Water Resources Development,
Vol. 25, No. 1, 159–173, March 2009

Principles of Transboundary Water Resources Management and Ganges Treaties: An Analysis

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ABSTRACT *The aim of this paper is to analyse the coverage of the principles of transboundary water resources management in two key bilateral treaties in the Ganges Basin. The treaties are the 1996 Mahakali Treaty between Nepal and India and the 1996 Ganges Water Treaty between India and Bangladesh. The study reveals that both treaties incorporate several internationally recognized transboundary water resources management principles, e.g. the principle of equitable and reasonable utilization, an obligation not to cause significant harm, principles of cooperation, information exchange, notification, consultation and the peaceful settlement of disputes. The presence of these internationally accepted principles in these two treaties offer plenty of common ground, which could serve as guidelines to promote sustainable water resources management throughout the region.*

Introduction

The Ganges basin is located at 70°–88°30' longitude east and 21°–31° latitude north. The River Ganges rises in the Gangotri glacier in Uttar Pradesh, India, at an elevation of about 3139 m above sea level. The Ganges is the thirtieth longest river in the world. It has a total length of approximately 2600 km and the total drainage area is approximately 1 080 000 km^2 shared between China, Nepal, India and Bangladesh (Rahaman, 2008).

Numerous studies reveal that a coordinated Ganges basin management approach by the riparian countries could promote social, economic and environmental well being throughout the region (e.g. Abbas, 1984; Swain, 1993; Bandyopadhyay, 1995; Verghese, 1999; Ahmad *et al.*, 2001; Biswas & Uitto, 2001; Huda, 2001; Onta, 2001; Swain, 2002; Uprety & Salman, 1999; Biswas, 2008; Rahaman, 2008).

Recently, the riparian countries in the Ganges River basin have been cooperating and working towards coordinated and sustainable water resources management. Two recent bilateral treaties of the Ganges River basin are good examples of this (Biswas, 2008, p. 153). The treaties are the 1996 Treaty between Nepal and India concerning the

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0790-0627 Print/1360-0648 Online/09/010159-15 © 2009 Taylor & Francis
DOI: 10.1080/07900620802517574

integrated development of the Mahakali River (hereafter Mahakali Treaty) (ILM, 1997a), and the 1996 Treaty between Bangladesh and India on the sharing of the Ganga/Ganges waters at Farakka (hereafter Ganges Treaty) (ILM, 1997b).

This paper has two objectives: first, to discuss internationally acknowledged principles of transboundary water resources management; second, to analyse to what extent these internationally accepted principles are addressed in both the1996 Mahakali Treaty and 1996 Ganges Treaty.

Transboundary Water Resources Management Principles

There are different principles of transboundary water resources management. This section discusses transboundary water resources management principles that are recognized by international convention, judicial decisions and international treaties. These are: the theory of limited territorial sovereignty; the principle of equitable and reasonable utilization; an obligation not to cause significant harm; the principles of cooperation, information exchange, notification and consultation; and the peaceful settlement of disputes. These principles form the basis of the 1966 Helsinki Rules on the Uses of the Waters of International Rivers (hereinafter Helsinki Rules) and the 1997 UN Convention on Non-Navigational Uses of International Watercourses (hereinafter UN Watercourses Convention) (Giordano & Wolf, 2003, p. 167; Rahaman, 2009). Table 1 summarizes the relevant Articles of some international treaties/codifications that endorsed these principles.

The Theory of Limited Territorial Sovereignty

This theory is based on the assertion that every state is free to use shared rivers flowing through its territory as long as such utilization does not prejudice the rights and interests of the co-riparians. In this case, sovereignty over shared water is relative and qualified. The co-riparians have reciprocal rights and duties in the utilization of the waters of their international watercourse and each is entitled to an equitable share of its benefits. This theory is also known as the 'theory of sovereign equality and territorial integrity'.

The advantage of this theory is that it simultaneously recognizes the rights of both upstream and downstream countries because its guarantees the right of reasonable use by the upstream country in the framework of equitable use by all interested parties. Principles of equitable and reasonable utilization and an obligation not to cause significant harm are part of the theory of limited territorial sovereignty (Schroeder-Wildberg, 2002, p. 14). This theory has been adopted in the majority of the treaties in recent years, e.g. the 1995 Agreement on the cooperation for the sustainable development of the Mekong River basin (Articles 4–7), the 1995 SADC protocol on shared watercourse systems (Article 2) and the 2002 framework agreement on the Sava River basin (Articles 7–9).

Principle of Equitable and Reasonable Utilization

This use-oriented principle is a sub-set of the theory of limited territorial sovereignty. It entitles each basin state to a reasonable and equitable share of water resources for beneficial uses within its own territory.

Equitable and reasonable utilization rests on a foundation of shared sovereignty and equality of rights, but it does not necessarily mean an equal share of waters. In determining

Table 1. Transboundary water management principles and relevant Articles of international conventions, agreements/ treaties

	Relevant Articles		
Principles	Helsinki Rules (1966)	UN Watercourses Convention (1997)	International Treaties
Reasonable and equitable utilization	Articles IV, V, VII, X, XXIX (4)	Articles 5, 6, 7, 15, 16, 17, 19	1995 SADC Protocol on Shared Watercourse Systems (Article 2), 2002 Sava River Basin Agreement (Articles 7–9), 1995 Mekong Agreement (Articles 4–6, 26)
Not to cause significant harm	Articles V, X, XI, XXIX (2)	Articles 7, 10, 12, 15, 16, 17, 19, 20, 21(2), 22, 26(2), 27, 28(1), 28(3)	1995 SADC Protocol on Shared Watercourse Systems (Article 2), 2002 Sava River Basin Agreement (Articles 2, 9), 1995 Mekong Agreement (Articles 3, 7, 8)
Cooperation and information exchange	Articles XXIX (1), XXIX (2), XXXI	Articles 5(2), 8, 9, 11, 12, 24(1), 25(1), 27, 28(3), 30	1960 Indus Waters Treaty (Articles VI-VIII), 1995 SADC Protocol on Shared Watercourse Systems (Articles 2-5), 2002 Sava River Basin Agreement (Articles 3–4, Articles 14–21), 1995 Mekong Agreement (Preamble, Articles 1, 2, 6, 9, 11, 15, 18, 24, 30)
Notification, consultation and negotiation	XXIX (2), XXIX (3), XXIX (4), XXX, XXXI	Articles 3(5), 6(2), 11–19, 24(1), 26(2), 28, 30	1960 Indus Waters Treaty (Articles VII [2], VIII), 1995 SADC Protocol on Shared Watercourse Systems (Articles 2[9], 2[10]), 2002 Sava River Basin Agreement (Part Three and Four, Article 22), 1995 Mekong Agreement (Articles 5, 10, 11, 24)
Peaceful settlement of disputes	Articles XXVI–XXXVII	Article 33	1960 Indus Waters Treaty (Article IX, Annexure F, G), 1995 SADC Protocol on Shared Watercourse Systems (Article 7), 2002 Sava River Basin Agreement (Articles 1, 22-24, Annex II), 1995 Mekong Agreement (Articles 18.C, 24.F, 34, 35)

Source: Adapted from Rahaman (2009).

an equitable and reasonable share, relevant factors such as the geography of the basin, the hydrology of the basin, the population dependent on the waters, economic and social needs, the existing utilization of waters, potential needs in the future, climatic and ecological factors of a natural character and availability of other resources, etc. should all be taken into account (Article V of the Helsinki Rules, 1966 and Article 6 of the UN Watercourses Convention, 1997).[1] It entails a balance of interests that accommodates the needs and uses of each riparian state. This is an established principle of international water law and has substantial support in state practice, judicial decisions and international codifications (Birnie & Boyle, 2002, p. 302).

An Obligation Not to Cause Significant Harm

This principle is also a part of the theory of limited territorial sovereignty (Eckstein, 2002, p. 82). According to this principle, no states in an international drainage basin are allowed to use the watercourses in their territory in such a way that would cause significant harm to other basin states or to their environment, including harm to human health or safety, to the use of the waters for beneficial purposes or to the living organisms of the watercourse systems.

This principle is widely recognized by international water and environmental law, often expressed as *sic utere tuo ut alienum non laedas*. However, the question remains about the definition or extent of the word 'significant' and how to define 'harm' as a 'significant harm'. This principle is incorporated in all modern international environmental and water treaties, conventions, agreements and declarations. It is now considered as part of the customary international law (Eckstein, 2002, pp. 82–83).

Principles of Notification, Consultation and Negotiation

Every riparian state in an international watercourse is entitled to prior notice, consultation and negotiation in cases where the proposed use by another riparian of a shared watercourse may cause serious harm to its rights or interest. These principles are generally accepted by international legal documents. However, naturally, most upstream countries often oppose this principle. It is interesting to note that during the negotiation process of the 1997 UN Watercourses Convention these principles, which are included in Articles 11 to 18, were opposed by only three upstream riparian countries: Ethiopia (Nile Basin), Rwanda (Nile Basin) and Turkey (Tigris-Euphrates Basin) (Birnie & Boyle, 2002, p. 319).

Article 3 of the ILA's Complementary rules applicable to international resources (adopted at the 62nd conference held in Seoul in 1986) states that:

> when a basin State proposes to undertake, or to permit the undertaking of, a project that may substantially affect the interests of any co-basin State, it shall give such State or States notice of the project. The notice shall include information, data and specifications adequate for assessment of the effects of the project. (Manner & Metsälampi, 1988)

Principles of Cooperation and Information Exchange

It is the responsibility of each riparian state of an international watercourse to cooperate and exchange data and information regarding the state of the watercourse as well as current and future planned uses along the watercourse (Birnie & Boyle, 2002, p. 322). These principles are recommended by the 1966 Helsinki Rules (Articles XXIX, XXXI),

while Articles 8 and 9 of the UN Watercourses Convention make it an obligation. The 1944 USA-Mexico Water Treaty, the 1964 Columbia Treaty between USA and Canada, the 1960 Indus Waters Treaty (Articles VI–VIII), the ILA's 1982 Montreal rules on water pollution in an international drainage basin (Article 5), the 1995 SADC protocol on shared watercourse systems (paragraphs 4 and 5 of Article 2, Article 5), the 1995 Mekong River basin agreement (Articles 24 and 30), as well as the 2002 framework agreement of the Sava River basin (Articles 3 and 4), all incorporate these principles.

Peaceful Settlement of Disputes

This principle advocates that all states in an international watercourse should seek a settlement of the disputes by peaceful means in case states concerned cannot reach agreement by negotiation. This principle has been endorsed by most modern international conventions, agreements and treaties, e.g. the 1966 Helsinki Rules (Article XXVII) and 1997 UN Watercourses Convention (Paragraph 1, Article 33). It has also been incorporated in major treaties in recent years, e.g. the 1960 Indus Waters Treaty (Article IX, Annexure F and Annexure G), the 1995 SADC protocol on shared watercourse systems (Article 7), the 1995 Mekong River basin agreement (Articles 34 and 35), and the 2002 framework agreement of the Sava River basin (Articles 22–24).

Analysis of the Water Treaties in the Ganges Basin

The history of water cooperation along the Ganges basin dates back to 29 April 1875 after the signing of the Agreement between the British Government and the State of Jind, for regulating the supply of water for irrigation from the western Jumna canal (amended on 24 July 1892). On 29 August 1893, the Agreement Between the British Government and the Patiala State Regarding the Sirsa Branch of the Western Jumna Canal was signed (IWLP, 2008; Beach *et al.*, 2000, p. 168).

Since that time, six bilateral agreements/treaties and three Memoranda of Understandings (MoU)[2] have been signed between the riparian countries. The agreements/treaties are as follows:

(1) *1920 Agreement between His Majesty's Government of Nepal and India* (the then British Empire) *for constructing the Sarada Barrage on the Mahakali River*.
(2) *Agreement between His Majesty's Government of Nepal and the Government of India concerning the Kosi Project*, 25 April 1954. The treaty was subsequently amended on 19 December 1966.
(3) *Agreement between His Majesty's Government of Nepal and the Government of India on the Gandak Irrigation and Power Project*, signed at Kathmandu, 4 December 1959. The treaty was subsequently amended on 30 April 1964.
(4) *Agreement between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on sharing of the Ganges waters at Farakka and on augmenting its flows*, signed on 5 November 1977 at Dhaka.
(5) *Treaty between Nepal and India concerning the integrated development of the Mahakali River including Sarada Barrage, Tanakpur Barrage and Pancheshwar Project*, 12 February 1996, signed at New Delhi.

(6) *Treaty between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on sharing of the Ganga/Ganges waters at Farakka*, signed on 12 December 1996 at New Delhi.

Abbas (1984), Beach *et al.* (2000), Biswas & Uitto (2001), Crow *et al.* (1995), Rahaman (2008) and Salman & Uprety (2002) elaborately describe the sources of water conflicts between the riparian countries of the Ganges basin and analyse the complex history behind these agreements. Addressing these issues is beyond the scope of this paper. This section concentrates on the analysis of the content of the 1996 Mahakali Treaty between Nepal and India and the 1996 Ganges Treaty between India and Bangladesh to find out to what extent the principles of transboundary water resources management are addressed in these treaties.[3] These two latest treaties of the Ganges basin were selected for this study as both were signed during the negotiation process of the UN Watercourses Convention (1997) and are valid for a significantly longer period, 75 years and 30 years respectively.

Mahakali Treaty (1996)

Mahakali is a principal tributary of the Ganges and border river between Nepal and India. This river is also known as Sarada in India. The Mahakali Treaty was signed on 12 February 1996 (it came into force on 5 June 1997) between Nepal and India concerning the integrated development of the Mahakali River, including Sarada Barrage, Tanakpur Barrage and the Pancheshwar multipurpose Project. Of these, Sarada Barrage and Tanakpur Barrage were completed in 1920 and 1992 respectively. This Treaty absorbed the regime established by the 1920 Sarada agreement (Article 1) and 1991 MoU and 1992 Joint communiqué for Tanakpur Barrage (Article 2). Article 3 of the Treaty endorsed the idea of constructing Pancheshwar Multipurpose Project (PMP). Hence, from a structural viewpoint, the Mahakali Treaty combines three distinct treaties related to the water sharing of the Mahakali River, the Sarada agreement, the Tanakpur agreement and the PMP (Uprety & Salman, 1999, p. 313). The Treaty is valid for 75 years from the date it came into force (Article 12, paragraph 2).

Article 9 of the Mahakali Treaty endorsed the principles of information exchange and cooperation. Article 9(1) forms the Mahakali River Commission for information exchange, cooperation and implementation of the Treaty. Paragraphs 2 to 6 of the Article 9 set out clear guidelines for the formation of the Mahakali River Commission, as well as jurisdiction of the Commission. According to Articles 9(2) and 9(4), the Commission shall be composed of equal number of the representatives from both Parties and its expenses shall be borne equally by both the Parties. According to Article 9(3), the functions of the Commission include information exchange and inspection of all structures included in the Treaty, make recommendations for the implementation of the Treaty provisions, expert evaluation of projects, monitor and coordinate plan of actions, examine any differences arising between the Parties concerning the interpretation and application of the Treaty.

The Treaty approves the principles of equitable and reasonable utilization, the equitable distribution of benefits, and an obligation not to cause significant harm. In defining the jurisdiction of the Mahakali River Commission, Article 9(1) states: "the Commission shall be guided by the principles of equality, mutual benefit and no harm to either Party".

The provisions of Articles 7 and 8 also acknowledge an obligation not to cause harm. Article 7 reads:

> In order to maintain the flow and level of the waters of the Mahakali River, each Party undertakes not to use or obstruct or divert the waters of the Mahakali River adversely affecting its natural flow and level except by an agreement between the parties.

This means each Party has an obligation to maintain the natural flow of the river. However, this obligation does not preclude the use of the waters by the local communities living on both sides of the Mahakali River, not exceeding 5% of the average annual flow at Pancheshwar (Article 7). Article 8 acknowledges the right of both Parties to independently plan, survey, develop and operate any work on the tributaries of the Mahakali River as long as such use does not affect the rights of both Parties stipulated in Article 7. Thus, together Articles 7 and 8, and 9(1) accept the theory of limited territorial sovereignty, where each Party has the right to use the water as long as it does not preclude the rights and interests of the co-riparian. However, the terms 'no harm' and 'adverse effect' are not defined in the Treaty and thus leaves room for controversy (Salman & Uprety, 2002, p. 108).

Article 6 of the Treaty indirectly restricts unilateral projects along the Mahakali River. It states:

> Any project, other than those mentioned herein, to be developed in the Mahakali River, where it is a boundary river, should be designed and implemented by an agreement between the Parties on the principles established by this Treaty.

Hence, it is an obligation for either Party to reach an agreement before commencing any project on the Mahakali River. It makes it binding to both Parties to obey the principles of the Mahakali Treaty, *inter alia* principles of equality, benefit sharing and no harm adopted in Articles 9(1), 8 and 7. Ultimately, it discourages the unilateral development of the river and approves the principles of cooperation, consultation and notification.

Article 3 sets the principles for the design and implementation of the Pancheshwar Multipurpose Project in the Mahakali River. Article 3(1) states:

> The Project shall, as would be agreed between the Parties, be designed to produce the maximum total net benefit. All benefits accruing to both the Parties with the development of the Project in the forms of power, irrigation, flood control etc., shall be assessed.

Article 3(3) again states: "The cost of the Project shall be borne by the Parties in proportion to the benefits accruing to them". Thus, assessing benefits accruing to both Parties from the Pancheshwar Multipurpose Project and sharing the cost in proportion to the benefits, in turn emphasizes the notion of sharing of benefits from water uses rather than sharing of water. The principles adopted in Articles 3(1) and 3(3) together with the principle of mutual benefit adopted in Article 9(1) acknowledge the principle of equitable utilization of benefits. Article 10 states that both Parties may form joint entities for the development, execution and operation of new projects, including PMP in the Mahakali River for their mutual benefits.

Article 11 of the Treaty provides a detailed dispute resolution and arbitration mechanism if the disputes are not resolved by the Mahakali Commission under Article 9. According to Article 11(2), an arbitration tribunal composed of three arbitrators conducts all arbitration. One arbitrator must to be nominated by Nepal, one by India, with neither country able to nominate its own national, and the third arbitrator is to be appointed jointly, who, as a member of the tribunal, shall preside over such tribunal. In the event that the Parties are unable to agree upon the third arbitrator within 90 days after receipt of a proposal, either Party may request that the Secretary-General of the Permanent Court of Arbitration at The Hague appoint an arbitrator who shall not be a national of either country.

The inclusion of the Permanent Court of Arbitration in this Article strengthens the dispute resolution mechanism of this Treaty. Article 11(3) makes the decision of the arbitration tribunal as final, definitive and binding to both Parties. However, Salman & Uprety (2002, p. 115) observe that the Mahakali Treaty is silent regarding the venue of arbitration, the administrative support of the arbitration tribunal, and the remuneration and expenses of its arbitrators. According to the Article 11(4), these issues shall be agreed upon by an exchange of notes between the Parties. Moreover, the Parties may agree on alternative procedures of settling differences arising under the Treaty through an exchange of notes.

Giordano & Wolf (2003, p. 170) point out that incorporating clear mechanisms for dispute resolution is a precondition for effective long-term basin management. In many river basins, a lack of detailed conflict resolution mechanisms makes the treaty ineffective. Article 11 of the Mahakali Treaty offers a good example for dispute settlement in international rivers. It provides relatively elaborate and advanced dispute resolution mechanisms (cf. Uprety & Salman, 1999, p. 338).

Ganges Treaty (1996)

After the commissioning of the Farakka Barrage along the mainstream of the Ganges in 1975 and subsequent conflict regarding the water shortage in downstream Bangladesh, Bangladesh and India signed two treaties (1977 and 1996) and two MoU (1983 and 1985) for sharing the Ganges waters at Farakka.

On 12 December 1996, the two governments signed the most recent Treaty for sharing the Ganges waters at Farakka during the dry season (1 January to 31 May). This Treaty is valid for 30 years. Article II, Annexure I and II of the 1996 Ganges Treaty establishes the formula for water sharing of the Ganges at Farakka during the dry season. Annexure II provides an indicative schedule of the sharing arrangement based on 40 years (1949–88), a 10-day period average availability of water at Farakka. Salman (1998), Salman & Uprety (2002, pp. 170–183) and Tanzeema & Faisal (2001) provide detailed analyses of the water sharing arrangement included in the Ganges Treaty.

Articles IV to VII of the Treaty establish the Joint Committee and its jurisdiction for monitoring the Treaty and exchanging data and information. The Joint Committee, consisting of an equal number of representatives nominated by the Parties, is entrusted to observe and record at Farakka the daily flows below Farakka Barrage as well as at Hardinge Bridge (Article IV). Article VI requires the Joint Committee to submit all data collected by it and an annual report to both governments. According to Article VII, the Joint Committee is responsible for implementing the arrangement of the Treaty and examining any difficulty arising out of the implementation of the arrangements and of the

operation of the Farakka Barrage. The Preamble and Article VIII recognize the need to cooperate to find a solution to the long-term problem of augmenting the flow of Ganges during the dry season. These Articles approve the principle of cooperation and information exchange.

The Preamble of the Treaty notes that both countries wish to share the waters of international rivers and optimally utilize the water resources of the region in the field of flood management, irrigation, river basin development and hydropower generation for the mutual benefit of the people of the two countries. Although oblique, the inclusion of these issues could result in the cooperation of other water related issues and hence promote overall Ganges basin development (Uprety & Salman, 1999, p. 342).

Articles IX and X of the Treaty adopted the principles of equitable utilization and an obligation not to cause harm. Article IX states that:

> Guided by the principles of equity, fairness and no harm to either Party, both the Governments agree to conclude water sharing, Treaties/Agreements with regard to other common rivers.

On the other hand, Article X mentions:

> The sharing arrangements under this Treaty shall be reviewed by the two Governments at five years interval or earlier, as required by either Party and needed adjustments, based on principles of equity, fairness and no harm to either Party made thereto, if necessary.

Thus, both Articles are very noteworthy, as they endorsed the principles of equitable and reasonable utilization and no harm or theory of limited territorial sovereignty.

Article IX is one of the strongest legal instruments included in the 1996 Ganges Treaty. The provision of this Article ensures the commitment of future cooperation for the other 53 common rivers between Bangladesh and India. It ultimately discourages unilateral development on the other common river and agreed to conclude water sharing Treaties/ Agreements on the basis of the principles of equity, fairness and no harm to either Party. Thus in turn, Article IX acknowledges the necessity of coordinated management of the watercourses and the theory of limited territorial sovereignty.

Unlike the 1996 Mahakali Treaty, the 1996 Ganges Treaty does not include clear dispute resolution and arbitration mechanisms (cf. Salman & Uprety, 2002). The preamble of the Treaty mentions that both Parties wish to find a fair and just solution without affecting the rights and entitlements of either country. Article VII states that if the Joint Committee fails to resolve conflicts arising out of the implementation of the Treaty, it should be referred to the Indo-Bangladesh Joint River Commission. If the difference or dispute still remains unresolved, it should be referred to the two governments, which would meet urgently at the appropriate level to resolve it by mutual discussion. What level of government it refers to and what the timeframe is for the settlement of disputes are not specified in the Treaty. In addition, the Treaty does not bind any Party to resolve the dispute if a disagreements persist (McGregor, 2000). Hence, the Treaty establishes political means, not arbitration, to resolve any dispute arising from the implementation of the Treaty. Undoubtedly, the absence of arbitration mechanisms makes it a less effective legal instrument than the Mahakali Treaty (Uprety & Salman, 1999, pp. 336–338).

UN Watercourses Convention and Ganges Riparian States

In 1970, the United Nations (UN) General Assembly commissioned the International Law Commission (ILC) to draft a set of Articles to govern non-navigational uses of transboundary waters. After 21 years of extensive work, in 1991 the ILC prepared the draft text of the UN Watercourses Convention (Biswas, 1999, p. 438). After considerable discussions during 1991 to 1997 on the draft prepared by the ILC, on 21 May 1997, the UN General Assembly adopted the UN Watercourses Convention. This Convention incorporated the principles of transboundary water resources management, building on the 1966 Helsinki Rules (UNDP, 2006:218) (Table 1).

Upon the request of Turkey, the General Assembly of the United Nations called for a vote on the resolution 51/229 adopting the UN Watercourses Convention. Out of 133 nations, 103 nations voted in favour, 27 nations abstained and three nations voted against the Water Convention (IWLP, 2008). Bangladesh and Nepal both voted in favour of the Convention and India abstained.

According to Article 36(1) of the Convention, 35 instruments of ratification, approval, acceptance or accession are required to bring the Convention into force.[4] Even though 103 nations voted in favour of adopting the Convention in the General Assembly, as of 18 August 2008, only 16 countries had ratified or consented to be bound (acceptance, approval or accession) by the UN Watercourses Convention.

Among the Ganges riparian countries, Bangladesh and Nepal both voted in favour of adopting the Convention, but as of 11 August 2008, none of the countries ratified or acceded to the Convention. China voted against the Convention and in the case of India it was clear from the beginning that the country was highly unlikely to ratify the Convention because it abstained during the vote adopting the Convention. India officially noted four objections regarding the Convention. These are as follows (Chimni, 2005, pp. 99–101):

(1) Article 3 of the Convention "failed to adequately reflect the principle of freedom, autonomy, and the rights of States to conclude international agreements on the international courses without being fettered by the present Convention".
(2) Article 5, dealing with equitable and reasonable utilization and participation, "has not been drafted in a clear and unambiguous terms stating the right of State to utilize an international watercourse in an equitable and reasonable manner and Article 5 in the present form is vague and difficult to implement".
(3) Article 32, dealing with non-discrimination, "presupposes political and economic integration among States of the region. As all watercourse regions are not so integrated, this provision will be difficult to implement in certain regions. Hence, it did not merit . . . inclusion in the Convention".
(4) Regarding Article 33, dealing with peaceful settlement of disputes, India asserted "any procedures for peaceful settlement of disputes should leave the procedure to the parties to the dispute to choose freely and by mutual consent a procedure acceptable to them".

The valid and immediate question that arises is: why have Bangladesh and Nepal not ratified or acceded to the Convention, even though both voted for the adoption of the Convention? It is difficult to answer this question in the absence of any official clarifications, statements and, unlike India, objections against a particular Article or Articles of the Convention by the governments of Bangladesh and Nepal.

The same question is also relevant for other 85 countries that voted to adopt the Convention but did not become Parties to the Convention (as of 18 August 2008). To answer this question, Salman (2007a) analysed different Articles of the Convention and statements from the delegations of various countries during the discussion of the Convention by the Working Group and UN General Assembly, and identified several reasons for the reluctance of different states to become Parties to the UN Convention. Addressing these issues in detail are beyond the scope of this paper.

Salman (2007a) identifies and discusses six areas of different interpretations and misconceptions of the provisions of the Convention that have contributed to the slow pace of the signing, ratification of, and accession to the Convention. These are briefly summarized below (Salman, 2007a, pp. 8–12):[5]

(1) Different understanding by the riparian states about the manner in which the Convention has dealt with the relationship between equitable and reasonable utilization (Articles 5 and 6) and the obligation not to cause significant harm (Article 7). Due to this reason, for many states there is considerable ambiguity as to which of the two principles prevails. For many upstream states, which tend to favour the principle of equitable and reasonable utilization, a specific and separate Article dealing with the 'obligation not to cause significant harm' (Article 7) is equating it with the principle of equitable and reasonable utilization. Nevertheless, among the legal experts, the prevailing view is that the Convention subordinated the obligation not to cause significant harm (Article 7) to the principle of equitable and reasonable utilization (Articles 5 and 6) (Eckstein, 2002, p. 85; Salman, 2007a, pp. 8–12, 2007b, pp. 631–634). The downstream states, which normally tend to support the no harm rule, perceive that the Convention is biased to the upstream states. Yet, according to Salman (2007a, p. 9), this should not be viewed as favouring upstream states. The perception by the upstream states that the Convention is biased in favour of downstream states and, *vice versa*, is a major reason for reluctance to become Party to the Convention. However, these two perceptions should not be viewed as a unified position of either upstream states or downstream states.

(2) The perception by the upstream states that the notification process included in the Convention (Articles 12–18) favours downstream states and is an exclusive right of the lower riparians because only upstream riparians can cause harm to downstream riparians.

(3) Different understanding concerning the manner in which the Convention dealt with existing agreements (Article 3). Riparian states with existing agreements believe that the Convention does not fully recognize those agreements. On the other hand, riparian states that are excluded from the existing agreements believe that the Convention should have subjected those agreements to the provisions of the Convention and should have required consistency between the two.

(4) Different understanding of the dispute settlement provisions of the Convention (Article 33). Some states perceive that they are too weak because they do not provide any binding mechanism. Conversely, some states view the fact-finding Commission's provision (Article 33.4) is a binding and compulsory method, and have argued that this provision interferes with a nation's sovereign right to negotiate dispute settlement procedures by the Parties concerned.

(5) A misunderstanding about the expanded definition of the term 'Watercourse State' (Article 2.c) to include "regional economic integration organizations" (Articles 2.c and 2.d). Some states perceive that this provision allows members of one such organization, which are not a riparian of a particular watercourse, to become riparians simply because the organization has become a member.
(6) The apprehension about the loss of sovereignty over shared waters.

The internationally accepted transboundary water management principles summarized in this paper, which are also incorporated in the UN Watercourses Convention, could serve as guiding principles for the creation of effective transboundary water resources management involving riparian countries of shared watercourses (cf. Eckstein, 2002, p. 89; Chimini, 2005, p. 101; Rahaman, 2009; Salman, 2007a). It is also important to recognize that their individual importance, scope, relevant factors, procedures and forms of joint management vary from country to country, depending on the unique characteristics of each of the world's shared watercourses as "one size certainly does not fit all" (cf. Philips *et al.*, 2006, pp. 135–140).

Eckstein (2002, p. 89) notes that the process of legal evolution is a dynamic process that often takes years to develop. He mentions that the Convention's impact and effectiveness is not particularly dependent upon its ratification, but rather is subject to the degree to which different states incorporate the Convention's guiding principles as a framework for more specific bilateral and regional agreements and treaties, e.g. the Ganges and Mahakali Treaties (see Tables 1 and 2).

A Discussion on the Treaties

It should be mentioned that, unfortunately, neither the Ganges Treaty nor Mahakali Treaty mention the definition and scope of the term 'no harm' and thus leaves room for controversy. Both Treaties reaffirm the commitment for cooperation in the development of water resources. The dispute settlement mechanism included in Article 11 of the Mahakali Treaty is relatively elaborate and advanced that could provide a guideline for future cooperation along the basin. Quite positively, the present study shows that both Treaties incorporate major transboundary water resources management principles (Table 2).

Table 2. Transboundary water resources management principles and relevant Articles 1996 Ganges and Mahakali Treaties

Principles	Ganges Treaty (1996)	Mahakali Treaty (1996)
Reasonable and equitable utilization	Articles IX, X	Articles 3, 7, 8, 9
Not to cause significant harm	Articles IX, X	Articles 7, 8, 9
Cooperation and information exchange	Preamble, Articles IV-VII, VIII, IX	Preamble, Articles 6, 9, 10
Notification, consultation and negotiation	Article IV-VII	Articles 6, 9
Peaceful settlement of disputes	Preamble and Article VII	Articles 9, 11

Conclusions

This paper analysed two key bilateral treaties of the Ganges River basin, the 1996 Mahakali Treaty between Nepal and India and the 1996 Ganges Treaty between India and Bangladesh, in relation to the principles of transboundary water resources management. The study shows that both treaties incorporated the principle of equitable and reasonable utilization, an obligation not to cause significant harm, principles of cooperation, information exchange, notification, consultation and the peaceful settlement of disputes (see Table 2). The inclusion of these internationally accepted transboundary water resources management principles in two bilateral treaties, concluded by three riparian countries, Nepal, India and Bangladesh, offers plenty of common ground and a window of opportunity to foster coordinated and sustainable water resources development and management throughout the region. These principles could serve as guiding principles for water based collaborative development endeavours in the region.

Acknowledgements

The author gratefully acknowledges the financial support of the Graduate School for Real Estate, Construction and Planning for this study. He also wishes to thank Professor Olli Varis and Professor Pertti Vakkilainen for their constructive comments, guidance and suggestions. Special thanks are due to Professor Ari Jolma, Salman M. A. Salman and the Water Resources Laboratory Staff from the Helsinki University of Technology.

Notes

1. Biswas (1999, pp. 439–440) notes that none of these factors mentioned in Article 6(1) of the UN Watercourses Convention can be defined precisely as they are broad and general. Accordingly, these can be defined and quantified in a variety of different ways.
2. The agreement concluded at the administrative level is known as the Memorandum of Understanding (Birnie & Boyle, 2002, p. 13).
3. For a comprehensive analysis of the Mahakali and Ganges Treaties, see Salman & Uprety (2002).
4. The Convention was open for signature from 21 May 1997 until 20 May 2000 (Article 34). States or regional economic integration organizations, however, may continue to ratify, accept, approve or accede to the Convention indefinitely (Article 36).
5. For detailed analyses of these different interpretations, see Salman (2007a).

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