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I. Environmental functions of the envisaged river basin organization for the Nile discussed¹

The environmental functions of the envisaged permanent river basin organization for the Nile were high on the agenda during the fifth Nile Transboundary Environmental Action Project (NTEAP) meeting that took place on 30-31 January 2008 in Mwanza, Tanzania. Recognizing that the future development of the river basin must be environmentally friendly, the NTEAP project has been tasked to define the environmental functions of the river basin organization which is expected to be in place in the near future. The Projects Steering Committee (PSC) proposed the following main elements for the environment functions of the permanent river basin organization: (i) environmental assessment and monitoring; (ii) knowledge management and information sharing; (iii) capacity building; (iv) policy, institutional and legal analysis; and (v) coordination of action on agreed priorities. The PSC further recommended that the Nile Basin Initiative (NBI) Secretariat concretizes the enlisted environmental functions through the Institutional Strengthening Project (ISP) which is currently being appraised. The NBI ISP proposal recognizes the need to harmonize, consolidate, and appropriately strengthen “One NBI” to meet the needs of the emerging permanent institution.

The NBI is a partnership initiated and led by the riparian states of the Nile River through the Council of Ministers of Water Affairs of the Nile Basin states (Nile Council of Ministers, or Nile-COM). The NBI seeks to develop the river in a cooperative manner, share substantial socioeconomic benefits, and promote regional peace and security.

II. North American Free Trade Agreement (NAFTA) Tribunal lacks jurisdiction to hear a transboundary water dispute²

An arbitral tribunal constituted under the North American Free Trade Agreement (NAFTA) has found that it lacks jurisdiction to hear a dispute brought by a group of United States-based water users against Mexico over water access-rights to the Rio Grande river. In an award handed down on June 19, 2007, a three member arbitral tribunal rejected the United States-based claimants’ arguments that Chapter 11 could protect investments made in their own country (i.e., the United States) from actions taken by Mexico that were detrimental to those investments. At the same time, the tribunal rejected a parallel argument by the claimants that they had some Mexican-based investments (specifically rights to water in Mexico) which warranted protection under NAFTA Chapter 11.

In January of 2005 a group of Texas water districts commenced an arbitration against Mexico alleging that that country had failed to live up to its commitments under a 1944 water treaty between Mexico and the United States. The 1944 treaty divided the waters of the Rio Bravo (Rio Grande) River between the two countries; the waters feeding that river flow mostly from Mexican tributaries. According to the claimants, Mexico diverted water owed to Texan farmers under the treaty, resulting in billions of dollars worth of losses for them. The claimants alleged that this was in violation of Chapter 11’s national treatment and expropriation provisions.

From the outset, Mexico objected to the jurisdiction of a tribunal constituted under Chapter 11 to hear the dispute given Mexico’s view that Chapter 11 only protects claims by investors of one NAFTA party who have made or are seeking to make investments in another NAFTA party. As such, Mexico denied that Chapter 11 was designed to introduce legal obligations for Mexico in relation to United States-owned investments located wholly within the United States. Accordingly, the claimants’ apparent lack of an

¹ “Environmental Functions of the Nile River Organization discussed at the NTEAP 5th PSC Meeting”, Nile Basin Initiative, 2008 (http://www.nilebasin.org/index.php?option=com_content&task=view&id=72&Itemid=102).

² Fernando Cabrera (2007), “NAFTA Tribunal lacks jurisdiction to hear Texans’ water dispute with Mexico”, *Investment Treaty News (ITN)*, July 12, International Institute for Sustainable Development (IISD) (http://www.iisd.org/pdf/2007/itn_july12_2007.pdf).

investment in Mexico became the initial issue under dispute, and with the consent of the Parties, the tribunal agreed to treat that issue first.

In arguing that the tribunal indeed has jurisdiction to hear their dispute, the claimants first alleged that NAFTA's Chapter 11 does not require them to make investments in Mexico in order to bring a claim against that country. In support of this view they pointed to Article 1101(1) (a) which outlines the scope and coverage of Chapter 11, and states that the chapter applies to "investors of another Party" without reference to the location of their investments. Similarly they also pointed to the provisions on national treatment and the definition of "investor" in Article 1139, which also do not mention the location of investments.

In a second argument on jurisdiction the claimants also contended that the tribunal had jurisdiction to hear their claim under Article 1101(1) (b) which says that Chapter 11 applies to measures adopted by a Party relating to "investments of investors of another Party in the territory of the Party". To support this second jurisdictional argument, the claimants alleged that they owned certain "water rights" in Mexico, which were granted to them as a result of the 1944 treaty, and that these rights constituted an investment in Mexico. In response to this second argument, Mexico countered that the 1944 treaty does not grant anyone property rights to water while it flows through Mexican territory. Mexico also pointed out that any dispute arising out of that treaty must be resolved between the Parties — Mexico and the United States — under the mechanism set out in that treaty.

In its June 19, 2007 ruling the tribunal essentially agreed with Mexico on both jurisdictional arguments. On the first argument, the tribunal held that while Chapter 11 was titled simply "Investment" and not "Foreign Investment", it deals with the latter. "The ordinary meaning of the text of the relevant provisions of Chapter 11 is that they are concerned with foreign investment, not domestic investment," held the tribunal. The tribunal pointed out that this was the interpretation of the chapter made by all three NAFTA parties. The tribunal further reasoned that had Chapter 11 been intended to diverge from the approach of other international investment agreements and to accord protection to investors of a party who had made wholly domestic investments, one would find clear indications of this in the preparatory documents of the treaty — which one does not.

However, the tribunal did agree with the claimants that the definition of investor in Article 1139 "does not explicitly require that the person or enterprise seeks to make, is making or has made an investment in the territory of another NAFTA Party". Nevertheless, the tribunal continued, "the text of the definition does require that the person make an 'investment'", something which the scope and coverage section of Chapter 11 (Article 1101(1) (b)) restricts to "investments of investors of another Party in the territory of the Party". The tribunal concludes: "it is quite plain that NAFTA Chapter Eleven was not intended to provide substantive protections or rights of action to investors whose investments are wholly confined to their own national States, in circumstances where those investments may be affected by measures taken by another NAFTA State Party".

The tribunal also rejected the claimants' second argument, that they owned water rights in Mexico and therefore could base a claim under Article 1101(1) (b). On this point, the tribunal held that: "One owns the water in a bottle of mineral water, as one owns a can of paint. If another person takes it without permission, that is theft of one's property. But the holder of a right granted by the State of Texas to take a certain amount of water from the Rio Bravo/Rio Grande does not 'own', does not 'posses property rights in', a particular volume of water as it descends through Mexican streams and rivers towards the Rio Bravo/Rio Grande and finds its way into the right-holders irrigation pipes. While the water is in Mexico it belongs to Mexico even though Mexico may be obliged to deliver a certain amount of it into the Rio Bravo/Rio Grande for the taking by US nationals".

Having declined jurisdiction over the claims, the arbitration has come to a halt. However, the award may be challenged in the courts of the legal site of arbitration.

III. United States: historic Colorado River pact signed³

Seven Western states have signed a far-reaching agreement to conserve and share scarce Colorado River water, ending a divisive battle among them. More than 30 million people in the states of California, Arizona, Nevada, Wyoming, Utah, Colorado and New Mexico will benefit from the historic agreement. The 20-year plan resolved several legal disputes among water agencies and formalized rules to cooperate during the ongoing drought affecting the region.

A key element of the drought plan lets the lower-basin states of California, Nevada and Arizona use the vast Lake Mead reservoir behind Hoover Dam to store water they conserve or do not need for use later. For the Metropolitan Water District of Southern California, that arrangement could mean storing almost 1.5 million acre feet (about 1.9 billion cubic meters) of conserved water in the lake. The district is the water wholesaler to 26 cities and water districts serving some 18 million people. This landmark new plan will help California recover some of the water reliability that has been lost as a result of the eight years of record drought.

The plan specifies how and when agencies in each state will face reductions during drought, and sets new rules allowing the reservoirs of lakes Powell and Mead to be operated in tandem, thereby better sharing the risk of drought. The agreements also establish rules for handling surplus water in times of plentiful runoff, and they encourage water conservation. Another agreement lets the Las Vegas-based Southern Nevada Water Authority build a reservoir just north of the United States border in California to capture excess water that would otherwise flow into Mexico. In return for funding the project, expected to cost more than US\$ 175 million, Las Vegas will be allowed to draw up to 0.4 million acre feet (about 493 million cubic meters) of water to satisfy the demands of a fast-growing region that has reached the limit of water it can draw from Lake Mead.

IV. Tanzania: victory in a dispute with water services company⁴

In January, 2008, an arbitral tribunal delivered an award in a dispute between a subsidiary of the British water services company Biwater and a publicly-owned drinking water supply and sewage agency in Tanzania. The arbitration was one of two proceedings to arise after Tanzania severed its contract with City Water, a company incorporated in Tanzania and jointly owned by the United Kingdom-based Biwater and Gauff Ingenieure GmbH & Co. KG-JBG, a German company.

The contractual arbitration had been initiated by City Water, who alleged that the Dar es Salaam Water and Sewerage Authority (DAWASA) unfairly broke their contract for operating the Dar es Salaam drinking water supply and sewage system. Meanwhile, DAWASA, and Tanzanian Government officials, accused the foreign-owned consortium of failing to make the investments in infrastructure that had been agreed to under the contract.

In the arbitration ruling handed down in January, 2008, a three member tribunal, constituted under the United Nations Commission on International Trade Law (UNCITRAL) rules of arbitration, unanimously dismissed City Water's claims and upheld DAWASA's counterclaims. "The tribunal found that City Water's performance was worse than DAWASA's performance before the Lease Contract went into effect," says a statement from the Government of Tanzania.

According to a Tanzanian Government press release, DAWASA was awarded 13.8 billion Tanzanian shillings (approximately US\$ 12 million) minus City Water's performance bond, for a net award of some

³ "Seven states, Interior Department sign historic Colorado River pact", *U.S. Water News Online*, December 2007 (<http://www.uswaternews.com/archives/arcpolicy/7sevestat12.html>).

⁴ Damon Vis-Dunbar and Luke Eric Peterson (2008), "Tanzania declares victory in contractual dispute with water services company", *Investment Treaty News (ITN)*, January 11, International Institute for Sustainable Development (IISD) (http://www.iisd.org/pdf/2008/itn_jan11_2008.pdf).

7 million shillings (approximately US\$6 million). Damages of 2 billion Tanzanian shillings (approximately US\$1.7 million) were also awarded in costs.

Biwater entered Tanzania following a move by various development agencies, including the World Bank and the European Development Agency to back a project to improve drinking water supply and sewage services in and around Dar es Salaam. Foreign donor funding for the project was contingent upon a private company taking over from the state-owned corporation that had previously managed the services.

A second international arbitration involving Biwater and the Government of Tanzania remains ongoing. In that arbitration, which began in 2005 under the auspices of the International Centre for Settlement of Investment Disputes (ICSID), Biwater alleges that Tanzania's treatment of Biwater breaches protections contained in the United Kingdom-Tanzania bilateral investment treaty.

Tanzania had pushed for the treaty arbitration and the contract arbitration to be merged into a single proceeding, however Biwater had rejected that offer. In 2006, the tribunal hearing the ICSID claim issued an order imposing explicit confidentiality obligations on certain documents in the case, after Biwater had complained of the unilateral release by Tanzania of certain documents in the case.

V. International Joint Commission (IJC): draft new order and plan for regulation of water levels and flows⁵

The International Joint Commission (IJC) of Canada and the United States is an independent binational organization established by the Boundary Waters Treaty of 1909. Its purpose is to help prevent and resolve disputes relating to the use and quality of boundary waters and to advise Canada and the United States on related questions. In particular, the Commission rules upon applications for approval of projects affecting boundary or transboundary waters and may regulate the operation of these projects.

In March, 2008, the Commission released for public comment a proposed new Order of Approval and a proposed new plan, called Plan 2007, for regulating the flows through the Moses-Saunders Dam between Cornwall, Ontario and Massena, New York. The regulation affects water levels and flows in Lake Ontario and the St. Lawrence River downstream to Trois-Rivières.

For nearly 50 years, the Commission has regulated levels and flows of Lake Ontario and the St. Lawrence River as far as Trois-Rivières. In addition to the economic benefits from hydroelectric power and the St. Lawrence Seaway, regulation has provided benefits, by reducing the occurrence of extreme high and low water levels, which annually average (in value) US\$ 28.5 million to shoreline property owners and US\$ 3.5 million to recreational boaters. Plan 2007 would provide US\$ 5.5 million in new benefits on average each year.

"We are releasing Plan 2007 and a proposed new Order for public comment today because we believe they are the best that can be implemented at this time. The Commission must consider the requirements of the Treaty for protection and indemnification of interests that may be injured by the project. It also must consider the goals of the two federal governments when the project was developed which included providing benefits to Lake Ontario shoreline owners and protecting interests downstream," said Irene Brooks, Chair of the United States Section of the Commission.

"We are launching a ninety-day comment period starting today with information sessions and public hearings on the proposed new Order and plan," said Herb Gray, Chair of the Canadian Section of the Commission. "We believe that what we are announcing today is of vital importance to the wellbeing of the 14 million people who live around the system and whose lives are connected with the lake and the river. We want to hear the views of the interested public."

⁵ "Draft new Order and plan for regulation of water levels and flows for Lake Ontario and the St. Lawrence River proposed by IJC for public comment", International Joint Commission (IJC), 28 March 2008 (http://www.ijc.org/rel/news/2008/080328_e.htm).

Compared to the current plan (Plan 58-D with deviations), Plan 2007 provides better results for key environmental performance indicators, while maintaining or improving protections for all other interests. The other interests include shoreline property, recreational boating, commercial navigation, hydroelectric power generation and water supply.

It also provides the flexibility to shift from Plan 2007 to a plan with additional environmental improvements, whenever adequate mitigation measures could be implemented. Measures that have been implemented elsewhere include enhanced shoreline protection or dredging of harbours. The proposed new Order, for the first time, will regulate flows to benefit the environment and recreational boating along with the other interests named above.

VI. Development of integrated water resources management performance indicators for African transboundary basins⁶

The International Network of Basin Organisations (INBO) and its regional branch in Africa (the African Network of Basin Organisations — ANBO) proposed to develop and field-test performance indicators adapted to the design and monitoring of the implementation of integrated water resources management principles in African transboundary basins. Performance indicators are now frequently used for water services management, and some experiences were launched in specific location to adopt them in the frame of integrated water resources management. However, there is still a need to design shared procedures and tools adapted to the African context.

This is why INBO and ANBO aim to develop an appropriate method for building a common understanding based on key performance indicators to strengthen the capacity of basin organizations. These key performance indicators will help among other things:

- Basin committees to define appropriate objectives, thanks to the check-list side of the performance indicators.
- Basin organisations management to design (river or lake) basin management plans, and the associated programmes of measures, by providing guidelines and benchmarking.
- Public participation to be active, by highlighting what is expected in terms of involvement.
- Basin organisations stakeholders to monitor the basin management plans, and the associated programmes of measures process.
- Donors to assess the quality of work and the use of their funds.

In Africa, basin organisations at different development stages can be found, but for the most part they are at the initial or emerging stages. It is then necessary to go step-by-step, to apply key performance indicators to selected pilot basins, to analyse collected data, and to share the related knowledge with other basin organisations through a learning process.

The first set of performance indicators that will be tested within 5 African transboundary pilot basins has recently been released. In the context of this project, the decision was made to use two different sets of existing performance indicators, with different focus on how to evaluate integrated water resources management, as the basis for developing indicators for African transboundary basins. The first one aims at describing the process of river basin management as referring to the river basin organisations functions.

The second set of performance indicators is targeting information related to the development of the physical and social on-the-ground situation, so-called “technical” indicators. They are grouped around four problems: the risk of excessive exploitation of water resources, of deterioration of water resources, of deterioration of living conditions and of deterioration of the environment.

⁶ “Preliminary set of indicators released”, International Office for Water, International Cooperation Directorate, 10 April 2008 (<http://www.aquacoop.org/PITB/documents/news/snews865647>).

VII. International Boundary and Water Commission (IBWC): Mexico delivers water to the United States to fulfill treaty obligations⁷

Mexico has completed Rio Grande water deliveries to the United States in accordance with the 1944 Water Treaty, fulfilling its obligations for the 2002-2007 water delivery cycle. Under the terms of the treaty, Mexico is to deliver water to the United States from six Rio Grande tributaries. The treaty specifies a minimum delivery of 1.75 million acre-feet (about 2.16 billion cubic meters) during the course of a five-year water delivery cycle. Mexico completed the minimum required deliveries for 2002-2007 at the end of the cycle on September 30, 2007. The previous two five-year cycles ended in deficit. In 2005, Mexico completed paying its water debt from those cycles. These water deliveries mean that users in the United States have the water they are entitled to under the treaty.

The International Boundary and Water Commission (IBWC) is responsible for applying the boundary and water treaties between the United States and Mexico and settling differences related to the treaties. The IBWC determines the national ownership of waters of the Rio Grande and operates two international storage reservoirs on the river — Falcon and Amistad. The waters delivered by Mexico are stored in the international reservoirs for release to downstream municipal and agricultural users. Once IBWC determines national ownership, Texas will allocate United States water to its authorized water right holders.

VIII. Wastewater treatment: European Commission gives France final warning⁸

The European Commission is sending France a final written warning alerting it that it will be taken to the European Court of Justice (ECJ) for the second time and possibly face fines unless it quickly brings its wastewater treatment up to European Union standards. France is still not complying with the 1991 European Union directive on urban wastewater treatment, despite having been condemned by the ECJ for this.

Larger towns and cities across the European Union are required to collect and treat their urban wastewater under the European Union Urban Wastewater Treatment Directive. The main type of wastewater treatment envisaged by the directive is biological or “secondary” treatment. The deadline for this infrastructure to be operational was 31 December 2000. If wastewater is discharged into “sensitive” water bodies, the directive requires stricter “tertiary” treatment, involving removal of phosphorous and/or nitrogen. This should have been in place by 31 December 1998.

The Commission is sending France a final warning for failing to comply with a 2004 ECJ ruling on the treatment of urban wastewater in certain sensitive areas. Under the ruling, the ECJ condemned France for failing to designate eleven areas as sensitive and for inadequate treatment facilities in a number of settlements (the directive uses the term “agglomeration” which means an area where the population and/or economic activities are sufficiently concentrated for urban wastewater to be collected and conducted to an urban wastewater treatment plant or to a final discharge point) which discharge their wastewaters into these areas. The ECJ also found that 121 settlements breached the directive by discharging their wastewaters into previously designated sensitive areas.

⁷ “Mexico delivers water to the United States to fulfill treaty obligations”, International Boundary and Water Commission (IBWC), United States Section, 12 October 2007 (http://www.ibwc.state.gov/Files/PressRelease_101207.pdf).

⁸ “Waste water treatment: Commission gives France final warning”, European Commission, IP/08/150, Brussels, 31 January 2008 (<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/150&format=HTML&aged=0&language=EN&guiLanguage=en>).

In 2006, France designated the eleven areas as sensitive. However, 140 settlements — including the city of Paris — continue to discharge into these sensitive areas. With regard to the 121 settlements discharging into the previously designated sensitive areas France proceeded to rearrange them into 164 settlements, resulting in some settlements no longer meeting the threshold level of 10,000 residents at which the directive applies. The Commission considers such rearranging of settlements to avoid compliance with the directive unacceptable and calls on France to implement the directive in all settlements covered by the ECJ ruling. In May, 2007, France notified the Commission of the settlements' status and its agenda for complying with the ruling. It appears that some remaining settlements will not be equipped with wastewater treatment facilities before 2011, some seven years after the ECJ court ruling and 12 years after the deadline set by the directive. The Commission finds this delay deplorable and urges France to build wastewater treatment facilities in all concerned settlements as soon as possible. Should France not respond satisfactorily to its warning, the Commission may ask the Court to impose fines on France.

Article 226 of the treaty by which the European Union was formed gives the Commission powers to take legal action against a Member State that is not respecting its obligations. If the Commission considers that there may be an infringement of European Union law that warrants the opening of an infringement procedure, it addresses a “Letter of Formal Notice” (first written warning) to the Member State concerned, requesting it to submit its observations by a specified date, usually two months. In the light of the reply or absence of a reply from the Member State concerned, the Commission may decide to address a “Reasoned Opinion” (final written warning) to the Member State. This clearly and definitively sets out the reasons why it considers there to have been an infringement of European Union law, and calls upon the Member State to comply within a specified period, usually two months. If the Member State fails to comply with the Reasoned Opinion, the Commission may decide to bring the case before the ECJ. Where the Court finds that the Treaty has been infringed, the offending Member State is required to take the measures necessary to conform. Article 228 of the Treaty gives the Commission power to act against a Member State that does not comply with a previous judgement of the ECJ. The article also allows the Commission to ask the Court to impose a financial penalty on the Member State concerned.

IX. Commission for Environmental Cooperation (CEC): submission on a contaminated site in Mexico⁹

The Commission for Environmental Cooperation (CEC) is an international organization created by Canada, Mexico and the United States under the North American Agreement on Environmental Cooperation (NAAEC). The CEC was established to address regional environmental concerns, help prevent potential trade and environmental conflicts, and to promote the effective enforcement of environmental law. The Agreement complements the environmental provisions of NAFTA.

On 22 February 2008, the *Instituto de Derecho Ambiental, Colonia Jardines del Sol* and *Colonos de Bosques de San Isidro* (the “Submitters”) filed a submission with the CEC Secretariat asserting that Mexico is failing to effectively enforce its environmental law in connection with a contaminated site located in Zapopan, Jalisco on which construction of the *La Ciudadela* development is planned. The Submitters assert that the environmental authorities failed to ensure soil remediation on a site contaminated with heavy metals (including thallium, cadmium, nickel and lead, among others) where electronic component manufacturing took place for over 30 years. The Submitters state that the lot selected by *SSC Inmobiliaria* for the development of *La Ciudadela*, is still contaminated with heavy metals, even though the company carried out final disposal of thallium-contaminated soil. The CEC Secretariat will now analyze the submission to determine whether it meets the requirements of Article 14 of NAAEC.

⁹ “CEC receives submission on contaminated site in Zapopan, Jalisco”, Commission for Environmental Cooperation (CEC), Montreal, 26 February 2008 (<http://www.cec.org/news/details/index.cfm?varlan=english&ID=2787>).

The CEC citizen submission mechanism allows citizens to play an active “whistleblower” role in matters relating to environmental law enforcement. Pursuant to NAAEC Article 14, any citizen or nongovernmental organization may file a submission with the CEC Secretariat when it believes that a NAFTA partner is failing to effectively enforce its environmental law. After reviewing the submission, the CEC may investigate the matter and publish a factual record of its findings.

X. United States: Georgia loses major water ruling on rights to Lake Lanier¹⁰

In the United States, a federal appeals court has thrown out an agreement that Georgia reached with the Army Corps of Engineers for water rights to a major federal reservoir outside Atlanta, handing Alabama and Florida a major victory in the states' years-long water conflicts. The 2003 agreement with the Corps would give Georgia about a quarter of Lake Lanier's capacity over the coming decades and is the foundation of Georgia's long-term plans for supplying drinking water to the rapidly growing Atlanta region.

Alabama and Florida challenged the pact, arguing that Georgia does not have any legal right to the federal reservoir, which was initially built for hydropower. The withdrawals would dry up river flows into their states that support smaller municipalities, power plants, commercial fisheries and industrial users like paper mills. A district court earlier ruled in Georgia's favour, but the United States Court of Appeals in Washington overturned that decision, saying that the agreement constituted a major operational change at the reservoir that requires congressional approval.

“This is the most consequential legal ruling in the 18-year history of the water war, and one of the most important in the history of the State of Alabama,” said Alabama Governor Bob Riley. “It establishes that the decades-old practice of Atlanta taking more and more water from the federal reservoirs in the Coosa and Chattahoochee rivers without any legal authority to do so will not stand”. The ruling comes amid tense negotiations among the states' governors over water sharing during a record drought. The talks have been brokered by Interior Secretary Dirk Kempthorne but so far have not yielded tangible results.

Although the ruling raises questions about Georgia's rights to the water it already is using in Lake Lanier, Bert Brantley, a spokesman for Georgia Governor Sonny Perdue, said it would not harm the state's negotiating position: “Our goal and our focus has always been on reaching an agreement with our neighbours and to work this out at the negotiating table rather than in a courtroom”. Florida's Governor Charlie Crist applauded the court for “recognizing the importance of maintaining Florida's water flow ... Their decision today moves us one step closer to providing essential protection for a significant amount of Florida's natural resources, seafood industry and economy”. Michael Sole, secretary of Florida's environmental protection department, called the ruling a victory for the ecosystem around the state's Apalachicola Bay, which Florida officials have argued would be harmed by low river flows: “It clearly supports Florida's position that the (Corps) and Georgia cannot agree to reallocate storage in the Lake Lanier reservoir, to provide more water for Atlanta for instance, without congressional approval”.

XI. Book: Water Law and Transboundary Watercourses, by Patricia Wouters¹¹

Despite the fact that numerous transboundary watercourses are regulated by international treaties, many of these agreements are now outdated, incomplete, or have not been adhered to. This situation, coupled with the increasing demand for freshwater supply, magnify the possibility of water conflicts, despite the

¹⁰ “Georgia loses major water ruling on rights to Lake Lanier”, *U.S. Water News Online*, February 2008 (<http://www.uswaternews.com/archives/arcrights/8georlose2.html>).

¹¹ *Water Law and Transboundary Watercourses*, by Patricia Wouters, publication date: 1 December 2008, ISBN: 1843391198, IWA Publishing (<http://www.iwapublishing.com/template.cfm?name=isbn1843391198>).

existence of a large body of conventional law in the field. Will the rules elaborated by the United Nations succeed in providing acceptable direction for the international community in their concerns over water? The book “Water Law and Transboundary Watercourses” examines the evolution of the principles of equitable utilization and no harm as rules of customary international law that have come to define legitimate State activity regarding international water use. The key issues addressed are:

- What is the normative content of the principles of equitable utilization and no harm as they relate to international watercourse law.
- What is the hierarchical relationship between the two principles?

While the answer to the first question is important because it defines the rules applicable in the area, the response to the second question is critical as it determines the rule that governs international water use where the demand exceeds the supply, a conflict-of-uses situation. The majority of water problems in the future will fall into this category underlining the need to resolve these critical issues.

XII. Study: Commentary on the U.N. International Law Commission’s Draft Articles on the Law of Transboundary Aquifers, by Gabriel E. Eckstein¹²

Groundwater is the most extracted natural resource in the world. It provides more than half of humanity's freshwater for everyday uses such as drinking, cooking, and hygiene, as well as twenty percent of irrigated agriculture. Despite our increasing reliance, groundwater resources have long been the neglected stepchild of international water law; regulation and management of and information about groundwater resources are sorely lacking, especially in the international context. Presently, there is no international agreement squarely addressing groundwater resources that traverse an international boundary. Moreover, there is only one treaty in the entire world pertaining to the management of a transboundary aquifer, and few nations possess the relevant technical information necessary to enter into such agreements. The result is overexploitation and degradation of many of the world's transboundary aquifers, and considerable harmful impacts on border communities, economies, and ecosystems dependent on transboundary groundwater resources.

Recently, the United Nations International Law Commission embarked on an effort to address this shortcoming and to consider the international law applicable to transboundary aquifers. This undertaking follows and builds on the Commission's prior work on international watercourses, which culminated in the 1997 United Nations Convention on the Non-Navigational Uses of International Watercourses. It also builds on the work of other organizations, including that of the International Law Association and its Helsinki, Seoul, and Berlin Rules. This paper reviews the work of the Commission in its current effort to codify and progressively develop the international law applicable to transboundary groundwater resources. It critically assesses the nineteen Draft Articles formulated by the Commission and considers the various legal, scientific, social, and related implications of those articles. Moreover, it assesses the applicability and soundness of the Draft Articles in relation to the science of groundwater resources. Ultimately, the challenge before the Commission is to formulate international legal principles and doctrines that will allow States to overcome the unique problems associated with the utilization, management, allocation, and protection of the world's transboundary aquifers. The goal of this study is to generate discussion on this critically important topic and to spur additional commentaries that may aid the Commission in its effort.

¹² *Commentary on the U.N. International Law Commission’s Draft Articles on the Law of Transboundary Aquifers*, by Gabriel E. Eckstein, International Water Law Project (IWLP) (<http://www.internationalwaterlaw.org/articles/Eckstein-UNILC-Commentary.pdf>).

XIII. Study: Ambiguity in transboundary environmental dispute resolution: the Israeli-Jordanian water agreement, by Itay Fischhendler¹³

Cooperation over transboundary environmental resources, water in particular, has been analyzed from various perspectives. Each study identifies the problems of cooperation differently and suggests different mechanisms to enhance it. Yet, the role of ambiguity, particularly significant in treaty design to resolve environmental disputes, has thus far been overlooked. Such a focus is warranted, since many international agreements regulating the use of natural resources are ambiguous in their schedule of resource delivery during crisis events or in their cost-sharing arrangements and may even include contradictory resource-allocation principles while remaining vague on how to settle the contradictions. This study aims to examine why, when, and how ambiguity is applied in agreements pertaining to natural resources, and water in particular. The Israeli-Jordanian peace agreement, which includes an annex on water-use regulation, is used as a case study. It was found that, under asymmetric power relations, when both sovereignty costs and uncertainty are high, several types of deliberate ambiguity were intentionally incorporated into the treaty. Some ambiguities allowed each side to present the treaty differently at home, thereby defusing domestic opposition, while others provided flexibility to adjust the resource allocation during a future crisis without the need to renegotiate the treaty.

XIV. Study: Climate change and the stability of water allocation agreements, by Erik Ansink and Arjan Ruijs¹⁴

When multiple countries share a river, they compete over available water resources. The upstream country has the first option to use water, which may obstruct the overall efficiency of water use. Cooperation between upstream and downstream countries — in the form of a water allocation agreement — may increase the efficiency of water use. Whether cooperation is stable, however, depends on the design of the water allocation agreement.

In the twentieth century, some 145 international agreements on water use in transboundary rivers were signed; almost 50% of these agreements cover water allocation issues. The majority of these water allocation agreements does not take into account the hydrologic variability of river flow. This is a shortcoming because variability is an important characteristic of river flow. This variability will even increase in many river basins when the effects of climate change on temperature and precipitation proceed as projected by climate simulation models. These effects are expected to increase the variability of the annual and seasonal flow patterns as well as the frequency of extreme events in many river basins. Recognition of flow variability in the design of water allocation agreements can increase the efficiency of these agreements.

Apart from being efficient, water allocation agreements need to be stable in order to be effective instruments to increase the efficiency of water use. Efficiency and stability of agreements are not necessarily linked. Climate change, for instance, may increase the benefits of cooperation to one country while decreasing those of the other, possibly giving the later an incentive to leave the agreement. The stability of agreements therefore depends on the distribution of the benefits of cooperation to the countries involved, which can be analysed using game theory.

The objective of this paper is to assess the stability of water allocation agreements when climate change affects river flow. This is done by constructing a game theoretic model of water allocation that analyses

¹³ Itay Fischhendler (2008), "Ambiguity in Transboundary Environmental Dispute Resolution: The Israeli-Jordanian Water Agreement", *Journal of Peace Research*, Volume 45, N° 1, International Peace Research Institute, Oslo (<http://jpr.sagepub.com/cgi/content/abstract/45/1/91>).

¹⁴ Erik Ansink and Arjan Ruijs (2007), "Climate change and the stability of water allocation agreements", *Note di Lavoro*, N° 16.2007, February, Fondazione Eni Enrico Mattei (<http://www.feem.it/NR/rdonlyres/F486CFCE-EDD4-43BF-B7E1-765C82F35714/2246/1607.pdf>).

stability of three sharing rules (proportional, fixed flow and flexible) for water allocation. Results show that both a decrease in mean river flow and an increase in variance of river flow decrease stability, and that an agreement where the downstream country is allocated a fixed amount of water has the lowest stability compared to other sharing rules. Agreements in the Nile river basin, the Orange river basin, and the South Saskatchewan river basin are used as illustrations.

XV. Update: ECLAC water-related studies¹⁵

- “*Seminar on the Regulation of Public Utilities ‘Water and Electricity’ (Santiago, Chile, 18-19 October 2005)*” (LC/W.125), April 2007 (also available in Spanish). The seminar was organized by the Natural Resources and Infrastructure Division, together with the Institute of Sciences and Techniques of Equipment and Environment for Development (ISTED) of France and with support from the French Government. The event was held on 18 and 19 October 2005, at ECLAC headquarters in Santiago, Chile. The overall objective of the seminar was to discuss critical regulatory issues in the region in relation to local and international experiences, with a view to suggesting guidelines for dealing with them better in the future. The specific objectives were: (i) to compare different experiences with policies for regulating public services; (ii) to enrich the discussion with different points of view and the perspectives of the local and institutional stakeholders; and (iii) to identify, at the regional level, critical issues requiring further reflection in order to suggest strategies for dealing with them better in the future.
- “*Servicios urbanos de agua potable y alcantarillado en Chile: factores determinantes del desempeño*” (*Urban drinking water and sewerage services in Chile: determining factors of performance*) by Soledad Valenzuela and Andrei Jouravlev (Natural Resources and Infrastructure Series N° 123, LC/L.2727-P, April 2007) (available in Spanish only). The experience of the provision of drinking water supply and sewerage services in Santiago, and in the other urban areas in Chile, is of interest for two main reasons: (i) high levels of coverage and efficiency achieved in the public sector provision of those services; and (ii) the scale of investments and the absence of significant regulatory conflicts, or the ability to settle such conflicts quickly and pragmatically, once the private service provision model was established. The purpose of this study is to identify the main factors which have influenced service provision in urban areas in Chile, particularly in the city of Santiago, with a perspective applicable to other countries in the region. The analysis centres both on factors endogenous to the drinking water supply and sewerage sector (such as institutional and industrial structures, private sector participation, regulatory frameworks, policies in relation to financing, tariffs and subsidies, sequencing of the reform process and phasing of economic, social and environmental objectives) and on exogenous factors (such as macroeconomic policy, social situation, the place the sector occupies in the political priorities reflected in government decisions, and water and environmental management policies). Particular attention is paid to the impact of macroeconomic policies on the sustainability patterns of the services. The document is structured as follows: the first section presents a description of the sector’s historical evolution, seeking to examine its development over a period of three decades, and shows the main results obtained, mostly in terms of performance factors, investment levels and demand behaviour. The second and third sections of the study analyse the main endogenous and exogenous factors which explain the system’s good performance. Lastly, a number of conclusions are outlined.

¹⁵ The publications of the Natural Resources and Infrastructure Division are available in two formats: (i) electronic files (PDF), which may be downloaded from <http://www.eclac.org/dri> or requested from Andrei.JOURAVLEV@cepal.org; and (ii) printed documents (hard copies), which should be requested from the ECLAC Distribution Unit (e-mail: publications@eclac.cl, fax: (56-2) 210-20-69, mail: ECLAC Publications, Casilla 179-D, Santiago, Chile).