. Ed. Finger, Matthias, et al. Albany, NY: State University of New York Press, 19.

80 Finger, 19.

81 Abiodun, 207.

quality and the environmental health of riverine species and estuaries.”⁸² Finally, seventy percent of the world's land area is “potentially influenced by river basin development.”⁸³ This creates the need for a clear global regime framework managed by a permanent and specified global organization or secretariat with the capacity to amass knowledge on a broad level and to demonstrate concern for the overall water security of the planet.

All of this implies the need for a multi-level system of governance that works above, below and with states. The UNDP itself stresses this, building partnerships at all levels of governance, from local to NGO and state actors and creating “linkages between the political processes, development challenges, and environmental management in transboundary river basins.”⁸⁴ This multi-level governance is becoming more common and more possible through globalization and the emergence of non-state actors⁸⁵ as “states are too large to solve some local and regional problems, and too small to address some global challenges”⁸⁶ especially for “the economic, political or ecological issues linked to water resources.”⁸⁷ This does not diminish the importance of national level governance, but the fact that “more and more actors are being included in policy formulation, in the implementation, as well as in monitoring and compliance”⁸⁸ indicates that states are willing to share the responsibility of governance and recognize the legitimacy of actors working at different levels.

Most contemporary river governance structures still exist as regional agreements between states. As seen by the Nile example, these may not even include all of the pertinent riparian states. Most of these follow the norm of “limited territorial

sovereignty,”⁸⁹ allowing for states to use water flowing into its territory as long as it doesn't harm the territory or interest of other states. In the meantime, these are not the sole doctrines in existence⁹⁰ and states may disagree over what constitutes an abuse of a fellow riparian, exhibited in the Nile situation by Egypt's dissatisfaction with Ethiopia's dam and canal projects,⁹¹ which the latter claimed to be crucial to its development and infrastructure.

Transboundary institutions exist at a global level⁹² and there is little need to create newer structures without reviewing why the UN Convention on Law of Non-Navigational Uses of International Watercourses has not been widely adopted and without awaiting the impact of the Berlin Rules. The delay with these pieces of policy may be due in part to a “legitimacy gap” prompted by a “lack of technical competence or material reflection” of the structures so far.⁹³

“Outside guidance at a global and international scale remains fragmented, with poor linkages between the bodies responsible and attentive to the transboundary issues faced along the Nile.”

The key to providing opportunities for concrete implementation and thus influence is better “linkages between the political processes, development challenges, and environmental management in transboundary river basins.”⁹⁴ This would allow for greater diffusion of knowledge and information,⁹⁵ which in turn would allow increased participation, “enhanc[ing] the legitimacy of decision-making, incorporating local knowledge in policymaking and hence mak[ing] policy more

82 Ingram, 19.

83 Finger, 21.

84 UNDP “Transboundary Waters.”

85 Finger, 3.

86 Ibid, 15.

87 Ibid, 173.

88 Ibid, 9.

89 Ibid, 31.

90 Ibid, 30.

91 Dellapenna, 444.

92 Ünver, Olcay. “Global Governance of Water: A Practitioner's Perspective.” *Global Governance*, Oct-Dec, Vol. 14 (2008): 411.

93 Mukhtarov, F.G. 2006. “Global Water Governance and the Concept of Legitimacy.” PhD Thesis, 6.

94 UNDP “Transboundary Waters.”

95 Ünver, 413.

context relevant and implementation considerably easier.”⁹⁶

In addition, the legitimacy of any institution, including those to govern water requires a system of enforcement.⁹⁷ UN Water could be a possibility for this, if states could become signatories to it, or to a document under its mandate, and if it could be given the power to press consequences upon states which trespassed this document. As with all UN treaties, enforcement will be the most difficult issue to determine in concrete terms. These powers evidently go widely beyond UN Water's original mandate of coordinating international agencies on water issues. As such, it may be more practical to create a new institution with such authority.

Regardless, any institution would also need to be resourced sufficiently, as does “every part of the water sector.”⁹⁸ The global level of governance is likely to face the greatest challenges in financing of operations as states may hope to freeloading off of others or to manipulate the system for their own national and political ends.

Finally, the fact that river basins around the world are diverse and cannot be adequately addressed by a global policy must be acknowledged, however, “diversity does not preclude the development of a global law on water.”⁹⁹ It is possible to create general rules and dispute resolution strategies that can be adjusted to local, national and regional circumstances but which centre around essential principles such as the human right to sufficient, clean and accessible water, the necessity of accounting for water's cultural meanings, basin-wide management encompassing the concerns of all riparian states and clear communication and transparency between all levels of governance. In this way, global governance legitimize its role in water governance and “provide[s] an institutional framework for countries to work together peacefully.”¹⁰⁰

CONCLUSION

The Global Water Partnership says that “water crisis is mainly a crisis of governance.”¹⁰¹ To ameliorate this situation, there is a need for greater linkages between the already existent and growing actors on local, national, regional and global levels. The latter is the level most lacking cohesive governance structure, and yet has an important role to play in providing general principles and policies, enforcement and mediation for transboundary rivers, which are “characterized by an unequal power relationship between the upstream and the downstream country.”¹⁰² When more powerful actors can exploit water resources at the expense of the less powerful, the negative impacts on a local level have implications for actors on all levels and could be addressed by a more legitimate, culturally-sensitive, fully resourced and authoritative system of global water governance.

⁹⁶ Dellapenna, 443.

⁹⁷ Ünver, 413.

⁹⁸ Ünver, 415.

⁹⁹ Dellapenna, 438.

¹⁰⁰ Ibid, 444.

¹⁰¹ Bauer, 9.

¹⁰² Ingram, 31.