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Development and Codification of International Law on Non-Navigational Uses of International Watercourses

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Abstract:

Without a universal treaty on shared water resources, it is very difficult to control and regulate these resources. *Due to the absence of any universal treaty to regulate and protect international watercourses, four varying but to some extent conflicting theories and various principles existed. The paper analyses these theories and principles on the ground of legality.* Furthermore, the extensive work of non-governmental organizations such as IIL, ILA and the work of ILC to develop and codify international law for the uses of international waterways other than navigation have been analyzed. *Similarities and differences among them have also been discussed. Analytical approach has been adopted in presentation of arguments.*

Keywords: International Law, International Watercourses, Non-navigational uses, water sharing, Upper riparian, Lower riparian

I. Introduction

Since the time immemorial "life" has always been considered as a dependent variable of water and both have been witnessed as co-existent phenomenon. The Greek maxim goes "water is life" which is persistently confirmed by the biological science that life cannot exist without water. The archeological studies have proved that all ancient civilizations emerged on the banks of the rivers – the Nile, the Sindh, the Tigris and the Euphrates. It is also an historical fact that some civilizations vanished from the face of earth due to poor supplies or mismanagement of water. For instance, Sumerian Civilization declined due to the poor irrigation practices (Farooq & Bhatti, 2010).

About 70 percent of the entire earth is covered with water but 97 percent of this water is contained in the oceans which is saline or salty in nature[i]. Remaining 3 percent is considered as fresh water. Out of which, about 2 percent is contained as ice on poles and 0.75 percent as ground water. Out of remaining balance of 0.25 percent, only 0.01 percent is available in rivers and lakes at any given time. Remaining 0.24 percent is found in the form of glaciers and snow (Grag, 2003, p.1).

It is obvious that only 0.01% of the total water on the earth's surface is available for all types of uses. According to the laws of physics and hydrologic cycle, there will always be the same amount of water on the earth (Dixit, 2002, p. 6) but due to the

technological advancement, climatic change and rapid increase of the human population, its demand is increasing rapidly and it has become the most precious commodity. To keep balance between its supply and demand has become a very difficult task. Resultantly, water has become the source of conflicts within the states and among the nations.

Till the mid of the 19th century, there was no dispute over the water sharing among the riparian states except some sporadic conflicts which were resolved locally. In the end of 19th century, process of irrigation engineering (storage and diversion) was started and as a result volume and quality of water was found to be decreasing in the various parts of the globe. As a result, it became a basic cause of conflicts among the co-riparian states. At that time, international law started activities to address the uses of the international rivers other than navigation. At that stage, four varying and conflicting doctrines were in existence to address the obligations and rights of all basin states over the international watercourses[ii]. These theories are largely based on the state practices and contributions of the scholars and experts in the field (Salman & Uperty, 2002). The first doctrine was the "*Absolute Territorial Sovereignty*" which completely permits a riparian nation to utilize an international watercourse in any manner within its boundaries, as it deems fit, without concerning an injury or adverse effect on other co-basin states (Salman & Uperty, 2002). In essence, this doctrine denies the water rights of lower riparian states to demand continuous flow of water of a transboundary watercourse from upstream states. In essence, this doctrine denies any law on the uses of international rivers.

The second doctrine was "*Absolute Territorial Integrity*", which is totally contrary to the theory of "Absolute Territorial Sovereignty" and is also known as "riparian rights". It advocates the right of downstream nations to demand the continuous and unrestricted flow of waters of a stream into their territories from the upstream state or states. It also establishes the duty of the upper river states, not to create any obstacle in the natural flow of the stream towards the downstream states. This doctrine allows an up-stream state for the limited use of the waters of an international river. It has same characteristics as the "common law doctrine of riparian rights"[iii] (Salman & Uperty, 2002, p. 14). This theory favors the lower riparian states by protecting their right of prior appropriations or existing uses. It also protects the lower riparian from any injury or harm that may be caused by the upper riparian, by using an international river.

As stated earlier, the theory of 'Absolute Territorial Sovereignty' was rejected because of its failure to secure the rights of the lower riparian states, whereas this doctrine has also been rejectd by the experts and scholars of international law on account of its failure to protect the rights of the upper riparian nations.

Third doctrine was "*Limited Territoral Svereignty and Integrity*" which is the combination of first two doctrines (Salman & Uperty, 2002). It advocates the right of each riparian nation to utilise an international watercourse passing through its boundaries in such a way that its uses do not harm the interests of other riparian states. In essence, this doctrine gurantees rights of each and every riparian nation on a common watercourse. Rahman (2009) describes it as the doctrine of 'sovereign equality and territoral integrity'. It has been derived from the priciple of *sic utere tuo ut alienum non laedus*[iv], or the concept that all riparian states have equal water rights and they should respect the rights of each other to share the waters of a common river (Spiegel, 2005). This theory is applied to many treaties, declarations and conventions[v]. Only this theory

has been greatly accepted and appreciated by the scholars of international law and It is considered as a foundation of modern international law on fresh water.

The fourth doctrine *"the Community of Interests"* considers the river basin as an economic unit. It is also known as the community of co-riparian nations. According to this theory, the rights and obligations on transboundary watercourses are found in the combined body of all states of the basin or their water is apportioned among the basin states by a treaty or an agreement or acoording to the proportionality (Salman & Uperty, 2002, p. 15). In other words, this theory gives more importance to a community of interests, established by the natural and physical unity of a river (Spiegel, 2005). However, these interests are mostly influenced by a number of environmental, economic and societal factors, such as nationalism, lack of trust among the co-riparian, absence of political will etc (Spiegel, 2005). This theory is not widely accepted because it ignores political and physical boundries, requires high level of cooperation in common management and demands geographic and economic unity of the entire river basin which are not easy to achieve, particulary between and among the nations, which have sentiments of enmity.

Besides these theories, there are several general and customary priciples of international law that emerged during the last two centuries to deal with the issues of transboundary water resource mangement. These principles have been incorporated and recognised by several international agreements, treaties and conventions of the modern regimes. For instance, the Helsinki Rules of ILA, (1966) and UN Watercourses Covention (1997) are largely based on these principles (Rahman, 2009; Giordano & Wolf, 2003). The most important principles are the equitable and reasonable use, not to cause significant damage, the principles of prior notification, negotiation and consultation, the principles of information exchange and cooperation in international river basins and the principle of peace dispute resolution.

II. Development and Codification

Codification of international law on the uses of international rivers for navigation started in 1815 when the Act of the Vienna Congress was adopted (Salman & Uperty, 2002, p. 8). Recommendations of the above mentioned Act were incorporated in the Mannheim Convention on the navigation of Rhine River, which was signed by the Belgium, France, Germany and the Netherland in 1868 (Hughes, 1992, p. 84). Freedon of navigation confirmed by the Act of the Vienna Congress was also adopted by the General Act of Congress of Berlin regarding Niger and Congo river in African continent. That Act ensured free movement of colonial masters in the continent of Africa. That Act even extended the scope of navigational freedom to the non-riparian states also (Salman, 2007, p. 626) At that time, rivers were used, by and large, only for navigational purposes. Utilization of rivers other than navigation, like irrigation, industry and hydropower generation, were in initial stage of development. In the beginning of the 19th century, the industrialisation and rapid increase in population developed other uses of rivers and primacy of navigational uses eroded gradually. However, with the start of 20th century, utilization of international watercourses for other than navigational purposes started to evolve and compete with navigational uses (Salman & Uperty, 2002). The Madrid Declaration[vi], adopted by the IIL in 1911, intended to deal with navigational as well as non-navigational uses of the transboundary rivers. In 1921, Barcelona Convention[vii] was adopted by the League of Nations which also recognised both kinds of utilization of

international rivers. After two years, Geneva Convention[viii] was adopted under the supervision of the League of Nation in 1923. This Convention stated that any state could carry out any operation to develop hydraulic power within its territory under the jurisdiction of international law. Geneva convention proved another remarkable step towards the decline of the primacy of navigational utilization of international rivers. After the World War 2, division of Europe into East and West blocks, greatly affected the freedom of navigation in the international rivers (Salman & Uperty, 2002).

Although, all these early conventions mostly dealt with navigational uses, yet due to the rapid urbanisation and industrialisation demand for water resources also increased. Consequently, water disputes emerged in the various regions of the world among riparians states which propelled the world to make laws to deal with uses of transboundary watercourses other than navigational purposes. For the development and codification of international law to address the uses of transboundary streams other than navigation, the IIL, the ILA and the ILC played a vital role.

A. The Institute of International Law (IIL)

The IIL played a vital role to develop and codify international law for the uses of international rivers. It is a non- governmental organization of prominent scholars of international law. It was founded in 1873. It has been working on various subjects of international law since its inception. Madrid Declaration (1911) was the first attempt of IIL to codify the principles for uses of international rivers other than navigation. The Declaration distinguishes[ix] frontier streams from those that flow into the boundaries of two or more than two countries. Regarding the fontier watercourses, the first Article of the Declaration prohibits a state to utilise or allow to utilise waters in such a way that may bring negative effect on the banks of other state (FAO, 1998). Article II prohibits any construction on an international watercourse without receiving prior consent of other riparian nations. In the same way, sub clause (5) of Article II prohibits downstream nations to make any establishment in their territories that rise water level of a stream and floods may occur in the territories of upstream states (FAO, 1998).

The riparian nations are not legally bound to the rules and regulations provided by the Madrid Declaration. They can only be applied as general guidelines to settle the riparian disputes. For example, these rules are incorporated into the 1966 Helsinki Rules and the 1997 United Nations Convention. The Declaration contrasts with the Hormone Doctrine and establishes the principle of not causing serious damage to other states of the basin. Although, Madrid Declaration favours the doctrine of 'limited territorial Sovereignty, yet at the same time it prohibits all those activities which would result in injury to other co-basin states.

The Salzburg Resolution of 1961 was another important work of the Institute of International Law which describes the rights and duties of the basin states on the use of a transboudary river. Article III states that "if the basin states have conflicting positions on the magnitude of their rights of use, the dispute shall be settled according to the principle of of equity, bearing in mind their specific needs and other relevant circumstances" (FAO, 1998).

Article IV of the Salzburg Resolution entitles a state to receive sufficient compensation for any damage done by any harmful act of another state. Article V

recommends the need of prior consultation before starting any work on international watercourses. These rules also demand riparian states that consultations or negotiations should be conducted in good faith to settle their disputes peacefully (Upreti, 2006).

B. International Law Association (ILA)

It is also a non-governmental organization, established by the prominent scholars of international law in 1873. It has a lot of contributions on its credit to codify international law. It began its work in 1954 to codify international law on non-navigational uses of international rivers. Resultantly, after extensive delibrations of two years it issued Dubrovnik Statement in 1956. This statement entitles sovereign rights to each basin state over the international watercourse within its territorial jurisdiction but such control should not cause any demage to other basin states. Although, the term "reasonable and equitable utilization" was not used in the statement, yet the foundation of that principle was laid down. In essence, the ILA rejected the doctrine of "absolute territorial sovereignty, but at the same time accepted the doctrine of" limited territorial integrity "by adopting the principle of "equitable utilization" (Salman & Uperty, 2002).

ILA adopted New York Resolution in 1958 and it again addressed and refined the approach initiated by the Dubrovnik Statement. The Resolution provided reasonable and equitable share to all riparian for constructive use of an international stream. The principle of 'reasonable and equitable utilization' was extensively discussed by ILA at its Tokyo and Helsinki meetings, held in 1964 and 1966 respectively. The Helsinki Meeting produced that principle as a guidline for the further work in the relevant field.

All above mentioned contributions of ILA from 1954 to 1964 on the utilization of transboundary watercourses were incorporated and elaborated in the Helsinki Rules, adopted by ILA in 1966. Although, Helsinki Rules also have no legal standing like previous statements and resolutions of ILA, yet until the UN Watercourses Convention came into force on 19th of May, 2014, they remained single and most important set of rules to regulate and control the utilization of transboundary streams (Salman, 2007).

Helsinki Rules consist of 37 articles, divided into 6 chapters and one Annex. Article I mentions the scope of that Rules. It states that the Rules can only be applied to a transboundary river basin. The term international drainage[x] basin has been defined in Article II. The defination given in the article II includes underground water that is connected to the surface water in the water system, flowing into a drainage basin. So, Helsinki Rules can also be applied to the underground water that is connected to the surface water. First time in history of international water law, undrground water was also dealt by an international legal organization (Salman & Uperty, 2002).

The essence of the Helsinki Rules is the emergence of the principle of equitable and reasonable uses of an international watercourse (The Helsinki Rules, 1966, Article, IV) and it has become the foundation of international water law. Article V provides relevant factors[xi] to determine the reasonable and equitable share of each riparian state.

Article V (3) states that each factor must be given weightage according to its importance by comparing with other relevant factors. "In determining what is reasonable and equitable share, all relevant factors are to be considered together and a conclusion be reached on the basis of the whole."

It is very important to keep in mind that the Rules do not separately recognize the principle of "do not cause significant harm", but recognize the damage that can be caused by the use of an international river as one of the factors to determine reasonable and fair use[xii]. Another factor that must be considered to determine the reasonable and fair share is the historical and existing use of the waters of a river basin[xiii]. The Helsinki rules have also incorporated the principle of "prior appropriation" which means "first in time, first in right". So, it provides predominance to the principle of obligation not to cause significant harm by interfering existing uses. However, 'prior appropriation' is dealt as a factor to determine the equitable utilization by the Helsinki Rules, not as a obligation to protect the *status quo* (Salman, 2007).

Evaluation of articles IV and V clearly highlights that Helsinki Rules does not provide a proper definition of equitable utilization. However, assessment of equitable uses is to be based on other relevant circumstances. So, it is obvious that the application of this principle will be different from basin to basin on the basis of the circumstances (factors) prevailing in each basin (Upreti, 2006).

The Helsinki Rules was not the last effort of the ILA in the course of codification of international water law. In 1972, the ILA adopted articles related to flood contol (International Law Association, 1972, p. 46), and Rules to Administer International Rivers in 1976 (International Law Association, 1976, p. 213-266). At Belgrade Conference of 1980, it approved two set of rules. The first is concerned with the flow of water of an international stream and the other is concerned with the relationship between transboundary water resources, other natural resources and environmental elements. The first addresses the flow of waters of transboundary streams, and other deals with the relationship between transboundary water resources and other natural resources and environmental elements (International Law Association, 1980, p. 362-373). In 1982, ILA adopted articles to prevent water pollution in the international river basins at its Montreal Conference (ILA, 1982). All the above mentioned rules made by ILA were consistent with the fair use principle, which is the base of the Helsinki rules. (Salman & Uperty, 2002, p. 24).

The ILA issued the 'Complementary Rules Applicable to International Water Resources' in 1986 at its Seoul Conference. These Rules clarify certain factors regarding the implementation of Helsinki Rules. In addition, these Rules also addressed the transboundary groundwater and extended the scope of Helsinki Rules to the aquifers, not connected to the surface waters of a river basin. To protect the underground water, the Seoul Rules recommended an integrated management approach to riparian states for their international aquifers, including the combined use with surface water. ILA also adopted supplementary rules on private remedies and pollution in 1996 (Salman, 2007).

It was noticed in early 1990s by the ILA that rules to govern the same issue adopted by it at various occeasions are scattered in various instruments and it was decided to combine them in single document. So, the draft of combined rules[xiv] was concluded by the Water Resources Committee of ILA in its meeting, held in Campione, Itly, in June 1999. The Campione Consolidated Rules have sixty seven articles with two Annexes. One annex provides details regarding the formation of an international water resources association and the second provides mechanism of dispute settlement (Bogdanovic, 2001).

In 2000, ILA decided to update the Helsinki Rules with special reference to the contemporary customary international law on fresh water. After extensive work of the Committee on Water Resources, the final report was approved by ILA in the month of August, 2004 at Berlin. The outcome of the meeting was 'The Berlin Rules on Water Resources' (Salman, 2007).

These Rules are most comprehansive. They contain seventy three Articles, fourteen chapters and cover various issues related to the water. It is very important to note that the scope of Berlin Rules was extended to management of both national and international watercourses. Salman (2007) concludes that it was not only a deviation of ILA from its previous contributions that extensively addresses the international watercourses, groundwater and river basins but also a deviation from the contributions of ILC and IIL in the filed of international law on water.

Chapter II of the Berlin Regulation deals with various topics related to water. It concerns the participation of people affected by decisions concerning the management of water resources; combined management of groundwater, surface water and other waters; integration of water resources management with the management of other resources, to minimize environmental damage.

Chapter III deals with the waters, shared by two or more than two nations. As Article 12 limits all riparian to administer the waters of a transboundary river within their respective territories in a reasonable and equitable manner, taking into account the obligation not to cause substantial damage to other riparian nations (ILA, 2004).

This approach differs with the Helsinki Rules and the United Nations Convention. The main distinction between them is that the two legal instruments mentioned above establish the right to fair and equitable share of all states of the basin. Both instruments confirm the equality of rights of all basin states in utilizing a common watercourse. Whereas the Berlin Rules recommend that every state of the basin administer the waters of a common river in a reasonable and equitable manner. The Berlin Rules define the term "manage" in article 3 (14) which includes the development, use, regulation, allocation, protection and control of water from a watercourse. Thus, both the Helsinki Regulation and the United Nations Watercourse Convention develop the right to fair and reasonable share of each basin state; Berlin Rules establish the obligation of each riparian nation to manage a common watercourse in a reasonable and equitable way (Salman, 2007).

Another important difference is the use of water from transboundary river basins. The Berlin Rules require the management of water resources in a reasonable and equitable manner, with particular attention to the obligation not to cause significant damage to other basin states. On the other hand, the Helsinki Rules provide certain factors to determine the reasonable and equitable share and to address the principle of the obligation not to cause substantial damage to other co-basin nations.The UN Watercourses Convention also adopted same approach but added a separate article to address the principle of 'not to cause significant harm'. However, the UN Convention has subordinated the principle of "not to cause significant damage" to the principle of "fair and reasonable use" (Salman, 2007). In essence, Berlin Rules give equal weightage to the both principles and it is a great deviation of ILA from its previous work, especially the

Helsinki Rules that developed the principle of reasonable and equitable uses which is considered as a fundamental principle in the contemporary international law on the uses of transboundary watercourses. Berlin Rules also deviated from the UN Convention that subordinates the principle of 'obligation not to cause substantial injury' to the reasonable and equitable uses.

C. International Law Commission (ILC)

The ILC was established by the UN General Assembly in 1947 for the gradual development and codification of international law. It was comprised of 34 members[xv], elected by the UN General Assembly for the term of five years. All members of ILC are elected in an individual capacity. They do not represent the member states (Upreti, 2006).

The Resolution No. 2669 (XXV) adopted by the UN General Assembly on December 8, 1970, empowered ILC to start works on UN Convention on the Law of the Non-Navigational Uses of International Watercourses. It started its work in 1971. Finally, it completed its work on the draft Convention and adopted it in 1994 in its 46th session and submitted to the General Assembly of United Nations for final approval. From that time, formal and informal discussions among members of UN General Assembly and five Special Rapporteurs[xvi] were made. Consequently, the General Assembly adopted it on May 21, 1997. It is known as UN Convention on Non- Navigational Uses of International Watercourses. A total of 103 states[xvii] voted in favor of the draft Convention, 3 voted against[xviii], 52 abstained while 27 states did not attend the session[xix]. (Salman, 2007).

Article 36, sub clause (1) of the Convention says that the ratification of 35 nations is compulsory to enforce it. It was opened for the signatures on 21st of May, 1997 and remained open untill May 20, 2000 (Article 34). During the due period of three years only sixteen countries signed the Convention. Article 36 also allows the states or regional economic integration organizations to continue their approval, acceptance or accession indefinitely. On 19th of May 2014, the Viet Nam acceeded to the Covention as the 35th state and Convention came into force. State of Palestine also acceeded to as 36th state on January 2, 2015. Details is given in table 1;

The states which signed, approved, accepted, acceeded to or ratified the Convention untill 17th of August 2015.

Table 1

Participant state	Signature	Approval	Acceptance	Accession	Ratification
Benin				05-07-2012	
Burkina Faso				22-03-2011	
Chad				26-09-2012	
Cote d' Ivoire	25-09-1998				25-02-2014
Denmark				30-04-2012	
Finland	31-10-1997		23-01-1998		
France				24-02-2011	
Germany	13-08-1998				15-01-2007
Greece				02-12-2010	
Guinea-Bissau				19-05-2010	
Hungary	20-07-1999	26-01-2000			
Iraq				09-07-2001	
Ireland				20-12-2013	

Italy			30-11-2012	
Jordan	17-04-1998			22-06-1999
Lebanon			25-05-1999	
Libya			14-06-2005	
Luxembourg	14-10-1997			08-06-2012
Montenegro			24-09-2013	
Morocco			13-04-2011	
Namibia	19-05-2000			29-08-2001
Netherland	09-03-2000	09-01-2001		
Niger			20-02-2013	
Nigeria				27-09-2010
Norway	30-09-1998			30-09-1998
Paraguay	25-08-1998			
Portugal	11-11-1997			25-06-2005
Qatar			28-02-2002	
South Africa	13-08-1997			26-10-1998
Spain			24-09-2009	
State of Palestine			02-01-2015	
Sweden			15-06-2000	
Syrian Arab Republic	11-08-1997			02-04-1998
Tunisia	19-05-2000			22-04-2009
United Kingdom of Great Britain and Northern Ireland			13-12-2013	
Uzbekistan			04-09-2007	
Venezuela	22-09-1197			
Viet Nam			19-05-2014	
Yemen	17-05-2000			

Source: (UNO, 2014).

The Convention is mainly depends on the general principles of the customary international law. Those principles were progressively developed by the state practices, decisions of national and international courts and contributions of the scholars of relevant area. Particularly, the Helsinki Rules of ILA and partly the work of International Law Institute (IIL) have been considered most important to develop international water law (Khalid, 2004). The Convention is comprised of 37 articles, seven chapters with an annex. The annex has 14 articles to deal with process of arbitration (Salman & Uperty, 2002).

Article 1, sub-clause (1) of the Convention describes its scope. It clearly states that it only applies to the non-navigational uses. The sub-clause (2) of article 1 establishes that the navigational uses do not fall within its field of application, except in a situation in which non-navigational uses affect navigation or are affected by navigation. Article 2 defines the term "watercourse". It includes not only the surface water but also the groundwater that is linked to surface water[xx]. Article 5 bounds all riparian nations to use the waters of an international watercourse in a fair and equitable way when passing through their respective territories, keeping in view the rights of other concerned nations. Article 6, sub-clause (1) describes to utilize the water of an international watercourse within the meanings of Article 5 (in reasonable and equitable way), the basin states must take into account all relevant factors[xxi] and circumstances[xxii].

Article 7 adopts the principle of "not to cause significant damage" and requires that basin states use an international river, and take all possible steps to avoid causing

serious damage to other basin states. Article 7 (2) states that all watercourse state must obey Articles 5 and 6 of the Convention for eliminating or mitigating substantial harm on other basin states. As Salman & Uprety (2002) analysed that both principles have been incorporated into the Convention, but the prevailing opinion is that the Convention has subordinated the principle of "not doing substantial harm" to the principle of "reasonable and equitable uses".[xxiii] (p. 28). Other obligations, vide articles 8 and 9 comprise the responsibility to interact through the establishment of common commissions or mechanisms, the regular exchange of information and the notification to other basin states on the planned steps with substantial expected injuries[xxiv].

Part III of the Convention deals with planned measures. This part has nine articles. It includes process of notification, duration of reply, obligation of the notifying state during the time of reply, notification reply, absence of reply, negotiations and consultations regarding the planned steps, criteria in absence of notification and application of planned measures on urgent basis (Salman & Uperty, 2002, p.29).

Articles 20-22 contain provisions to protect and preserve the ecosystem of water courses, taking into account the principle of not causing significant damage. Articles 21 and 22 extend the scope of above mentioned principle that is incorporated in Article 7, sub-clause (1), to the preservation of the ecosystem of watercourse and human health. Article 33 with annex provide detailed provisions regarding the mechanism of dispute settlement and procedures (Rahman, 2009).

III. Conclusion

About 300 watercourses, 100 lakes and a large number of underground aquifers are apportioned by two or more than two nations. Due to the rapid population increase, urbanization, and industrialization, these water resources are facing senstive problems. Except few rivers in Europe, no important river basin on the globe is regulated by a treaty satisfying all the riparian states. Even, where treaties exist, the states are fighting over the interpretation and implementation of the said instruments. In that critical situation, the world community needed an international instrument to deal with the conflicts over the water sharing and management of international streams. In the absence of any legal instrument, four divergent theories, the absolute territorial sovereignty, absolute territorial integrity, limited territorial sovereignty and integrity and community of co-riparian states emerged on international scene. Following the state practices, the writings of eminent academics and the decisions of the ICJ, some general and customary principles have also emerged that are internationally accepted and incorporated into conventions, agreements and modern international treaties. These are the principle of fair and reasonable use, the obligation not to cause serious damage, the principles of consultation, negotiation and notification, the principles of cooperation and exchange of information and the principle of peaceful resolution of disputes.

It is worth noting that there was still no comprehensive legal instrument to deal with the issues regarding uses of the transboundary rivers other than navigational purposes till the end of 20th century. Feeling the dire need of such an international legal instrument, the IIL, ILA and ILC played a vital role to develop and codify international law on fresh water. The ILA adopted Helsinki Rules in 1966. Although, Helsinki Rules were not legally binding yet they greatly influenced the subject of international law on fresh water. This influence depends on the two areas of the Rules. First, there is the

principle of equal rights for all riparian when using an international river. It was endorsed by the ICJ in Danube River case, in 1997 and second influence is related to the factors that determine equitable and fair uses. These factors have been widely incorporated into the United Nations Convention and the ILA's Berlin Regulation.

Although the UN Convention is largely based on the Helsinki rules, but the relationship between the principle of equitable and fair use and not to cause serious damage, introduced by the Convention, has created considerable confusion. The Berlin Rules of ILA (2004) have maximised this confusion. This ambiguity is one of the basic hurdles for nations in the way of signing and ratifying, or acceeding to the UN Convention. The principles of equitable and fair use and not to cause substantial demage is of the Helsinki Rules and UN Watercourses Convention. Both instruments have subordinated later principle to the earlier. Helsinki Rules are not legally binding because those have not been approved by any international legal body. On the other side, UN General Assembly has adopted the Convention and it has become legally binding for the all UN member states since 19th of May 2014, when Veitnam acceeded to the Convention as the 35th state.

End Notes

[i] - McCaffery (1990) asserts that over 90 percent of the total water on the earth is salty in nature. Out of the remaining 10 percent of fresh water, 97 percent is found in the shape of polar ice caps and glaciers. Most of the remaining 3 percent of fresh water is composed of ground water. Less than one-tenth of the 1 percent of fresh water is available in the lakes and streams.
The volume of water on the earth is about 326 million cubic meters. Out of this 97.5 percent is found in oceans or seas, which is salty in nature and remaining 2.5 percent (8 million cubic meters) is fresh water. Out of this fresh water, 0.4 percent is found on the earth surface and in the atmosphere, about 12.3 percent is underground and remaining 87.3 percent is found in the polar ice caps and glaciers. *See* (Wouters, 1997, p. 108).

[ii] - 214 river basins were reported by the United Nations in 1977 which were shared between two or more countries. Same figure reappeared in another United Nations document which was published in 1978.*See* (Salman & Uperty, 2002, p. 3). Peter Gleick has reported 261 international river basins shared and managed by the two or more states. *See* (Gleick, 2000, p. 219)

[iii] - According to the common law doctrine of riparian rights, the upper riparian land owner should permit the flow of a watercourse in its downstream channel without interrupting with its quality or quantity. For details of the doctrine of riparian rights, *see* (Teclaff, 1985, p. 6-20).

[iv] - Use your property as not to harm that of another (MacCaffrey, 1966).

[v] - For example *See*, The Stockholm Declaration, Helsinki Rules 1966 and UN Convention 1997.

[vi] - Madrid Declaration was issued on April 20, 1911. *See* International Regulations Regarding the Use of International Watercourses for the Purposes of Other than Navigation, adopted by the Institute of International Law (IIL). Available at (www.fao.org/docrep/005/w9549e08.htm)

[vii] - Convention was signed on April 20, 1921 at Bacelona.

[viii] - Geneva Convention is also known as "General Convention Related to the Development of Hydraulic Power Affecting More Than One State". It was adopted in1923 at Geneva. For detailed study, *See* (Berber, 1959).

[ix] - Frontier streams are those that make the borders of two countries.

[x] - An international drainage basin is a geographical area extending over two or more states determined by the watershed limits of the system of waters, including surface and ground waters, flowing into a common terminus (Salman & Uperty, 2002).

[xi] - Article V of the Helsinki Rules states that relevant factors which are to be considered include, but not limited to:
a)-the geography of the basin;

b)-the hydrology of the basin;
c)-the climate affecting the basin;
d)-the past and existing utilization of the waters of the basin;
e)-the economic and social needs of the basin states;
f)-the population dependent on the waters in each riparian state;
g)-the comparative costs of alternative means of satisfying the economic and social needs of each riparian state;
h)-the availability of other resources;
i)-the avoidance of unnecessary waste in utilization of waters of the basin;
j)-the practicability of compensation to one or more of the basin states as a means of adjusting conflicts among uses;
k)-the degree to which the needs of a basin state my be satisfied, without causing substantial injury to a co-basin state.

[xii] - Article V (2) of the Helsinki Rules elaborates one of the factors to determine equitable utilization "(k) the degree to which the needs of a basin state may be satisfied, without causing substantial injury to a co-basin state".

[xiii] - Ibid., paragraph (d).

[xiv] - This is officially known as 'The Campione Consolidation of the ILA Rules on International Water Resources, 1966-1999'.

[xv] - Members of the ILC are prominent legal expert in the various fields of international law.

[xvi] - Richard Kinary, Stephen Schbell, Evansen, Stephen C. McCaffrey and Rosentok.

[xvii] - Including Bangladesh, Finland, Jordan, Syria, USA, Mexico, Slovajia and Nepal.

[xviii] - Burundi, China and Turkey voted against the UN Convention.

[xix] - Including Egypt, Ethiopia, India, Israel, Rwanda and France.

[xx] - Article 2, paragraph (1) and (2) of the Convention define term "watercourse" as "a system of surface waters and groundwater constituting by virtue of their physical relationship a unitary whole and normally flowing into the common terminus, parts of which are situated in different countries" (United Nations, 1997).

[xxi] - These factors include:

a) Geographic, hydrographic, hydrological, climatic, ecological and other factors of natural character.
b) Social and economic needs of the watercourse states concerned.
c) Population dependent on the watercourse in each watercourse state.
d) Effects of the use or uses of the watercourses in one watercourse state on other watercourse states.
e) Existing and potential uses of the watercourse.
f) Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect.
g) The availability of alternatives, of comparable value, to a particular planned or existing use

[xxii] - In comparing the factors under the Article 6 (1) of the UN Convention with the factors provided by the Helsinki Rules under Article V, it can be concluded that the factors under the UN Convention are largely based on those of Helsinki Rules. For example, factor (a) of the UN Convention has emerged from the factors (a), (b) and (c) of the Helsinki Rules. Factors (b), (c) and (e) of UN Convention are almost same as the factors (e), (f) and (d) of the Helsinki Rules. Factors (d) and (g) of the UN Convention are based on the factors (k) and (h) of the Helsinki Rules and factor (f) of UN Convention is also based to some extent on factor (i) of the Helsinki Rules.

Similar to the Article V of the Helsinki Rules, the Article 6 of the UN Convention describes that weightage given to each factor is to be determined by its importance in comparison to other relevant factor and in determining what is reasonable and equitable use, all relevant factors are to be considered collectively and a conclusion be reached on the basis of whole (Salman & Uperty, 2002).

[xxiii] - In depth analysis of the Articles 5, 6 and 7 of the Convention leads to the conclusion that obligation not to cause significant harm has been subordinated to the principle of reasonable and equitable utilization. Moreover, in its judgment regarding the *Gabcikovo-Nagymaros* case, the International Court of Justice emphasized the importance of the principle of equitable and reasonable utilization and no reference was given to the principle of obligation not to cause significant harm.

[xxiv] - *See* Articles 8 and 9 of the UN Convention for details.

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