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The IWT and the UNWC: Commonalities and Differences

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ABSTRACT

Amid global water scarcity and a surge in population, leading nations have started racing to occupy freshwater resources around the world. While there remains no international agreement applying universally worldwide, almost all major international watercourses and powerful nations remain out of the scope of any sort of legal obligation. Bilateral and multilateral treaties have become the governing legal framework to regulate freshwater utilization. In this context, the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (UNWC) and the Draft Articles on the Law of Transboundary Aquifers (DALTA) play a significant role, serving not only as the guiding documents to form treaty laws or agreements, but also as customary international law in situations where there is no available regional legal framework. These instruments have achieved this accredited status by developing universally acclaimed principles, obligations, and duties on co-riparian states and aquifer states, that in their core senses are equitable, juridical, and impartial. These principles and obligations are flexible and accommodate diverse evolving aspects of water apportionment. Accordingly, this paper has been devised to set out the international law of freshwater. Herein, significant implications, such as how this legal framework has been developed, are explained and annotated with intrinsic principles. The principle of the equitable and reasonable

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utilization of international watercourses, and the obligation not to harm other concerned states, will form the underlying emphasis in this paper. The significance of the regional legal agreement, that is, the IWT, will be briefly explored in comparison with the UNWC, considering the principles, obligations, and duties that are universally acclaimed and, more importantly, that are established by the UNWC.

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I. INTRODUCTION

The international watercourses of the Indus river basin are acknowledged to be one of the greatest canal systems in the world, accommodating 20 million hectares of irrigable lands for agrarian purposes.[2] India, China, and Pakistan are its major co-riparian states, sharing most of its water, and China is an upper riparian state to India in the same way that India is an upper riparian state to Pakistan.[3] While China manages its sources of water flows, India remains the prime riparian to manage water flows through its headworks, and Pakistan only shares its basins. Afghanistan holds 6 percent of the watercourses of the Indus rivers, China holds 8 percent, India holds 39 percent, and Pakistan holds 47 percent.[4]

The partition of Hindustan in 1947, which bifurcated the enormous state into Pakistan and India, made complex geological demarcations; the headworks of the Pakistani irrigation system lie in Indian-occupied Kashmir, which remains an area disputed between the hostile neighboring states.[5] Consequently, to resolve the conflicting interests, in 1960 the World

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[2] ASHOK SWAIN, MANAGING WATER CONFLICT: ASIA, AFRICA & THE MIDDLE EAST 46 (2004).

[3] IMAGINING INDUSTAN: OVERCOMING WATER INSECURITY IN THE INDUS BASIN, 198 (Zafar Adeel & Robert G. Wirsing eds., 2016).

[4] BJORN-OLIVER MAGSIG, INTERNATIONAL WATER LAW & THE QUEST FOR COMMON SECURITY 185 (2015).

[5] Hemant Kumar Padhiari & Vishwa Ballabh, *Inter-State Water Disputes and the Governance Challenge*, *in* GOVERNANCE OF WATER: INSTITUTIONAL ALTERNATIVES & POLITICAL ECONOMY 174, 179 (Vishwa Ballabh ed., 2008).

Bank brokered a water sharing treaty between India and Pakistan, which is known as the Indus Waters Treaty (IWT).[6] Through this treaty, the six major rivers—the Indus, Ravi, Jhelum, Chenab, Sutlej, and Beas—along with many other smaller tributaries, were equitably allocated for the unrestricted use of their respective states.[7]

In more recent times, the surge in population in both countries has amplified water requirements for consumptive as well as for nonconsumptive usages.[8] India has repeatedly violated the treaty by installing storage and power production facilities on the western rivers, which were allocated to Pakistan for its exclusive and unrestricted use.[9] India categorizes these violations as sincere necessities by arguing that, since the IWT is almost 60 years old, it does not cater for other contingent aspects of water apportionment, so it is crucial to amend and modify the IWT.[10] In this context, it becomes appropriate to note the modern aspects that should be encompassed in devising an international water apportionment treaty, and whether the IWT accommodates or respects these aspects within its prescribed procedures, principles, and duties.

To explore the international legal framework of established principles and obligations, it is suitable to review its progression and its contextual impetuses. All human beings rely on fresh water, and only 0.0044 percent of all water globally comes from rivers and 10.85

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[6] BRIG V.P. MALHOTRA, SECURITY & DEFENCE RELATED TREATIES OF INDIA 273 (2010).

[7] The Indus Waters Treaty art. 2-3, India-Pak., Sep. 19, 1960, 126 U.N.T.S. 6032.

[8] *See* ADEEL & WIRSING, *supra* note 3, at 59.

[9] GABRIELLA BLUM, ISLANDS OF AGREEMENT 70 (2007).

[10] SATISH KUMAR, INDIA'S NATIONAL SECURITY ANNUAL REVIEW 2013 (2014).

percent from shallow groundwaters that are accessible and drinkable. The rest of the water worldwide is not safe for drinking purposes or is inaccessible, such as seawater and waters in glaciers or deep underground.[11] With a 1.11 percent annual growth rate in population,[12] natural water resources are finite in their capacity to cater for human needs. Rivers often have regional transboundary basins, and for the same reason nations often share rivers with other nations.[13] Amid growing water usage for domestic, industrial, irrigation, power production, and storage purposes, a race for water navigation, storage and runoff projects is emerging. This in turn leads to conflicts over water among co-riparian states over safeguarding their national water interests.[14] These interests are not only indispensable to guarantee the necessity of life but also critical for national economic security.

It is difficult to believe that there is no international unanimity over any set of rules and regulations for sharing transboundary fresh river waters.[15] No established framework restricts or restrains countries from exploiting the waters of lower riparian countries by constructing massive storage facilities or by navigating river waters away from their course

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[11] Adam Nieman, *All the Accessible Fresh Water in the World*, CARBON VISUALS (Sept. 24, 2014), https://perma.cc/H7JL-FMWY.

[12] *Current World Populations*, WORLDOMETERS, https://perma.cc/J7BX-2FE3 (last visited Apr. 4, 2017)

[13] PATRICIA PARK, INTERNATIONAL LAW FOR ENERGY & THE ENVIRONMENT 299 (2nd ed., 2013); *see also* MANOHAR PAWAR, WATER & SOCIAL POLICY 42 (2014).

[14] V. I. Grover, *Water: Global Common Global Problems*, 380 SCIENCE PUB, (2006).

[15] *See* PARK, *supra* note 13, at 299–300; *see also* PAWAR, *supra* note 13, at 42–43.

even at the start of the twenty-first century.[16]

More than 100 largest rivers of the world are stretched across the boundaries of more than two nations, and they share their basins with neighboring countries.[17] The Mekong, Niger, Congo-Zambezi, Nile, Amazon, Brahmaputra, and Indus rivers are the largest international rivers.[18] As a result, large and powerful states such as China and India have begun efforts to gain freshwater reservoirs by building huge storage facilities to control water reserves and thereby regional economics and geopolitics.[19]

China has built more than 80,000 dams, with 4,000 medium-sized storage and navigational projects, of which more than a hundred are huge.[20] By comparison, India has constructed more than 5,000 large storage and navigational projects on river waters, of which 50 are immensely large dams.[21] Projects over shared waters have generally been constructed

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[16] PARK, *supra* note 13, at 299; *see also*, PAWAR, *supra* note 13, at 42.

[17] Anthony Turton, *The Southern African Hydropolitical Complex*, *in* MANAGEMENT OF TRANSBOUNDARY RIVERS & LAKES 21, 64 (Olli Varis et al. eds., 2008).

[18] Kazuaki Hori & Yoshiki Saito, *Classification, Architecture, and Evolution of Large-River Deltas*, *in* LARGE RIVERS: GEOMORPHOLOGY AND MANAGEMENT 75, 76-78 (Avijit Gupta ed., 2007).

[19] BÉRÉNICE GUYOT-RÉCHARD, SHADOW STATES: INDIA, CHINA & HIMALAYAS, 1910-1962, at 270 (2017).

[20] *China*, INT'L RIVERS, https://perma.cc/5D2G-9MKA (last visited Apr. 8, 2017).

[21] Ananda Banerjee, *How Many Dams Does India Need?*, LIVEMINT (May 25, 2015) https://perma.cc/RDt7-D66F.

without the approval or consent of the lower riparian states.[22] These, in turn, negatively affect the lower riparian states' environment and economies, and disturb human settlements in both upper and lower riparian nations.[23] These practices also restrict freshwater fish migration and prevent clean water use for agricultural and domestic purposes in the lower riparian nations. Consequently, India, as a lower riparian state to China, fears Chinese construction works over the Brahmaputra River, as there is no bilateral treaty among these states to safeguard each other's water interests.[24] Similarly, Pakistan as a lower riparian state to India, continually protests the illicit construction works on the western rivers that were allocated to Pakistan by the IWT, a bilateral water sharing treaty between India and Pakistan.[25]

Similarly, in Africa, Ethiopia is constructing the largest regional dam on the waters of the Nile River. As a result, lower riparian states such as Egypt and Sudan are contesting its

[22] NAROTTAM P. BANSKOTA, SOUTH ASIA TRADE & ENERGY SECURITY: THE ROLE OF INDIA 81 (2012).

[23] Jayante Bandyopadhyay, *Restoration of Ecological Status of Himalayam Rivers in China and India: The Case of the Two Mother Rivers – The Yellow and the Ganges, in* ENVIRONMENTAL SUSTAINABILITY FROM THE HIMALAYAS TO THE OCEAN 69, 70–80 (Shikui Dong et al. eds., 2017).

[24] Uttam Kumar Sinha, *Towards Riparian Rationality: an Indian Perspective, in* CHINA–INDIA RELATIONS: COOPERATION & CONFLICT 167, 168 (Kanti Bajpai et al. eds., 2016).

[25] ADEEL & WIRSING, *supra* note 2, at 54–55

legality.[26] Likewise, already devastated by war, the state of Syria is further threatened by construction work on the Euphrates by the Turkish regime for storage purposes, which also serves the political ends of their ongoing armed conflict.[27]

Of all river basins of the world, 263 rivers share their basins across borders; the population residing in countries with international rivers encompass 40 percent of the world population.[28] Some rivers, including the Nile, Niger, Rhine, Zambezi, and others, have more than eight co-riparian states, sharing river basins with several nations simultaneously.[29] Even more shockingly, international rivers—containing 60 percent of global river water—do not have any sort of agreement or treaty between the co-riparian states.[30] So there is a legal vacuum regarding the use and sharing of freshwater internationally.

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[26] JOHN MARKAKIS, ETHIOPIA: THE LAST TWO FRONTIERS 339–344 (2011).

[27] ROY L. NERSESIAN, ENERGY ECONOMICS: MARKETS, HISTORY, AND POLICY 421 (2016); *see also* Jane V. Hall & Darwin C. Hall, *Environmental Resource Scarcity and Conflict*, *in* THE POLITICAL ECONOMY OF WAR & PEACE 177, 188 (Murray Wolfson ed.,, 1998).

[28] JACQUELINE VAUGHN, CONFLICTS OVER NATURAL RESOURCES: A REFERENCE HANDBOOK 94 (2007).

[29] Fred Pearce, *A Global Treaty on Rivers*, YALE ENVIRONMENT 360 (Nov. 19, 2012), [https://perma.cc/8MSN-E2UK].

[30] *Id.*

Accordingly, this paper is divided into seven sections. Section 1 will explore the regional legal framework regarding the water apportionment of international watercourses. Here, treaty laws and experts' opinions will be assessed.

Section 2 will start with a global view of the international law of water sharing. Within this section, Section 2.1 will briefly touch upon customary international law and Section 2.2 will elaborate the developments in international water sharing law.

Subsequently, Section 3 will give a brief overview of international instruments. Section 3.1 will explain the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (UNWC) and briefly go into why it was formed. Section 3.2 will give a similarly brief analysis of the Draft Articles on the Law of Transboundary Aquifers (DALTA).

Section 4 will expand upon the key principles and obligations that have been established through UNWC and DALTA. Section 4.1 will explain the "principle of equitable and reasonable water utilization" and 4.2 will define the "obligation of not to cause harm."

Section 5 will elaborate on the procedural duties laid down in UNWC and DALTA. Here, various aspects of water apportionment and utilization will be explored, such as the duty of a state to cooperate with other concerned states, the duty to notify other concerned states about planned activities, and the duty not to pollute and harm the environment.

Section 6 will provide a brief analysis of the provisions of DALTA, as a reflection of the same notions of principles, obligations, and duties of the UNWC.

Finally, Section 7 will explore the equivalence between the IWT and the UNWC, with regard to the principles, obligations, and duties that are universally acclaimed and, more importantly, established by the UNWC.

II. Overview of the Regional Law of Water

This section will elaborate the regional legal framework pertaining to water apportionment. This overview will demonstrate the scarcity of water, while discussing the treaty laws of various regions, while weighing expert opinions within the same equation.

Scholars and futurists alike have suggested that water will be the most important commodity in the future.[31] In only the last five decades, the use of water has tripled across the globe, mainly for agrarian purposes, owing to the surge in population.[32] Consequently, environmental devastation is put down to navigational and storage usages of water. Therefore, water scarcity in the future is considered imminent and experts believe that water conflicts and inadvertent water wars are inevitable.[33]

Nonetheless, with a reasonable and sophisticated approach, these conflicts can be managed

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[31] Paolo Turrini, *Virtual Water: A Global Economic Solution to a Local Environmental and Political Problem, in* Charting the Water Regulatory Future: Issues, Challenges, and Directions 55, 55-56 (Julien Chaisse ed., 2017).

[32] Michael Gordy, Disaster Risk Reduction and the Global System: Ruminations on a Way Forward 3 (2016).

[33] *See* Turrini, *supra* note 31, at 55–56.

peacefully, through co-riparian states entering into water sharing treaties.[34] In the last half-century, more than 150 water sharing treaties have been formed, which have restrained the number of water conflicts to fewer than forty.[35] This is mainly because nations across the globe prefer predictable outcomes, and choose peace over war.

It is interesting to note that the first treaty formed to end armed conflict was promulgated in 2500 B.C. over the sharing of the waters of the Tigris River, between Lagash and Umma.[36] Since then, the Food and Agricultural Organization of the United Nations has reported that over 3,500 water sharing treaties have been agreed over international rivers since A.D. 805.[37] Hitherto, such treaties have largely focused on the navigational purpose of waters, whereas modern treaties look upon the non-navigational uses of waters, such as water usage for consumptive, protective, and storage purposes.[38]

Legal mechanisms of water sharing treaties and agreements have survived conflicts and

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[34] DANIEL CALLAHAN, THE FIVE HORSEMEN OF THE MODERN WORLD: CLIMATE, FOOD, WATER, DISEASE, AND OBESITY 251 (2016).

[35] *Id.*

[36] David P. Forsythe, *Water and Politics in the Tigris – Euphrates Basin: Hope for Negative Learning, in* WATER SECURITY IN THE MIDDLE EAST 167, 172 (Jean A. Cahan ed., 2017).

[37] VELMA I. GROVER, WATER: A SOURCE OF CONFLICT OR COOPERATION 29 (2007).

[38] Alexandre Kiss, *Public Lectures on International Environmental Law, in* THE LAW OF ENERGY FOR SUSTAINABLE DEVELOPMENT 6, 12 (Adrian J. Bradbrook et al. eds., 2005).

wars across the globe.[39] For instance, regulations and negotiations over the waters of the Mekong River through the Mekong River Commission survived the Vietnam War among Cambodia, Laos, Thailand, and Vietnam.[40] Similarly, water sharing negotiations over the Jordan River have endured armed conflicts and warfare between Jordan and Israel. Analogously, the Indus Waters Treaty over six major rivers feeding billions of people has subsisted despite ongoing hostilities and two major wars between the hostile neighboring states of Pakistan and India.[41]

Furthermore, the legal framework over the waters of the Nile River was agreed upon in 1999 by ten co-riparian states, to justifiably use shared water resources in the hope of developing regional peace and economic security.[42] Consistently, for the same reasons, the co-riparian states of the Niger River agreed to a similar legal framework to establish an

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[39] Meredith A. Giordano & Aaron T. Wolf, *The World's International Freshwater Agreements: Historical Developments and Future Opportunities*, *in* ATLAS OF INTERNATIONAL FRESHWATER AGREEMENTS 1, 3-5 (2002).

[40] Michael Richardson, *China and the Potential for Conflict Over Water Among Eurasian States*, *in* WATER ISSUES IN SOUTHEAST ASIA: PRESENT TRENDS AND FUTURE DIRECTIONS 27, 30 (Lee Poh Onn ed., 2013).

[41] Giordano, *supra* note 39, at 3-5.

[42] Assefa M. Melesse et al., *Hydrological Variability and Climate of the Upper Blue Nile River Basin*, *in* NILE RIVER BASIN: HYDROLOGY, CLIMATE AND WATER USAGE 3, 14 (Aseffa M/ Melesse ed., 2011).

impartial mechanism over the use of fresh waters.[43] These mutually agreed legal frameworks across the globe reflect the global need for an equitable and impartial higher authority or legal framework over the use of freshwater resources. An international organization to envisage the neutrality and justice of water sharing through an impersonal instrument would be ideal. Comparably, in the parallel legal world of armed conflict the UN Charter is an international instrument to regulate the use of force.[44]

That there have been over 3,500 water sharing treaties is in itself a great achievement of civilization over the course of history to avoid greater conflicts.[45] But putting these instruments under scrutiny will demonstrate the imperfections and frailties within them. These characteristics include the inadequacy of monitoring regimes, the ineffectiveness of enforcements against treaty violations, and the lack of adequate mechanisms to forestall the changing facets of politics, economies, technologies, and other needs.[46]

III. THE INTERNATIONAL LAW OF FRESHWATER

To fill the gap in the legal frameworks over the world, in 1997 the United Nations devised the United Nations Convention on Non-Navigational Watercourses (also known as the UN

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[43] INTERNATIONAL REGULATORY CO-OPERATION: ADDRESSING GLOBAL CHALLENGES 91 (OCED ed., 2013).

[44] U.N. Charter.

[45] JEROME DELLI PRISCOLI & AARON T. WOLF, MANAGING & TRANSFORMING WATER CONFLICTS 62 (2009).

[46] *Id.*

Watercourses Convention and referred to here as the UNWC) for the sole purpose of equitably sharing fresh waters among co-riparian states.[47] Within this legal framework, the UN envisioned two basic legal principles over water sharing among co-riparian states. These include the principle of the "equitable and reasonable utilization of watercourses" and the principle of "the obligation not to cause significant harm" to neighboring and co-riparian states.[48] Largely, this framework is a guidance instrument for states, whereas nations establish their water sharing mechanisms themselves.[49]

However, it is unanimously agreed among academics that further work on this instrument is required to develop an enforcement mechanism and to administer punitive approaches against violators of treaties and bilateral agreements.[50] Conversely, broader perspectives—of societal and normative changing aspects—and resonating water attribution characteristics—including but not limited to changing dynamics of river basins—are

[47] Daniel Malzbender & Anton Earle, *Southern Africa*, *in* THE UN WATERCOURSES CONVENTION IN FORCE: STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT 112, 117 (Flavia Rocha Loures & Alistair Rieu-Clarke eds., 2013).

[48] *Id.*

[49] Patricia Wouters, *Addressing Water Security Challenges: The International Law 'Duty to Cooperate' as a Limit on Absolute State Sovereignty*, A HISTORY OF WATER: SOVEREIGNTY AND INTERNATIONAL WATER LAW 334, 338 (Terje Tvedt et al. eds., 2015).

[50] MAGSIG, *supra* note 4, at 27.

incorporated within the framework.[51] This section will elaborate on international water sharing law. Here, Section 2.1 will briefly touch upon what constitutes customary international law. Later, Section 2.2 will elaborate on the developments of international law in regard to water apportionment and utilization among co-riparian states.

A. Customary International Law

The main determination of the UNWC and DALTA was to establish fundamental principles for laws regarding international waters. However, the legal framework of the international law of water sharing is not limited to these conventions; customary international law is derived from bilateral and multilateral agreements or treaties, and further derived from case law, such as *opinio juris*, and practices of the states, comprising *jus cogen* principles established by such practices.[52] The practices and case law serving as customary international law can also be derived from judgments of international courts or international arbitrations, in furtherance of certain conventions relating to the international

[51] Patricia Wouters & Ruby Moynihan, *Water Security – Legal Frameworks and the UN Watercourses Convention*, *in* THE U.N. WATERCOURSES CONVENTION IN FORCE: STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT 336, 346 (Flavia Rocha Loures & Alistair Rieu-Clarke eds., 2013).

[52] THOMAS WEATHERALL, JUS COGENS: INTERNATIONAL LAW & SOCIAL CONTRACT136 (2015).

law of international waters more generally.[53] Similarly, the opinions of renowned academics are useful to the International Court of Justice (ICJ) in ascertaining customary international law.[54]

When there is no neutral authority serving to regulate the legal frameworks of international law, or to represent the juridical positions of aggrieved weak states, the machinery of customary international law (CIL) seems a primitive legal system. This, coupled with a lack of an enforcement mechanism, appears inadequate.[55] Nevertheless, CIL is not a wholly ineffective system for providing rules, as it still holds merit. Yet, owing to its shortfall to provide adequate punitive measures or enforcement mechanisms, the only available remedy under CIL is to take unilateral forceful retaliation.[56] That will only ensure justice for the powerful and atrocities against the poor and weak, because the rich will always be able to muscle their way to meet their interests. For these reasons, CIL is considered a catastrophic way of resolving water sharing conflicts in international waters among co-

[53] *Id.*

[54] CHRISTOPHER C. JOYNER, INTERNATIONAL LAW IN THE 21ST CENTURY 14 (2005).

[55] *See generally* LEONARD M. HAMMER, A FOUCAULDIAN APPROACH TO INTERNATIONAL LAW: DESCRIPTIVE THOUGHTS FOR NORMATIVE ISSUES (2016).

56 Joseph W. Dellapenna, *The Nile as a Legal and Political Structure, in* THE SCARCITY OF WATER: EMERGING LEGAL & POLITICAL RESPONSES 121, 123 (Edward H.P. Brans et al. eds., 1997).

riparian states.[57]

B. Developments in Water Sharing International Law

It was soon after World War I that international organizations started to prioritize multilateral water sharing treaties with non-navigational usage.[58] However, countries around the globe did not show much enthusiasm in joining hands and forming such a mechanism. As a result, the Convention of Development of Hydraulic Power Affecting More than One State of 1923 is unique of that era. This instrument acknowledged the water rights of co-riparian states, and obliged signatory states to assess the interests of co-riparian states when devising water usage components.[59]

By the middle of the twentieth century, owing to a surge in population and amplified agrarian and industrial economies, a water usage mechanism with regard to non-navigational usage became more prominent. These mounting apprehensions about water shortcomings and lack of a mechanism to regulate water use shaped the 1966 Rules on the Uses of the Waters of International Rivers, better known as the Helsinki Rules,[60] formed

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[57] *See* JOHN F. MURPHY, THE U.S & THE RULE OF LAW IN INTERNATIONAL AFFAIRS 29 (, 2004).

[58] Robert Mrljić, *Challenges of Environmental Protection in Times of Armed Conflict, in* ENVIRONMENTAL SECURITY IN SOUTHEASTERN EUROPE 119, 134 (Massimiliano Montini & Slavko Bogdanovic eds., 2011).

[59] *Id.*

[60] SLAVKO BOGDANOVIC, INTERNATIONAL LAW OF WATER RESOURCES, at xv (2001).

by a team of experts serving the International Law Association (ILA).[61] The Helsinki Rules covered navigational and non-navigational uses of water resources; they were developed by judiciously and empirically evaluating state practices in regard to water apportionment. This was ultimately meant to establish international laws to regulate the reasonable sharing and management of water resources among co-riparian states for international rivers.[62]

Later, in 1970, a Finnish delegation proposed to the United Nations that the "progressive development and codification of the rules of international law relating to international watercourses" must be included in agendas of the General Assembly (GA).[63] This Finnish proposal was approved by member states and the GA embraced Resolution 2669; subsequently, the United Nations International Law Commission (ILC, a body of the GA) was tasked with conducting a study to form a legal framework for international rivers for the co-riparian states.[64] Consequently, after almost 30 years of research and formulation, in 1997 ILC drafted the Convention on the Law of the Non-Navigational Uses of International Watercourses (UNWC). This convention is a multilateral treaty that specifically covers non-navigational uses and the management of international waters,

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[61] *Id.*

[62] ANTOINETTE HILDERING, INTERNATIONAL LAW, SUSTAINABLE DEVELOPMENT AND WATER MANAGEMENT 47 (2004).

[63] LAURENCE BOISSON DE CHAZOURNES, FRESH WATER IN INTERNATIONAL LAW 26 (2013).

[64] Patricia Wouters, *Editor's Foreword, in* INTERNATIONAL WATER LAW: SELECTED WRITINGS OF PROFESSOR CHARLES B. BOURNE at xiii, xxi (Patricia Wouters ed., 1997).

establishing a set of universally accepted progressive principles regarding the non-navigational uses of waters.[65]

In 2004, the ILA further proposed the Berlin Rules of Water Resources to succeed its previous Helsinki Rules.[66] These new rules were needed because the old framework did not cater groundwater resources and environmental aspects in its principles for water sharing.[67] The Berlin Rules were meant to cover all aspects of freshwater resources, while specifically considering the environmental aspects connected with water management.[68]

On the progressive discourse, in 2008 the ILC adopted a new instrument, the Draft Articles on the Law of Transboundary Aquifers (DALTA) to cater to evolving water management needs, this time to specifically accommodate groundwater. This new mechanism was only

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[65] NAHID ISLAM, THE LAW OF NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES 115 (2010).

[66] ROBERT MALIVA & THOMAS MISSIMER, ARID LANDS WATER EVALUATION AND MANAGEMENT 958 (Rod Allan et al. eds., 2012).

[67] *Id.*

[68] *See* ONITA DAS, *ENVIRONMENTAL PROTECTION IN ARMED CONFLICT: FILING THE GAPS WITH SUSTAINABLE DEVELOPMENT, in* WAR AND THE ENVIRONMENT: NEW APPROACHES TO PROTECTING THE ENVIRONMENT IN RELATION TO ARMED CONFLICT 129, 153 (Rosemay Rayfuse ed., 2014).

promulgated within the period of five years of research, mainly because the narrative principles within this instrument reflected the core values of the UNWC.[69]

The UNWC came into force in the year 2014, with only the bare minimum 35 ratifications required.[70] By contrast, DALTA wasintended to become a reference manuscript regarding the management of groundwater resources, and was not meant to become treaty law.[71]

Together, both legal frameworks provide an international legal mechanism to manage river waters and groundwaters among co-riparian states and aquifer states, and are intended to be respected by the whole world.[72] Concernedly, both instruments stand on universally accepted legal principles, such as the principle of the equitable apportionment of freshwater

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[69] Joseph W. Dellapenna & Flavia Rocha Loures, *Filling Gaps: A Protocol to Govern Groundwater Resources Relevance to International Law*, *in* THE U.N. WATERCOURSES CONVENTION IN FORCE: STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT 270, 274 (Flavia Rocha Loures & Alistair Rieu-Clarke eds., 2013).

[70] *United Nations Treaty Collections*, UNITED NATIONS, [https://perma.cc/95YZ-EDK2] (last visited Apr. 8, 2017).

[71] Hanquin Xue, *The Role of the ILC's Work in Promoting World Peace and Security – Definition and Evaluation*, *in* PEACE THROUGH INTERNATIONAL LAW: THE ROLE OF THE INTERNATIONAL LAW COMMISSION 183, 186 (Georg Nolte ed., 2009).

[72] *See* Dellapenna & Loures, *supra* note 69, at 274–275.

and the principle to oblige by the rule not to harm co-riparian states.[73] In total, these instruments represent principles in the form of obligations to cooperate with co-riparian states in order to curtail conflicts and endorse peaceful mechanisms for sharing waters.[74]

Both instruments further state that co-riparian states must cooperate with each other in forming commissions and exchanging water information on a regular basis, and must notify each other about their mechanical works beforehand and seek the consent of co-riparian states to avoid conflicts and wars.[75] The UNWC obliges member states to share information relating to water quality, conditions, and mechanisms, and further mandates that data of a "hydrological, meteorological, hydrogeological or ecological nature" must be exchanged with the co-riparian states.[76] The UNWC provides mechanisms to regulate such exchange of information and notifications.[77]

Similarly, DALTA establishes an obligation on neighboring states sharing groundwater, that one state must not pollute groundwater, which can potentially harm the interests of

[73] *See* Xue, *supra* note 71, at 186; *see also* Dellapenna & Loures, *supra* note 69, at 274–276.

[74] *See* Xue, *supra* note 71, at 186; *see also* Dellapenna & Loures, *supra* note 69, at 274–276.

[75] *See* Dellapenna & Loures, *supra* note 69, at 284.

[76] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 9, May 21, 1997, 51 U.N.T.S. 49.

[77] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 9 & 12, May 21, 1997, 51 U.N.T.S. 49.

neighboring aquifer countries.[78] Since scientifically there is little known regarding groundwater implications, caution must be exercised when using such water resources. Moreover, DALTA obliges aquifer countries to protect discharge and recharge regions for groundwater.[79] This is because the administration of these regions is largely responsible for the fluctuating quality of groundwater.[80] In other words, the engagements in such regions influence the quality of aquifers in neighboring regions. Similarly, industrial and agrarian activities can also impact the quality of aquifers. Therefore, DALTA also provides regulations regarding these activities.[81]

As a result, the relevant legal authority for international water conflicts remains the conventions of the UN. These conventions represent true international law regarding the utilization of international waters.[82]

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[78] Int'l Law Comm'n, Draft Articles on the Law of Transboundary Aquifers art. 1, 2, & 12, 2008.

[79] Int'l Law Comm'n, Draft Articles on the Law of Transboundary Aquifers art. 1, 2, 6, 10, & 11, 2008..

[80] Int'l Law Comm'n, Draft Articles on the Law of Transboundary Aquifers Preamble & art. 17 & 19, 2008.

[81] *Id.*

[82] Joseph W. Dellapenna, *Law and the Provision of Water for Megacities*, *in* ECOLOGICAL SYSTEMS INTEGRITY: GOVERNANCE, LAW, AND HUMAN RIGHTS 76, 79 (Laura Westa et al. eds., 2015).

IV. CODIFICATIONS

The most notable codifications pertaining the international law of water include the International Law Association's Helsinki Rules of 1966, their successor, the Berlin Rules of 2004, the UN's Convention on the Law of the Non-Navigational Uses of International Watercourses of 1997, UNECE's UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes of 1992, and the Draft Articles on the Law of Transboundary Aquifers of 2008, although through conventions and treaties there have been several other notable efforts to form a legal framework to equitably and peacefully share freshwater among co-riparian states.

However, only the most appropriate and most acclaimed international instruments will be discussed in this section. Section 3.1 will only cover the UNWC and Section 3.2 will only look at DALTA.

A. Convention on the Law of the Non-Navigational Uses of International Watercourses (UNWC)

Sometimes also referred to as the UN Watercourses Convention, UNWC remains an authority for the principles and regulations in the law of international waters.[83] This instrument was drafted in 1997 but came into force in 2014, when it was ratified by the

[83] *United Nations Treaty Collections*, UNITED NATIONS, https://perma.cc/V8ZR-TVBY (last visited Apr. 8, 2017).

necessary 35 participants. This framework not only mandates cooperation among co-riparian states but also devises water management guidelines.[84]

This convention has only received 36 ratifications over the course of 17 years.[85] Many powerful countries have refrained from ratifying this instrument to avoid legal implications regarding harming or injuring lower riparian states. For instance, Turkey, India, and the USA have refrained from being parties to this treaty. Almost all European countries have ratified it, though the treaty was meant to form regulations for all UN member states.[86]

Regardless of the reservations by several countries, UNWC is in force and is applicable to all UN member states.[87] This instrument obliges member states to refrain from harming co-riparian states, and mandates that water sharing must be equitable.[88] The principles and obligations established by the UNWC will be set out in detail in the next section. These include the principle of equitably sharing water resources with co-riparian states, the

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[84] *Id.*

[85] *Id.*

[86] *Id.*

[87] Flavia Rocha Loures et al., *The Authority and Function of the UN Watercourses Convention, in* THE U.N. WATERCOURSES CONVENTION IN FORCE: STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT 49, 65 (Flavia Rocha Loures & Alistair Rieu-Clarke eds., 2013).

[88] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 5 & 7, May 21, 1997, 51 U.N.T.S. 49.

obligation not to harm co-riparian states by way of managing international shared waters, and the obligation to notify concerned riparian states about future works on water resources.[89]

B. Draft Articles on the Law of Transboundary Aquifiers (DALTA)

GA Resolutions A/RES/63/124 and 66/104 adopted the Draft Articles on the Law of Transboundary Aquifers of 2008 in 2011; these articles and resolutions constitute international guidance for sharing groundwater resources among aquifer states.[90] These instruments call upon states to "to make appropriate bilateral or regional arrangements for the proper management of their transboundary aquifers, taking into account the provisions of these draft articles."[91] These provisions urge nations to counteract and control the water pollution of groundwater. Co-aquifer states are invited through this instrument to follow these guidelines in forming their respective treaty laws.[92] Until this instrument was adopted, there was no clear body that provided concrete guidelines regarding the utilization and preservation of groundwater among co-aquifer states, so it is in itself an achievement,

[89] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 5, 7, 12, 13, 14, 15, 16, 17, & 18, May 21, 1997, 51 U.N.T.S. 49.

[90] BOISSON, *supra* note 63, at 38.

[91] Joachim Muller & Sauvar, Annual Review of U.N Affairs, 2:48 (Oxford University Press , 2008).

[92] Int'l Law Comm'n, Draft Articles on the Law of Transboundary Aquifers, Preamble & art. 2 & 12, 2008.

reaching a unanimous and peaceful management tool for the sharing and protection of groundwater.[93]

V. PRINCIPLES AND OBLIGATIONS

This section will provide thorough analyses of the underlying principles established by the UNWC and DALTA. Section 4.1 will explain what the principle of the equitable and reasonable utilization of international watercourses entails. Section 4.2 will elucidate the obligation of not to cause harm to other co-riparian states.

A. Principle of the Equitable and Reasonable Utilization of an International Watercourse

Since the most distinguished and appreciated principle for water sharing among co-riparian states is the principle of "equitable and reasonable utilization," it is largely accepted by the global community.[94] It was the UNWC that established this universally agreed principle for sharing waters among co-riparian states. This principle requires the equitable water apportionment by all nations alike. Article 5 of the UNWC reads as follows.

> *Article 5: Equitable and reasonable utilization and participation*
>
> 1. *Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by*

[93] MALIVA & MISSIMER, *supra* note 66, at 963.

[94] Joyeeta Gupta, *Global Water Governance, in* THE HANDBOOK OF GLOBAL CLIMATE & ENVIRONMENT POLICY 19, 25 (Robert Falkner ed., 2013).

watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse.

2. *Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such in participation includes both the right to utilize the watercourse and the duty to co-operate in the protection and development thereof, as provided in the present Convention.*[95]

All states that have river basins of international waters within their territories are rightfully entitled to use waters from these rivers within their territories.[96] However, Article 5 mandates that such utilization must be practiced in a fashion that is both equitable and reasonable.[97] The idea is to utilize the shared international water basin by acquiring the benefits of all water resources in a protectable, sustainable, and reasonable way, while keeping the interests of co-riparian states in mind. Article 5 further states that future plans for devising the mechanism for water developments on such international watercourses must also be reasonable and equitable, in such a manner that they sustainably utilize the

[95] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 5, May 21, 1997, 51 U.N.T.S. 49.

[96] HILDERING, *supra* note 62, at 99.

[97] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 5, GAOR. May 21, 1997, 51 U.N.T.S. 49.

benefits of these waters and yet cooperate with co-riparian states to protect their interests.[98]

This principle of equitable and reasonable water apportionment has been universally acclaimed,[99] and state practices around the globe demonstrate an endorsement of this principle, which is largely due to the juridical and rational managerial element of this water sharing principle. Various international courts of justice and forums of arbitration have used this principle in their adjudications.[100]

The staple node of this principle maintains that all countries are sovereign nations and no state is superior to another: that all countries are equal in the equation of balance of justice.[101] For this reason, the principle entails that every country that shares the basin of any international water river basin has a right to use those waters as a collective resource.[102] Within this discourse, upper and lower riparian states are equal, and the right of the upper riparian state is no more than that of the lower riparian state sharing same international river water basins. Nevertheless, the principle also advocates that the implementation of this right must not interfere with the interests of other co-riparian states.[103]

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[98] *Id.*

[99] Joyeeta Gupta, *supra* note 94.

[100] *Id.*

[101] HILDERING, *supra* note 62, at 99.

[102] *Id.*

[103] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 5, GAOR, May 21, 1997. 51 U.N.T.S. 49.

Further, this principle also entails two more basic notions of managing international shared waters. The first suggests that the equitable utilization does not necessitate two precisely equal apportionments for two riparian states that share international river waters basins. This is because the principle gives due regard to the shared water basin along with other contingent aspects in its equation, and maintains that water apportionment must be reasonable.[104] So, if two countries share a river basin then the countries will not get an equal amount of the waters; other aspects of requirements and utilization of waters will be weighed in the equation to calculate each nation's fair share. The second idea of this principle is that equitable and reasonable apportionment does not mean that the state with cutting-edge technologies, possessing the means to more effectively use river waters, will be allowed a larger water share.[105] For instance, if the upper riparian state is a financially strong nation, it cannot exploit the water share of the lower riparian state by building more water management machinery at the courses of international waters.

This principle of sharing water is not wholly inflexible pertaining to water apportionment, but rather it responds to emerging and evolving environs of utilizing water apportionment by weighing in all facets of the interests of co-riparian states.[106] The reasonable water apportionment among co-riparian states is only feasible through this element of the principle. But this aspect necessitates that all characteristics and factors of a given situation

[104] WATER LAW & CO-OPERATION IN THE EUPHRATES-TIGRIS REGION 93 (Aysegul Kibaroglu et al. eds.,2013).

[105] *Id.*

[106] LOURES, *supra*, note 51, at 346.

must be evaluated when mechanizing any utilization of international waters by co-riparian states.[107] These factors and aspects include geological, social, economic, and environmental factors, and also contain the factors of alternative procedures, sustainability, and the protection of waters.[108] Furthermore, these aspects can be further managed by keeping fluctuating natural or manmade unforeseeable factors in mind. Consequently, the water apportionment principles mandate that the management of water use must be regularly and continuously reviewed, owing to its evolving multifaceted characteristics.[109]

B. Obligation Not to Cause Harm

The second respected and acclaimed principle under international water sharing law is the obligation not to harm other co-riparian states, which is better known as the "no harm rule." The UNWC contains this obligation in its Article 7, which reads as follows.

> Article 7: Obligation not to cause harm
>
> 1. Watercourse states shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse states.
> 2. Where significant harm nevertheless is caused to another watercourse state, the states whose use causes such harm shall, in the absence of agreement

[107] *Id.*

[108] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 6, May 21, 1997, 51 U.N.T.S. 49.

[109] *Id.*

> to such use, take all appropriate measures, having due regard for the provisions of articles 5 and 6, in consultation with the affected state, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.[110]

This Article prohibits co-riparian states from harming or injuring the interests of each other while utilizing international freshwater. This harm can be defined as polluting water flows, decreasing water quantities unreasonably, de-silting waters, harming the environment, and navigating watercourses.[111]

This obligation of not to harm other states is based on the three integrated notions of *sic utere tuo ut alienum non laedas* (so use your own as not to harm that of another), good neighborliness, and/or of abuse of rights.[112] All three of these notions pertain to the conflicts among states. The primary nexus here is that the actions of one state within its territories must not harm or injure the interests of any other state.

However, it is appropriate to note that this obligation not to harm other states—which is similar to the principle of equitably and reasonably utilizing waters—is not inflexible. But

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[110] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 7, May 21, 1997, 51 U.N.T.S. 49.

[111] Amidou Garane and Teslim Adbul-Kareem, *West Africa*, in THE UN WATERCOURSES CONVENTION IN FORCE, 97, 102 (Flavia Rocha Loures & Alistair Rieu-Clarke eds. , 2013).

[112] OWEN MCINTYRE, ENVIRONMENTAL PROTECTION OF INTERNATIONAL WATERCOURSES UNDER INTERNATIONAL LAW 89 (2016).

it adapts in terms of the harm created for the other state, by evaluating contingent aspects of the situation.[113]

One aspect of this principle is reflected within the language of the Article itself, where it is explicitly drafted that the harm inflicted must be significant in its effect.[114] This contention is also asserted by state practices and case law, where it is repeatedly maintained that harm must be substantial and not be trivial to give rise to reciprocal or punitive measures.[115] Nevertheless, the line that differentiates a trivial harm from substantial harm is vague, and therefore contingent upon aspects of the individual case in any given situation.

Another aspect of this principle is that it conditions the widely practiced notion of due diligence, by which co-riparian states are not only required to own the injuries they have caused during the course of their actions as damages after they have been administered; they are also required in advance to take all measures necessary to avoid such injurious or harmful effects.[116] This aspect of due diligence further suggests that such measures must also take all contingent factors of a given situation into account. Finally, due diligence entails that these measures should be undertaken at the national level, where appropriate

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[113] ARIEL DINARET AL.,, BRIDGES OVER WATER: UNDERSTANDING TRANSBOUNDARY WATER CONFLICT, NEGOTIATION AND COOPERATION 184 (2013).

[114] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 7, May 21, 1997, 51 U.N.T.S. 49.

[115] NAHID ISLAM, THE LAW OF NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES 147 (2010).

[116] 2 ARTHUR WATTS, THE INTERNATIONAL LAW COMMISSION 1949–1998 1365 (2000).

statutory proceedings should anticipate the effects of management and implementation.[117]

Moreover, this principle does not particularly take the side of the lower riparian states, to which the same obligation not to harm co-riparian states applies equally. The infliction of harm by a lower riparian state to an upper riparian state may seem improbable but it is not.[118] For instance, heavy and unreasonable water usage of the lower riparian state could potentially harm the upper riparian state, by requiring that upper riparian decrease its water usage, as the river water is insufficient for the lower riparian state. So, in this sense, the reasonable utilization of waters and the no harm rule are also applicable to lower riparian states.[119] Nonetheless, the no harm rule cannot absolutely restrict the upper riparian state from installing development works over the international watercourses.

No harm obligation categorically proscribes "appreciable harm, [or sensible harm,] or significant harm, and substantial injury" over a co-riparian state, be it an upper riparian or a lower riparian state.[120] Thus, the implication here is that the overall water usage is reasonable and equitable or not. The case law of a German court in this regard concluded that "[o]ne must consider not only the absolute injury caused to the neighboring State, but

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[117] *Id.*

[118] RAMASWAMY R. IYER, WATER: PERSPECTIVES, ISSUES CONCERNS 246 (2003).

[119] *Id.*

[120] DANTE A. CAPONERA, NATIONAL & INTERNATIONAL WATER LAW & ADMINISTRATION 213 (2003).

also the relation of the advantage gained by one to the injury caused to the other."[121] This ruling integrates the principle of equitable and reasonable water utilization with the obligation not to harm by suggesting that a co-riparian state must not only not harm the other riparian states in the international watercourses, but also weigh the equitableness and reasonableness of their activities, which then will be rationally and judiciously applicable on upper riparian states and as well as on the lower riparian states.[122]

VI. PROCEDURAL DUTIES

Procedural obligations are essentially and significantly necessary in the international law of water sharing for two main reasons. One reason is that the procedural rules lay the foundations for the legal mechanism to uphold the legal machinery of other obligations and principles. The other objective is that these procedural obligations can avoid major conflicts by anticipating the rules of the game beforehand.[123]

These obligations include "the obligation of prior notification, the obligation to exchange data and information, the obligation to consult with potentially affected states, the

[121] IBRAHIM KAYA, EQUITABLE UTILIZATION: THE LAW OF NON-NAVIGATIONAL USES OF INTERNATIONAL WATERWAYS 69 (2003).

[122] *Id.* at 69-70.

[123] *See* LAURENCE BOISSON, FRESH WATER IN INTERNATIONAL LAW (2013).

obligation to conduct an environmental impact assessment (EIA) and the central and embracing obligation to cooperate."[124]

This section will briefly set out these obligations one by one, in view of draft writings within international instruments and their interpretations in light of customary international law.

A. The Obligation to Notify Planned Activities to Concerned or Affected States

Article 12 of the UNWC establishes the principle of the obligation to notify concerned riparian states about the planned measures of a state. Article 12 states as follows.

> Article 12: Notification concerning planned measures with possible adverse effects
>
> Before a watercourse State implements or permits the implementation of planned measures which may have a significant adverse effect upon other watercourse States, it shall provide those States with timely notification thereof. Such notification shall be accompanied by available technical data and information, including the results of any environmental impact assessment, in order to enable the notified States to evaluate the possible effects of the planned measures.[125]

[124] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 8-9, 12, 24, May 21, 1997, 51 U.N.T.S. 49.

[125] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 12, May 21, 1997, 51 U.N.T.S. 49.

This Article obliges all states to notify other concerned co-riparian states about the planned activities of managerial concerns over the waters and about their potential adverse effects against the concerned states.[126] The most potent and comprehensible approach behind such obligations suggests that such an obligation will help affected states prepare for and anticipate the consequences of legal, economical, geological, financial, and other contingent aspects.[127]

For this reason, in addition to notification, it is further necessitated by this Article that such communication by a state must accompany certain crucial information reports. These include technical data and concerned knowledge, along with environmental impact assessments (EIA)[128] so that a concerned state can timely anticipate the adverse effects of the planned activities.[129] However, it is relevant to note that this obligation to notify is not applicable solely to the upper riparian states; lower riparian states are also obliged to prepare reports and brief upper riparian states regarding the possible adverse effects of their planned activities against the concerns and interests of the upper riparian states.[130]

Furthermore, the obligation to notify concerned states does not imply that such information

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[126] MCINTYRE, *supra* note 112, at 330.

[127] *Id.*

[128] International Watercourses, *supra* note 125.

[129] *See Id.*; Convention on the Law of the Non-Navigational Uses of International Watercourses, *supra* note 125.

[130] Helmut Turk, *Water in the Contemporary* World, in 1 COEXISTENCE, COOPERATION & SOLIDARITY 1052 (Holger P. Hestermeyer, et. al. eds.,2012). #

need be communicated only once, but such notification should be communicated timely and regularly to encompass the changing dynamics of the situation with even better analysis of technical data.[131] This requirement is crucial in the overall equation of equitably and reasonably utilizing international watercourses, because this communication and the conveyance of data lay the foundations of evaluations to form a sound analysis of regional, social, economic, financial, geological, and other aspects of a situation by both riparian states. In the result, without this notification and exchange of data, effects over international waters are incalculable.[132]

Articles 13 to 18 of the UNWC are also concerned with the notification process. These articles also oblige the notified state to reply to any notification as soon as possible.[133] The UNWC further provides notification and the reply periods and also delivers procedural measures that are to be respected in the absence of any reply. Additionally, Article 14 requires that the notifying state give further information required by notified state in order to better evaluate the circumstances.[134]

B. The Requirement to Enter into Consultations for Managerial Purposes

Article 24 of the UNWC establishes a procedural duty to enter into consultation. Article

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[131] *Supra* note 104, at 171.

[132] *Id.*

[133] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 13-18, May 21, 1997, 51 U.N.T.S. 49.

[134] *Id.* art. 14.

24 states as follows.

Article 24: Management

1. Watercourse States shall, at the request of any of them, enter into consultations concerning the management of an international water-course, which may include the establishment of a joint management mechanism
2. For the purpose of this article, "management" refers, in particular to:
   a. planning the sustainable development of an international watercourse and providing for the implementation of any plans adopted, and
   b. otherwise promoting rational and optimal utilization, protection and control of the watercourse.[135]

This Article is a procedural obligation that obliges co-riparian states to enter into consultation with each other for the managerial work of planned activities, so that conflicting interests can be peacefully and diplomatically resolved.[136]

Consultation is not to be confused with the idea of acquiring consent of affected state. The notion of consent is set out in Article 14 of the UNWC, which states that, after notification, the notifying state cannot implement its planned activities without the due consent of the notified state. Article 14(b), regarding the actions of notifying states, reads that the notifying state "[s]hall not implement or permit the implementation of the planned

[135] *Id.* art. 24.

[136] ISLAM, *supra* note 115m at 167.

measures without the consent of the notified States."[137]

However, the scope of consultation is restricted by Article 24, and this capacity is strictly limited to the extent of managerial purposes, which is a first step forward to enter into the negotiating process of bilateral dialogues among co-riparian states. Through consultation, concerned states can share their interests and views regarding the planned activities in a more peaceful and acceptable manner.[138]

C. The Duty to Prepare an Environmental Impact Assessment (EIA)

In addition to the implication of preparing an EIA by Article 12 of the UNWC, the duty to prepare an EIA has been generally acclaimed by international community.[139] In fact, this obligation of preparing environmental feasibility report has evolved to become applicable international law, when in 2010 the ICJ established this duty in the case of *Argentina v. Uruguay*, better known as the *Pulp Mills Case*.[140] The judgment of this case established that it is necessary to prepare an EIA in a situation "where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in

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[137] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 14, May 21, 1997, 27 U.N.T.S. 12.

[138] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 24, May 21, 1997, 27 U.N.T.S. 12*; See Also* ISLAM, *supra* note 136, at 167.

[139] *Id.*

[140] Pulp Mills On The River Uruguay (Arg. v. Uru.) Judgment, 2010 I.C.J. Rep. 14. ¶ 204 (Apr. 20).

particular, on a shared resource."[141]

Here the underlying concept is that, before executing any planned activities, an EIA must be prepared to understand the environmental implications affecting the notifying country and other states that could potentially be adversely affected.[142] This is to be prepared beforehand, to better understand the implications and thus avoid hazards and adverse effects and prevent or mitigate injury to the environment.[143]

Sadly, owing to unenforceable impediments in international law, EIAs remain largely unexplored. So national legislation is persistently silent on its specifics. However, it is established that an EIA report must be prepared beforehand to assess the environmental implications of planned projects.[144]

D. Duty to Cooperate with Co-Riparian States

UNWC imposes a general obligation over co-riparian states to cooperate with each other to pacify regional water conflicts. The relevant Article of the UNWC states as follows.

> Article 8: General Obligation to Cooperate

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[141] *Id.*

[142] DAVID P. LAWRENCE, ENVIRONMENT IMPACT ASSESSMENT: PRACTICAL SOLUTIONS TO RECURRENT PROBLEMS 484 (2003).

[143] *Id.*

[144] ADRIAN C. NEWTON & ELENA CANTARELLO, AN INTRODUCTION TO THE GREEN ECONOMY 222 (2014).

1. Watercourse States shall cooperate on the basis of sovereign equality, territorial integrity and mutual benefit in order to obtain optimal utilization and adequate protection of an international watercourse
2. In determining the manner of such cooperation, watercourse States may consider the establishment of joint mechanisms or commissions, as deemed necessary by them, to facilitate cooperation on relevant measures and procedures in the light of experience gained through cooperation in existing joint mechanisms and commissions in various regions.[145]

This obligation to cooperate encompasses all other principles and obligations, since the term "cooperation" can be described as "the voluntary coordinated action of two or more States which takes place under a legal regime and serves a specific objective . . . [t]o this extent it marks the effort of States to accomplish an object by joint action, where the activity of a single State cannot achieve the same result."[146]

Within the scope of this definition, all states are obliged to voluntarily share their views, concerns, and interests with other concerned states, so that the utilization of international water can be managed more effectively, equitably, and reasonably. However, it is appropriate to note that such cooperation is reciprocal in nature between the upper and lower riparian states, and entails continuous cooperation.[147]

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[145] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 8, May 21, 1997, 27 U.N.T.S. 12.

[146] STUART CASEY-MASLEN ET AL., THE ARMS TRADE TREATY 55 n. 73 (2016).

[147] *Supra* note 104, at 379.

Moreover, this cooperation cannot be enforced by mere implications in customary international law and by providing guidelines. Enforcement of this obligation is only possible by forming bilateral or multilateral water sharing treaties, where states unanimously agree to regulations entailing and upholding the said notions of cooperation through new articles in treaties. For this reason, Article 8(2) maintains that, to enforce cooperation among states, commissions may be formed along with joint mechanisms to function effectively.[148]

E. Duty to Protect the Environment

Customarily, international instruments, such as multilateral or bilateral treaties, are more concerned with the navigational uses of water and its apportionment, while ignoring the environmental impact of such watercourse diversions and their subsequent devastating impact on the ecosystem.[149] However, in the recent times, the point of contention has moved more toward the nonnavigational uses of water and the safety of the environment during planned activities, such as the impacts of polluting international watercourses. For this reason, a new dawn of environmentally friendly system is emerging, where the ecosystem, environmental degradation, and the impact on the lives of flora and fauna are the main focus.[150]

Therefore, treaties are now more oriented toward environmentally friendly agreements,

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[148] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 8, 1997, U.N.T.S. 52106

[149] Kiss, *supra* note 38, at 12.

[150] *Id.*

ensuring ecological harmony with water managerial projects by proscribing hazardous or calamitous activities toward the environment.[151]

These environmental aspects include controlling pollution and water contamination, maintaining water quality, preserving flora and fauna in perpetual balance with nature, not disturbing ecosystems, and prohibiting deforestation.[152] These emerging norms are readily reflected in modern treaties, UN conventions, and state practices, by which states are obliged to prevent injury against the environment by minimizing projects' impacts on nature, and thus looking toward a sustainable future for the world.[153]

In this regard, Article 12 of the UNWC requires states to prepare EIAs, and Article 21 obliges states to prevent, reduce, and control water pollution.[154] Similarly, Article 23 of the UNWC calls for the preservation of the marine environment.[155]

F. Duty to Consider Water as a Vital Human Need

While keeping in mind that water is vital for the survival of every nation, and in fact for

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[151] JORGE E. VINUALES, FOREIGN INVESTMENT & THE ENVIRONMENT IN THE INTERNATIONAL LAW 159-160 (2012).

[152] SHARON BEDER, ENVIRONMENTAL PRINCIPLES & POLICIES 94 (2013).

[153] *See* Kiss, *supra* note 38, at 12.

[154] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 12 & 21, 1997 U.N.T.S. 52106.

[155] *Id.* art. 23.

any living being, the UNWC's Article 10 states as follows.

> Article 10: Relationship between uses
>
> 1. In the absence of agreement or custom to the contrary, no use of an international watercourse enjoys priority over other uses.
> 2. In the event of a conflict between uses of an international water course, it shall be resolved with reference to the principles and factors set out in articles 5 to 7, with special regard being given to the requirements of vital human needs[156]

The idea is that, since water is a building block for life, and water is vital for human survival, co-riparian states—while forming or establishing water sharing treaties—must consider water as an essential aspect of life, such that every person and hence each state has an innate requirement for water.[157] This notion is more particularly applicable to water-stressed countries, where large numbers of people have no access to drinkable water. Therefore, the wording of Article 10 of UNWC explicitly mentions water as a vital necessity for humankind, and urges states to give this aspect of water special regard while resolving any given water conflict, or while proposing water sharing treaties.[158]

This requirement in UNWC is intended to encompass human sustainability, therefore both purposes of water usage—drinking purposes and agrarian purposes for the production of

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[156] *Id*. at 10.

[157] CHRISTINA LEB, COOPERATION IN THE LAW OF TRANSBOUNDARY WATER 199 (2013).

[158] Convention on the Law of the Non-Navigational Uses of International Watercourses art. 10, May 21 1997 U.N.T.S. 51206.

food—come within the scope of this Article.[159] Similarly, DALTA supplements the UNWC's claims by stating that conflicting states must prioritize water and its vitality in sustainability while reasonably and equitably utilizing water.[160]

Owing to the empowering nature of the notion of water's vitality for humankind in DALTA and UNWC, international law and more specifically humanitarian international laws are acknowledging water as a basic human right. Here the main contention is that, while forming water apportionment treaties and regulations, water as a vital aspect of life must be given first priority.[161] For instance, if the question in conflict is regarding power production, the assessment of water requirements for the basic needs of drinking and growing food will always be given priority over nonconsumptive purposes, such as water use for hydropower production.

VII. GROUNDWATER

This section will briefly touch upon the same principles, obligations, and duties of water utilization established by UNWC. However, this section will deal particularly with the scope of DALTA and its provisions with regard to groundwater/aquifers.

While groundwater comprises just 30 percent of all freshwater and 1.7 percent of all water

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[159] KAYA, *supra* note 122, at 117.

[160] Draft Articles on the Law of Transboundary Aquifers art. 5, Dec. 11, 2008, U.N. Doc. A/63/10.

[161] AMANDA C. RIPLEY, THE HUMAN RIGHT TO WATER AND ITS APPLICATION IN THE OCCUPIED PALESTINIAN TERRITORIES 177 (2011).

on Earth, it is the most important source of water in almost all arid regions.[162] It has not been substantially scrutinized by international law. Arguably, regulations set out in the UNWC in 1997 are applicable to groundwater usage, as the definitional approach in the convention describes international watercourses in the composition of groundwater. However, this inclusion of groundwaters with the water flows leaves out distant major aquifers, comprising a major amount of water. Furthermore, the drafting of Articles in the UNWC is tailored to accommodate international watercourses and their respective water flows. As a result, groundwater remains largely unregulated in the UNWC.[163]

More particularly, DALTA specifically caters to the management and usage of groundwater. DALTA was promulgated by the ILC for the specific preservation and protection of groundwater.[164]

DALTA meticulously follows the same principles and obligations established in the UNWC, and applies them to groundwater. For instance, the principles of the equitable utilization of water, the duty not to harm, the duty to cooperate, the duty to consult concerned states, the duty not to pollute or harm nature, and the obligation to share

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[162] USGS, Ground Water Storage, https://perma.cc/V5RA-6SJT (last visited April 12, 2017).

[163] Joseph W. Delapenna & Flavia R. Loures, *Filling Gaps: A protocol to govern groundwater resources of relevance to international law*, *in* & THE UN WATERCOURSES CONVENTION IN FORCE 270, 284 (2013).

[164] *Supra* note 104, at 35.

technical information are all also covered in DALTA.[165]

Article 4 of DALTA acknowledges the equitable and reasonable utilization of international aquifers and further recommends sustainable and efficient utilization.[166] Similarly, Article 6 obliges states not to harm other international aquifer states,[167] Article 7 imposes a duty to cooperate, and Article 8 obliges states to share technical data and relevant information.[168] Moreover, Article 10 urges the protection of the environment and Article 12 obliges states to prevent, reduce, and control pollution.[169] Article 14 forms the obligation to consult for managerial purposes.[170] Finally, Article 16 urges states to cooperate with other states in regard to all the aforementioned principles and obligations to use peaceful measures to

[165] *See* DELAPENNA, *supra* note 163, at 236.

[166] Int'l Law Comm'n, Rep. on the Work of Its Sixtieth Session, Draft Articles on the Law of Transboundary Aquifers art. 4, U.N. Doc. A/63/10, at 40-41 (2008).

[167] Int'l Law Comm'n, Rep. on the Work of Its Sixtieth Session, Draft Articles on the Law of Transboundary Aquifers art. 6, U.N. Doc. A/63/10, at 46 (2008).

[168] Int'l Law Comm'n, Rep. on the Work of Its Sixtieth Session, Draft Articles on the Law of Transboundary Aquifers art. 7-8, U.N. Doc. A/63/10, at 48, 50 (2008).

[169] Int'l Law Comm'n, Rep. on the Work of Its Sixtieth Session, Draft Articles on the Law of Transboundary Aquifers art. 10, 12, U.N. Doc. A/63/10, at 54, 57 (2008).

[170] Int'l Law Comm'n, Rep. on the Work of Its Sixtieth Session, Draft Articles on the Law of Transboundary Aquifers art. 14, U.N. Doc. A/63/10, at 63 (2008).

resolve a likely conflict.[171] Additionally, DALTA provides regulations pertaining to the recharge and discharge zones of aquifers, to curtail water contamination and the protection of the environment.[172]

VIII. IWT v. UNWC

Given the lack of consideration in other treaties of the equitable principles, the Indus Waters Treaty (IWT) of 1960, between India and Pakistan, is considered one of the best treaties regarding water apportionment.[173] This treaty incorporated most modern aspects, with only few exceptions. To measure this, it is relevant to compare the IWT with the UNWC. This section will analyze the IWT, and it will examine whether the IWT contains all required aspects that the UNWC or most modern water apportionment treaties manage to encompass. However, the reason that the UNWC is so generic in its form is because it was meant to apply to the whole world.[174] The IWT was tailored to the needs of India and Pakistan, which should be kept in mind while assessing the differences between the instruments.[175] Moreover, it is also notable that neither Pakistan nor India has yet

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[171] Int'l Law Comm'n, Rep. on the Work of Its Sixtieth Session, Draft Articles on the Law of Transboundary Aquifers art. 16, U.N. Doc. A/63/10, at 68-69 (2008).

[172] Int'l Law Comm'n, Rep. on the Work of Its Sixtieth Session, Draft Articles on the Law of Transboundary Aquifers art. 2, 5, 6, 10, 11, U.N. Doc. A/63/10, at 34, 43, 46, 54, 56 (2008).

[173] GRANDE LUM, THE NEGOTIATION FIELDBOOK, 26 (McGraw Hill Professionals, 2010).

[174] HILDERING, *supra* note 62.

[175] *See* LUM, *supra* note 173.

ratified the UNWC, despite their ongoing water management conflicts, for unknown reasons.[176]

A. Scope

The preamble of the IWT provides its scope, which is limited to the governments of Pakistan and India, with the World Bank a neutral party, brokering the treaty.[177] Correspondingly, pertaining to the international watercourses, the IWT only specifies regulations over six eastern and western rivers, including the Sutlej, Beas, and Ravi, and Indus, Jhelum, and Chenab, respectively. Moreover, the IWT also explicitly maintains that all the lakes and tributaries that contribute to these rivers, also come within its scope.[178]

On the other hand, UNWC is meant to accommodate all states in the world that share international watercourses. In this regard, Article 4 of the UNWC states as follows.

1. Every watercourse State is entitled to participate in the negotiation of and to become a party to any watercourse agreement that applies to the entire international watercourse, as well as to participate in any relevant consultations."
2. "A watercourse State whose use of an international watercourse may be affected to a significant extent by the implementation of a proposed

[176] United Nations, United Nations Treaty Collections, (last visited April 8, 2017) [https://perma.cc/2ZSH-M63W].

[177] Indus Waters Treaty, preamble, art. V, X, India-Pak., Sept. 19, 1960

[178] Indus Waters Treaty, preamble, art. II – III, India-Pak., Sept. 19, 1960.

> watercourse agreement that applies only to a part of the watercourse or to a particular project, program or use is entitled to participate in consultations on such an agreement and, where appropriate, in the negotiation thereof in good faith with a view to becoming a party thereto, to the extent that its use is thereby affected.[179]

This wording makes it sufficiently clear that, with regard to international watercourses, UNWC covers all international waters and all states that share such international waters. The scope of the UNWC is wider than that of the IWT. Moreover, the IWT only covers six rivers and two states, whereas the UNWC caters to all international rivers and all states sharing them. However, it must be noted that the IWT is only a bilateral treaty between two nations, which was meant to cater to the needs of two states,[180] and UNWC is an international convention, whose purpose was to cover the whole world.[181]

Moreover, with regard to water usage, there is one very prominent difference between the IWT and the UNWC. That is, UNWC only deals with nonnavigational uses of water,[182] whereas the IWT covers both navigational and nonnavigational uses of water.

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[179] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 4, May 21, 1997, 36 ILM 700.

[180] LUM, *supra* note 173.

[181] HILDERING, *supra* note 62, at.

[182] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 1, May 21, 1997, 36 ILM 700.

The IWT and the UNWC take a watercourse approach, by which a land contingent with the watercourses or flows also comes under the scope of this legal framework. Some countries even imposed reservations with the same term so as to escape the scope, and sided with the basin approach for water apportionment. In this regard, the IWT clearly expressed, that "this Treaty governs the rights and obligations of each Party in relation to the other with respect only to the use of the waters of the Rivers and matters incidental thereto."[183]

The UNWC has set limits to define the scope of the treaty, by which it has an obligation to include referred watercourses within its scope. The UNWC states that, "[w]here a watercourse agreement is concluded between two or more watercourse States, it shall define the waters to which it applies."[184] Further, in its preamble the IWT defined the scope of its regulations pertaining to watercourses. Therefore, it can be safely ascertained that the IWT and the UNWC complement each other on the aspect of the scope of the agreement.

B. Principles, Obligations, and Duties

To define the principles of the apportionment of international watercourses, Articles II, III, and IV of the IWT deal with the eastern and western rivers, and the duties of each party are set out accordingly. IWT equitably divides the international watercourses and allocates the three eastern rivers for India's unrestricted usage, while allowing Pakistan to use the

[183] Indus Waters Treaty, *supra* note 7 at Art. XI (1)(a).

[184] Convention on the Law of the Non-Navigational Uses of International Watercourses, *supra* note 76 at Art. 3(4).

waters of the eastern rivers for non-consumptive, domestic, and limited agricultural purposes.[185] Conversely, the IWT allocates the three western rivers for Pakistan's unrestricted usage, while allowing India to use the waters of the western rivers for non-consumptive, domestic, limited agricultural purposes and hydroelectric power.[186]

However, the IWT also allows India to build water management apparatuses on the western rivers. This enables India to build storage facilities on the rivers up to "1.25 MAF for general purposes, 1.6 MAF for power and 0.75 MAF for flood protection."[187]

As set out here, the principles of the IWT seem equitable and reasonable when the superficial understandings suggest that all waters are equally divided among two neighboring watercourses states, where each nation shares three rivers through the IWT. But a closer examination of the IWT will portray an entirely different version of these principles for water apportionment. It is noted that "[t]he three (3) eastern rivers allocated to India had a cumulative flows of 33 Million Acre Feet (MAF) out of which India was only utilizing 3 MAF and left with 30 MAF for future expansion. Against this, Pakistan did not get any additional water and had to develop storages for its future requirements."[188] As a result, it can be safely determined that the underlying principles of the UNWC, which make it essential to equitably and reasonably share international watercourses, are not

[185] Indus Waters Treaty, *supra* note 7 at Art. I(5) & II(1).

[186] *Id.* at Art. III.

[187] *Id.* at AnnexureE.

[188] PILDAT, Pakistan–India Relations: Implementation of IndusWaters Treaty: A Pakistani Narrative, 9, (Dec. 2010), https://perma.cc/ZG5M-44Q2

thoroughly applied and reflected in the IWT.[189]

Nonetheless, there are many aspects of the basic principles that *are* followed by the IWT, reflecting particular obligations and principles promulgated by the UNWC. For instance, the principle of the obligation not to harm other concerned co-riparian states, established by the UNWC, is reciprocally accommodated in the IWT.[190] Similarly, the duty to notify a concerned state about planned activities is also notably preserved in the IWT.[191] Furthermore, the IWT preserves the obligation to not to pollute or contaminate waters,[192] which is identical to the obligation under the UNWC. These reflected obligations and duties, acting as principles in the IWT, prove that the UNWC and the IWT are in conformity with each other, essentially satisfying the principles of the equitable and reasonable utilization of international waters and the obligation not to cause harm.[193]

Furthermore, the UNWC obliges all watercourse states to cooperate with other concerned states and thereunder exchange all information on a regular basis, so that management of water apportionment can be executed effectively.[194] Analogously, the IWT also obliges

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[189] Convention on the Law of the Non-Navigational Uses of International Watercourses, *supra* note 76 at Art. 5 & 6.

[190] Indus Waters Treaty, *supra* note 7 at Art. IV (9), Annexure D.

[191] *Id*. at Annexure D (9).

[192] *Id.* at Article IV (10).

[193] Convention on the Law of the Non-Navigational Uses of International Watercourses, *supra* note 76 at Art. 5 & 7.

[194] *Id.* at Art. 8 & 9.

both parties to exchange all technical data and information with each other, to make the other party aware of adverse effects, and to make water management more efficient.[195] This aspect of the IWT is a precise reflection of the obligation under the UNWC, where it is obligatory to exchange technical information and to cooperate with concerned states.[196]

However, the IWT does not unreservedly conform to one basic characteristic of the UNWC. Article 6 of the UNWC provides a list of contingent factors that should be kept in mind while utilizing international watercourses.[197] The IWT does not explicitly provide such a list of aspects involved in water apportionment, although it does set out some sorts of rights and try to encompass not all but a few contingent facets of the situation.[198] For instance, the IWT provides procedural arrangements to accommodate financial transactions between states to construct water management infrastructure.[199] This adjustment within the IWT covers the economic aspect of the situation, which is a requirement under the UNWC. Similarly, by allowing India to install hydroelectric power generation plants over the western rivers, IWT furnishes a social aspect of the required needs.[200] Analogously, within its evaluation the IWT covers domestic, industrial, and

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[195] Indus Waters Treaty, *supra* note 7 at Art. VI & VII,

[196] Convention on the Law of the Non-Navigational Uses of International Watercourses, *supra* note 76 at Art. 8 & 9.

[197] *Id.* at Art. 6.

[198] Indus Waters Treaty, *supra* note 7 at Art. V, Annexures B, C, D & E,

[199] *Id.* at Annexures B & H, Articles II & V.

[200] *Id.* at Annexures C (3)(ii), D, & E.

human needs,[201] which are mirrored in the UNWC.[202] These various aspects of water apportionment in the IWT reflect various contingent aspects of the UNWC. However, several other factors enlisted in the UNWC, such as the characteristics of environmental, population, and climatic aspects of water apportionment, are largely neglected in this bilateral treaty. Similarly, the obligation to seek the consent of the relevant state after notification is also not adapted in the IWT.[203]

C. Devising Institution

The UNWC in its articulation merely suggests that concerned parties can devise a commission as a mechanism to enforce water management regulations. Article 8 of the UNWC states that "watercourse States may consider the establishment of joint mechanisms or commissions."[204] Article 24 of the UNWC states that "consultations concerning the management of an international watercourse … may include the establishment of a joint management mechanism."[205] Analogously, IWT obliges both parties to form a Permanent Indus Commission, in which both states will have their respective agents to represent them.[206] The IWT further states that this commission is responsible for enforcing the

[201] *Id*. at Annexures B, C, D, E, & H.

[202] Convention on the Law of the Non-Navigational Uses of International Watercourses, s*upra* note 76 at art. 6 & 10.

[203] *Id*. art. 7.

[204] *Id*. art. 5-6.

[205] *Id*. art. 10.

[206] Indus Waters Treaty, *Supra* note 7 art. 15-17.

regulations of the treaty, and that commissioners are obliged to provide annual reports to their respective governments.[207] Seeing the institutional mechanism of the IWT, it can be concluded that, in establishing a legal framework, the IWT supersedes the UNWC.

IX. CONCLUSION

It is evident from the discussion above and the principles and obligations that regulations in international instruments counterbalance the formation of regional instruments. Considering the wordings of the UNWC and the DALTA, it can be easily comprehended that the promulgated rules are acclaimed universally, even on the regional stage.[208] These established norms and principles in turn lay the foundation for the formation of treaties and agreements around the globe.[209] Any given instrument largely follows such principles because the context, intentions, and views of the agreement will adapt to the ambiguities of agreements or treaties. Comparably, when a regional instrument lacks clarification on any aspect of a situation, or where there is no instrument to institute regulations, such

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[207] *Id*.

[208] ROBERT FALKNER, THE HANDBOOK OF GLOBAL CLIMATE & ENVIRONMENT POLICY25 (2016).

[209] THE UNECE CONVENTION ON THE PROTECTION AND USE OF TRANSBOUNDARY WATERCOURSES & INTERNATIONAL LAKES 286 (Attila Tanzi, ed. 2015).

international principles can cater to the required need and operate reasonably, equitably, justifiably, and impartially.[210]

As a final note, treaty law and agreements at regional or watercourse level define the true rules and regulations of any given situation, forming the legal framework within certain requirements.[211] But it is germane to note that international law through multilateral water treaties is starting to encompass groundwater/aquifers and any tangible or anticipatable water sharing aspects, along with providing a dispute resolution mechanism and environmental protection regulations.[212] Such instruments cover water conflicts where there is no mutually agreed treaty. This is also the emerging need of this time, since the majority of fresh water is not governed by any kind of treaty law.[213]

So, for regions where there is no agreement, and as a guiding principle for international law, be it case law or customary law, UNWC and DALTA propose justifiable water apportionment principles where the underlying principle is that water must be utilized in an equitable and reasonable manner. Furthermore, this utilization must be undertaken

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[210] RESEARCH HANDBOOK ON THE THEORY & PRACTICE OF INTERNATIONAL LAWMAKING 454 (Catherine Brolmann & Yannick Radi, eds., 2016).

[211] ENRICO MILANO, UNLAWFUL TERRITORIAL SITUATIONS IN INTERNATIONAL LAW 90 (,2006); *see also,* M. SORNARAJAH, THE INTERNATIONAL LAW ON FOREIGN INVESTMENT (2010).

[212] *5 Reasons Why EU Would Ratify and or Become a Party to UNWC,* [https://perma.cc/YS6V-68L6] (last visited April 14, 2017).

[213] Fred Pearce, *A Global Treaty on Rivers*, YALE ENVIRONMENT 360, (Nov 19, 2012).

without injuring or harming co-riparian states or nature, and while cooperating with concerned states and restraining from polluting the environment or water.

Correspondingly, although the IWT was formulated decades before the UNWC was imagined, the IWT provides and covers several aspects of the principles and obligations later established by the UNWC, such as the principle of the equitable and reasonable utilization of international watercourses, the obligation not to harm other concerned riparian state, and the duty to notify other states about planned activities. Nonetheless, there are certain contingent aspects of water apportionment that are still not reflected in the IWT, such as the obligation to protect the environment, the population factor, the obligation to seek consent, and the obligation to prepare EIAs. Nonetheless, the case law pertaining to the IWT has explicated that the obligation to prepare EIAs is unavoidable.[214] On the other hand, as far as DALTA is concerned, the IWT is silent on the use of freshwater resources of groundwater/aquifers.

[214] GUSTAVV OLSSON, WATER & ENERGY 19–20 (2nd ed. 2015).