Chapter 3

Legal Regime

In the foregoing chapter the researcher has narrated the progressive development of water resources management in historical perspective. This chapter keeps focus on the regulatory aspects to combat the threat of scarcity of water as a consequence of mismanagement of its resources. This also deals with the legal safety-valves relating to access to water resources and involvement of mankind in keeping intact the water resources management. Under this chapter the researcher has also analysed the challenges posed before the law and situations for taking anticipatory actions that may cover imposing restraints and restrictions upon activities threatening the depletion of water resources. It had been and is the role of law to take care for meeting the needs of the present generation without compromising the ability of the future generations to meet their own needs in the sphere of water and water resources. Prof. B.R. Chauhan critically appraised the contribution of law and asserted that the purpose of law should be to make it sure that every single person must have access to adequate livelihood, it includes access to fresh water and right to freedom to participate in local, national and international decisions pertaining to availability of water and its resources. It is the need of the hour to have a legal structure recognising that "water resources management should be socially desirable, economically viable and ecologically sustainable."

Industrialisation and Urbanisation

The era of industrialisation centralised on profit making and exploitation of every situation to add more to their treasures witnessed the development of selfishness and greed. The disorganised and over urbanisation as a result of excessive industrialisation created the tendencies of misuse and abuse of water leading towards depletion of water resources. It is said that "The water has been most defiled with serious deleterious consequences to human welfare." This is the consequence of "man's ecological misbehaviour" (Barbara & Dubos) in the area of water management and conservation which is the vital human concern.
This misbehaviour has been the main cause for the growing shortages of freshwater resources throughout the world. The researcher made endeavours to re-evaluate the legal provisions combating this situation and has undertaken to find out legal flaws in the mechanism meant to fight the man-made scarcity of water and its resources. There are and may be varying situations as to where the water "is scarce," it is "over-abundant," and/or "its flow is not properly controlled". Such prevalences tend to create disharmony, conflict and disputes due to competing claims. Law provides short term solutions where water problem require immediate response and longterm solutions keeping in view future need of the society and developmental issues. The water resources management law envisages "the basis for determining the entitlements and priorities of various uses and users, devising regulatory mechanism to mediate between competing claims in the light of changing situations consistent with sustainability and ensure that regulations are observed." The investigator analysis these situations and key features of the legal framework and discovered the gaps and weakness. The researcher found that prevailing legal structure is a patchwork of laws of diverse origins, developed over a long period of time. It has been observed that mismanagement of water resources continued to grow due to the non-compliance of the laws and statutory norms relating to the water resource protection.

**Development and Exploitation of Natural Resources**

It has been seen that the development gradually grow at the expense of natural resources depletion and water resource has not been spared sometimes back water had been "looked upon as a non-destructable, ever renewable fixed resource," which is not the case, therefore, "the natural resources in general and water resources in particular are once again occupying the attention of planners all over the country. To arrest the depletion of water resources our needs should be met through regulatory use of non-renewable natural resources including water. In an economics of scarcity the state has the responsibility as well as the right to allocate and utilize water resources. This normative aspect is based on the assumption that the state will, in fact, be able to bring about the most efficient use and also do justice in distributing water a mid over expanding population
laying enormous pressure on the urban resources more so on water. The state has shown positive response to the issues of water scarcity. The researcher found and urge for legislating on the ways to maintain appropriate management of water resources laws have been passed and there is some earnestness in implementing them. Though there is "increasing water consciousness" yet the problem of water is getting aggravated mainly because of "laxity in implementing policies and programmes."

Apart from the foregoing introductory remarks it seems to be imperative to make an account of the existing laws, relating to water and its resources management, describing, analysing and making comment on them. The researcher tried to assess as to whether the legal developments with regard to water resources have reflected the spirit embodied in our constitution? Therefore, it is indispensable that the statutory law relating to water resources be fundamentally re-examined. It is also essential to probe and examine as to what extent the aim of law have been accomplished by the existing legal structure. Present chapter keeps focus on the legal mechanism to cover the management and conservation of water resources. With a view to ensure conceptual connotation clear the exposition of law relating to water resources management is for the sake of convenience divided into three parts, namely, national legal regime, transnational legal framework and international legal norms and policies.

The global model of development demand integral approach for the management of water resources. Keeping in view the globalisation and liberalisation it is indispensable to learn and study the legal order of the nation alongwith the transnational legal structure and normative regime prevailing in international law. Therefore the researcher has proceed in every direction to have an analytical and comparative probe to react at a definite conclusion in conflicting legal situation.

**National Legal Structure**

Here, the investigator consider the legal and institutional issues pertaining to development and management of water resources through national perspective. It is deemed imperative to start from the provisions of the constitution to the central and the state laws.
Constitutional Framework

It will not be out of place to examine the background of constitutional developments before analysing constitutional norms relating to water resources management, two developments need elaboration; first, the recommendations of *Indus Valley Commission*, 1942 and second the debates in the *Constituent Assembly* relating to water and water resources management. First we take *Indus Valley Commission* 1942, to discern the problematic management of water resources and we found that until 1921 the construction, management and control of irrigation works, power generation and all other type of water resources development was under the authority of the Government of India although the actual on the spot execution and management of the said works was done, of course-in the capacity of delegate of the Government of India and the secretary of State in London, by the respective provincial government. After the introduction of the constitutional reforms and the advent of "Devolution Rules", irrigation became a 'provincial' but 'reserved' subject and the situation remained so up to March 1937, when the Government of India Act, 1935 came into operation.¹

From April 1937 onwards, with the inauguration of provincial autonomy, irrigation became a transferred subject as such the provincial government in the light of item 19 of List II (Provincial Legislative List) got full power over irrigation works which were, at that time, the main medium of development and use of water resources. Thus, the central government was no longer concerned with the development of irrigation except when a province or a princely state came forward with an objection about some development in the adjoining and in the absence of any resolution of the said dispute, the provisions of sections 130-132 of the Government of India Act, 1935 came into play.

Even during the pre-1937 era, consequent upon the irrigation or water resources development scheme in the form of Sutlej Dam (Bhakra) Project (1919), Sutlej Valley Project (1921), Haveli Project from the Chenab, below the

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¹ B. R. Chauhan "*Settlement of International and Inter-State Water Disputes in India*," I.L.I., New Delhi, 1992, P-151.
confluence of Jhelum, Thal Project from the Indus and Sukkur Barrage Project (1921-23), prepared by Bombay, for irrigation of new areas in Sind, (which was then a part of Bombay), inter-provincial differences and controversies had started raising their heads. Bombay represented as early as August, 1919 that construction of some of the upper projects in Punjab, must necessarily affect the volume of water reaching Sukkur and asked for full details of the desired projects and as a reaction Punjab asked for similar details of proposed projects in Sind. Bahawalpur State expressed its fears that Sutlej Dam Project and Haveli Project would reduce the supply of its inundation canals. At the time of sanction of the Secretary of State, to Sukkur Barrage Project, Punjab protested in April, 1923, alleging a preference to Sind. Similarly when in November, 1924, Punjab urged that its Thal Project be sanctioned in some form or other, Bombay objected.\textsuperscript{2} After various moves and counter-moves, ultimately in March 1935, the Government of Bombay informed Punjab that Bombay would not object to the construction of Bhakra Dam.

In order to deal with all these problems the Government of India appointed a Committee of the Central Board of Irrigation to determine the extent to which additional supplies of water, actually required, could be found, "without detriment to the parties interested in the waters of the Indus and its tributaries, and the effect upon the existing or prospective rights of these parties, of any fresh withdrawls the authorisation of which the Committee may recommend.\textsuperscript{3} The Committee comprised eight 'experts, namely, six chief engineers of the concerned basin provinces or states i.e., Punjab, Bombay (Sind), North West Frontier Province (NWFP), Bahawalpur, Khairpur and Bikaner and two independent engineers including the Chairman of the Committee, Sir John Anderson. The State of Jammu and Kashmir did not show any interest in what was to happen to the waters of the rivers after these rivers moved out of its territory, and therefore, it was not invited to participate in the deliberations of the said committee. Through the efforts of the Anderson Committee an agreement was reached between the parties, on the following lines:


\textsuperscript{3} Ibid
(i) Some increased withdrawals were approved for the Sukkur Barrage Canals (in Sind);

(ii) Some increase was made in the withdrawals for the Pakpattan (British) and Gang (Bikaner) Canals;

(iii) Some reduction was made in the withdrawals for the Bahawalpur Canals from Suleimanke and Islam and some increase in those for the Bahawalpur Canals from Panjnad.4

The Anderson Committee submitted a unanimous report, of course, with some annexures containing some divergent views also, on September 16, 1935, whereupon the Government of India consulted the concerned units and passed final orders on March 30, 1937.

Since the Haveli Project was sanctioned by the Punjab Government in June, 1937, the prior approval of Government of India on this project was necessary. The said project was completed by April 1939 and then work was started on Thal Project. These steps indicated that the Punjab government was more interested in developing western parts of Punjab first, whereby the work on Bhakra Project was delayed. In the meantime the plan of Bhakra Project was revised and in the revised form it was considered to be different from that for which 'no objection' communication had been sent by Bombay government in 1934. Moreover, Punjab was also planning projects for storing water on the Beas and for link canals from the Ravi to the Sutlej Valley canals, which schemes appeared to Sind to adversely affect its interests.

Under these circumstances Sind government complained to the Governor General under Section 130 of the Government of India Act, 1935, "that the effects of the Bhakra Dam Project and the other Projects contemplated by Punjab, when superimposed upon the full effects of the Thal and Haveli Projects and of certain older projects already executed, will be to cause such lowering of

water levels both in upper and lower Sind, during the months, of May to October inclusive, as will seriously affect the efficient working of Sind's inundation Canals."  

Consequently, in September 1941, the Governor-General appointed a Commission under Section 131 of the Government of India Act, 1935 "to investigate the complaint of the Government of Sind about their interests in the waters of the river Indus." The Commission is known as 'Indus Commission' or 'Rau Commission' as named after its Chairman, Justice B.N. Rau, then Judge of the Calcutta High Court. P.F.B. Hickey, retired Chief Engineer, Irrigation Branch, United Provinces and E.H. Chave, Chief Engineer Madras, were its other members.

Principles Enunciated in Indus Commission Award

After examining the relevant facts and materials, the Indus Commission submitted its report in July, 1942 with numerous recommendations, which were neither accepted by the Government of Sind nor that of Punjab. Both the governments submitted their representations to the Government of India against the findings and recommendations of the Indus Commission and, as such, in terms of Section 131 of the Government of India Act, '1935 the matter was referred to His Majesty in Council. In an informal way some meetings between the chief engineers of the two provinces were also held with the objective of finding a solution through mutual agreement. In fact one so-called draft agreement was prepared in September, 1945 but no decision could be reached, either by agreement or otherwise, upto 15 August 1947, when through the enactment and operation of the Indian Independence Act, 1947, India and Pakistan appeared as two independent Dominions to take over the legacy of the Indus Commission and handle the same.

All the same, considering them purposeful to be mentioned here the principles enunciated in the Indus Commission Report or Award are reproduced below—

"The most satisfactory settlement of disputes of this kind.\textsuperscript{6} is by agreement, the parties adopting the same technical solution of each problem, as if they were a single community undivided by political or administrative frontiers.

If once there is such an agreement, that in itself furnishes the 'law' governing the rights of the several parties until a new agreement is concluded.

If there is no such agreement, the rights of the several Provinces and States must be determined by applying the rules of 'equitable apportionment' each unit getting a fair share of the water of the common river. In the general interests of the entire community inhabiting dry, arid territories, priority may usually have to be given to an earlier irrigation project over a later one: 'priority of appropriation gives superiority of right'.

For purpose of priority, the date of a project is not the date when survey is first commenced, but the date when the project reaches finality and there is 'a fixed and definite purpose to take it up and carry it through'. As between projects of different kinds for the use of water, a suitable order of precedence might be (i) use for domestic and sanitary purposes, (ii) use for navigation, and (iii) use for power and irrigation.\textsuperscript{7}

The Commission propounded these principles in September 1941, on the first day of its open session, and after hearing all the interested units, expressed its views in the following terms—

All parties have accepted the general principles which we tentatively formulated on the first day after examining the practice in other parts of the world. It follows from them that the rights of the several units concerned in this dispute must be determined by applying neither the doctrine of sovereignty, nor the doctrine of riparian rights, but the rule of 'equitable apportionment', each unit being entitled to a fair share of the waters of the Indus and its tributaries.

\textsuperscript{6} The Indus Commission was dealing with the use of water of the rivers for irrigation only and that also between Basin Provinces. As quoted by, B.R. Chauhan in "Settlement of International and inter-State Water Disputes in India." I.L.I., New Delhi, 1992 P. 153.

\textsuperscript{7} The Commission observed "that the ranking of different uses in a particular order of precedence depends on the circumstances of the river concerned. And even as regards the same river different authorities may take different views." Id. at p. 154.
The Indus Commission Report also suggests that equitable sharing once made, may cease to be equitable later, in the face of the new circumstances. Thus, having examined the question as to how far an earlier agreement between the parties, itself constitutes "the law by which the rights in question are to be determined" and after hearing all the interested parties, in this regard the Commission recorded as its views—

"The orders of the Government of India, dated March 30, 1937, proceeding as they did for the most part, on the consent of the units concerned, must be regarded as having secured the most equitable apportionment then possible. If owing to material errors in the original data, or a material change in river conditions, or other sufficient cause, those orders are now found to be inequitable, and if a more equitable arrangement can be discovered in present circumstances, with due regard to the interests of all the units concerned, the original orders may properly be modified. This implies of course that a modification of the orders in one particular may necessitate consequential modifications in other particulars by way of redressing the balance between the several units."

**Endeavours in the Constituent Assembly**

It is worth noting that at the time of drafting the new Constitution the pertinent provisions in this regard contained, initially, the essence of the provisions of sections 130 to 134 of the Government of India Act, 1935. Draft Articles 239-242 were the relevant Articles in this regard, which are given below :8

Articles 239-242 of the draft Constitution of India appeared under the heading, "Interference with Water Supplies." The text of these Articles is reproduced below.

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Draft Article 239; Complaints as to Interference with Water Supplies

If it appears to the Government of any State for the time being specified in Part I or Part III of the First Schedule that the interests of that State or of any of the inhabitants thereof, in the water from any natural source of supply in any State have been, or are likely to be affected prejudicially by:

(a) any executive action or legislation taken or passed or proposed to be taken or passed: or

(b) the failure of any authority to exercise any of their powers with respect to the use, distribution or control of water from that source, the Government of the State may complain to the President.

Draft Article 240: Decision on Complaints

(1) If the President receives such a complaint as aforesaid, he shall, unless he is of opinion that the issues involved are not of sufficient importance to warrant such action, appoint a Commission consisting of such persons having special knowledge and experience in irrigation, engineering, administration, finance or law as he thinks fit, and request that Commission to investigate in accordance with such instructions as he may give to them, and to report to him on the matters to which the complaint relates, or such of those matters as may refer to them.

(2) A Commission so appointed shall investigate the matters referred to them and present to the President a report setting out the facts as found by them and making such recommendations as they think proper.

(6) After considering any report made to him by the Commission, the President shall subject as hereinafter provided, make orders in accordance with the report.

(7) If upon consideration of the Commission's report the President is of the opinion that anything therein contained involves a substantial question of law, he
shall refer the question to the Supreme Court under Article 119 of this Constitution and on receipt of the opinion of the Supreme Court thereon, shall, subject as hereinafter provided, make orders in accordance with the report of the Commission together with the opinion and the Commission shall thereupon make such modifications in the report as may be necessary to bring it in accord with such opinion and present the report as so modified to the President.

(8) Effect shall be given, in any State affected, to any order made under this article by the President, and any Act of the Legislature of a State which is repugnant to the order shall, to the extent of the repugnancy, be void.

Draft Article 242 : Jurisdiction of Courts Excluded

Notwithstanding anything in this Constitution, neither the Supreme Court nor any other Court shall have jurisdiction to entertain any action or suit in respect of any matter, if action in respect of that matter might have been taken under any of the three last preceding articles by the Government of a State or the President.

In the Constituent Assembly on 9 September 1949, Dr. B.R. Ambedkar proposed an amendment inserting draft article 242 (a) in the draft Constitution which reads as follows—

242 (a), Adjudication of Disputes Relating to Waters of Inter-State Rivers or River Valleys

(1) Parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-state river or river valley.

(2) Notwithstanding anything contained in this Constitution, Parliament may, by law, provide that neither the Supreme Court nor any other Court shall exercise jurisdiction in respect of any such dispute or complaint as is referred to in clause (1) of this Article."

The arguments which Dr. Ambedkar put forth in favour of the proposed amendment were :
"Sir, originally this article provided for Presidential action. It was thought that these disputes regarding water and so on may be very rare, and consequently they may be disposed of by some kind of special machinery that might be appointed. But in view of the fact that we are now creating various corporations and these corporations will be endowed with power of taking possession of property and other things, very many disputes may arise and consequently it would be necessary to appoint one permanent body to deal with these questions. Consequently, it has been felt that the original draft or proposal was too hide-bound or too stereo-typed to allow any elastic action that may be necessary to be taken for meeting with these problems. Consequently, I am now proposing this new article which leaves it to Parliament to make laws for the settlement of these disputes. It is submitted that draft article 242 (a) proved to be the forerunner of Article 262 of the constitution adopted in 1950.

Specific Provisions

The Constitution of India lays down the legislative and functional jurisdiction of the Union, State and local Governments regarding 'Water'. Under the scheme of the Constitution, 'Water' is basically a State subject and the Union comes in only in the case of inter-state river waters.

List II of the Seventh Schedule, dealing with subjects regarding which states have jurisdiction, has the following as Entry 17:

"Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provisions of Entry 56 of List I.

Entry 56 of List I (Union list), reads as follows—

"Regulation and development of inter-state rivers and river valleys to the extent to which such regulation and development under the control of the Union, is declared by Parliament by law to be expedient in the public interest."

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For some future reference and discussion of these provisions of the Constitution it may not be out of place to also refer to Entry 20 of the List III (Concurrent List) which deals with "Economic and Social Planning."\(^{11}\)

The Constitution has a specific article (Article 262), dealing with adjudication of disputes relating to matters of inter-state rivers or river valleys, which reads as follows—

Article 262 (1) : Parliament may by law provide for the adjudication on any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-state river or river valley.

(2) Notwithstanding anything in this Constitution, Parliament may by law provide that neither the Supreme Court nor any other Court shall exercise jurisdiction in respect of any such dispute or complaint as is referred to in clause (1).

The recent 1992 amendments i.e. 73 rd and 74th amendments to the Constitution regarding Panchayats and Municipalities introduced the following entries in the schedules listing the subject-areas in which the State Governments and legislatures may devolve functions to such bodies, so as to make them evolve as local self-governing institutions .\(^{12}\)

In the Eighth Schedule (Part IX) dealing with Panchayats, the subjects, "Minor irrigation, Water management and Watershed development", "drinking water" and "maintenance of community assets" are listed.

In the Twelfth Schedule (Part IX A) dealing with municipalities, the subjects "water supply of domestic, industrial and commercial purposes" is listed.

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Legislative Measures in India

Water law has at the same time developed as a separate field of law while sharing a number of links with other areas of law. This gives water law a number of general characteristics that are directly relevant in the context of ongoing reforms taking place in India.  

Firstly, water law has traditionally been made up of different bodies of water. Surface and groundwater have, for instance, often been treated separately. Further, water has been treated separately in law according to its different uses. Thus, irrigation has been treated separately from drinking water. Similarly water quality issues were for a long time treated mostly as a health issue while water pollution was addressed as an environmental issue. The legacy of this scattered approach to water has been a legal framework that lacks in cohesion and clarity. In India, this is made particularly problematic because of the absence of a framework water legislation either at the State or Union level that would provide overall guidance.

Secondly, water law has often been characterized by a basic conceptual dichotomy. On the one hand, legal systems have recognized that water is unlike other substances. The recognition that water is directly linked to human survival and that it cannot easily be subjected to usual rules of ownership have been the basis for the special consideration of water in law. Thus, Roman law provided, for instance, that running water was by nature common to all. The public nature of water extended to all rivers, to the use of river banks as well as to the right to fish in rivers. Similar provisions exist until today as in the case Uruguay where all waters, surface and groundwater, are part of the public domain. On the other hand, different forms of appropriation have been condoned. The state often gets sweeping powers ranging from the position of a trustee to that of an owner.


Further, control of water related to control over land has been an indirect way in which property rights have developed around the notion of water. Under common law the principle that flowing water is common to all was maintained but it was progressively accepted that owner of land adjacent to water courses could make reasonable use of them.\textsuperscript{15} Even where ownership of water is in principle not allowed, different exceptions have been allowed. The case of Islamic law is noteworthy. Original principles evolved in a highly water scarce area emphasize that water is a gift from God, that everyone has a right to water and that nobody can own it.\textsuperscript{16}

Thirdly, the scope of water law has only increased slowly with time. Thus in India, the first formal water laws introduced by the colonial administration concerned, for instance, the harnessing of water for productive activities, such as irrigation, navigation and embankments. At the same time, while drinking water has always been an important concern and while the special nature of water has been upheld at least in theory, law gave for a long time scant attention to drinking water issues. This is illustrated by the fact that the framers of the Indian Constitution, like the framers of the international covenants on human rights, failed to include an explicit mention of water in their list of fundamental and human rights.

National water law is now more developed. Nevertheless, it lacks an umbrella framework to regulate freshwater in all its dimensions. The existing water law framework in India is characterised by the co-existence of a number of different principles, rules and acts adopted over many decades. These include common law principles and irrigation acts from the colonial period as well as more recent regulation of water quality and the judicial recognition of a human right to water. The lack of an umbrella legislation at the national level has ensured that the different state and central legal interventions and other principles do not necessarily coincide and may in fact be in opposition in certain cases. Thus,

\textsuperscript{15} S. Hodgson, Land and Water—The Rights Interface (Rome : FAO, FAO Legislative Study 84, 2004).

the claim that landowners have over groundwater under common law principles may not be compatible with a legal framework based on the human right to water and to need to allocate water preferentially to domestic use and to provide water to all, whether landowners or not on a equal basis.

To go forward we have to look at backward. Hence we make up our mind to study the old statutory law as contained in The Northern India Canal And Drainage Act 1873, which had been an important piece of legislation providing legal norms to manage the water resources relating to irrigation. Being a central legislation it has its own significance.

The Northern India Canal And Drainage Act, 1873 was a Central Act exacted under the scheme of the charter Act 1853/Government of India Act, 1853 as adopted by the Government of India Act, 1858. Conceptually, the Act of 1873 reflected the powers of the Central Government to legislate over or regulate water for irrigation purposes. The provinces were at that time only administrative units.17

After taking over reins from the East India company, British Administration enacted various laws dealing with water resources management, particularly relating to embankments. As a technique for excluding or retaining water embankment have been constructed in India since time immemorial. Assertion of supremacy over regulation of water uses through embankments served, apparently, also the purpose of mitigating excessive hoarding of water. Among the earliest embankment laws were the Embankment Regulation, 1829 (Bengal Regulation 11 of 1829) and the Bengal Embankment Act, 1855, applicable to Assam, Bihar and some parts of Orissa.18 These enactments aimed at making provisions for better "protection" and "supervision" of embankments. Necessary modifications and repeal of previous laws came through Acts of 1866, 1873 and 1882, the last being in force even today. The Act of 1866 provided for "acquisition" of land and related matters vesting wider powers in the collector for

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17. B. R. Chauhan "Settlement of International and Inter-State Water Disputes in India" I.L.I., New Delhi, 1992 p. 143.
construction of "public embankments" for "public purposes" and asses compensation. The collector was not under obligation to pay any person, nor did any one have a right to a civil suit for recovery of money, whose lands, were acquired, rather persons whose lands benefitted from such scheme were bound to pay for under the 1866 Act. No Appeal lied from Collector's decision. The Act of 1882 gave similar, but wider powers to the concerned statutory authorities, in addition to the task of management of embankments and water courses. It defined "embankments" in a wider perspective irrespective of size and shape as "public water courses" and vested them in the government. Embankments included every dam, bank, wall and dyke made to exclude water from or retain it upon any land. A public water course included every channel, natural or artificial, for the passage of water. A person desiring to use waters from such facilities is to apply to the collector, who may allow activities in that respect only when there is an advantage of doing so. 19. Certain acts interfering with the system of embankment are punishable offence.

In terms of statutory development, irrigation laws constitute historically the most developed part of water law. This is in large part due to the fact the colonial government saw the promotion of large irrigation works as central to its mission. This also included the need to introduce a regulatory framework in this area. As a result, some of the basic principles of water law applicable today in India derive from irrigation acts. 20 The early Northern India Canal and Drainage Act, 1873 sought, for instance, to regulate irrigation, navigation and drainage in Northern India. One of the long-term implications of this act was the introduction of the right of the Government to 'use and control for public purposes the water of all rivers and streams flowing in natural channels, and of all lakes. 21 The 1873 act refrained from asserting state ownership over surface waters. Nevertheless, this act is milestone since it asserted the right of the Government to control water use


21. Preamble, Northern India Canal and Drainage Act, 1873.
for the benefit of the broader public. This was progressively strengthened. Thus, the Madhya Pradesh Irrigation Act, 1931 went much further and asserted direct state control over water. 'All rights in the water of any river, natural stream or natural drainage channel, natural lake or other natural collection of water shall vest in the Government.'

Colonial law in this area remains relevant to-date because acts like the 1931 MP act are still in force. Further, in MP again, the Regulation of Waters Act, 1949 reasserted that 'all rights in the water of any natural source of supply shall vest in the Government'. The much more recent Bihar Irrigation Act, 1997 still provides that all rights in surface water vest in the Government.

Statutory water law also includes a number of pre-and post-independence enactments in various areas. These include laws on embankments, drinking water supply, irrigation, floods, water conservation, river water pollution, rehabilitation of evacuees and displaced persons, fisheries and ferries.

In general, water law is largely state based. This is due to the constitutional scheme, which since the Government of India Act, 1935 has in principle given power to the states to legislate in this area. Thus states have the exclusive power to regulate water supplies, irrigation and canals, drainage and embankments, water storage, hydropower and fisheries. There are nevertheless restrictions with regard to the use of inter-state rivers. Further the union is entitled to legislate on certain issues. These include shipping and navigation on national waterways as well as powers to regulate the use of tidal and territorial waters. The constitution also provides that the Union can legislate with regard to the adjudication of inter-state water disputes. While no substantive clauses could be adopted at the time of the adoption of the

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22. Section 26, Madhya Pradesh Irrigation Act, 1931.
24. Section 3 (a), Bihar Irrigation Act, 1997.
26. Schedule 7, List 1, Entry 56, Constitution of India.
27. Schedule 7, List 1, Entries 24, 25 and 57, Constitution of India.
28. Article 262, Constitution of India.
constitution, a specific act, the Inter-State water Dispute Act was adopted in 1956, as amended in 2002 after the Sarkaria Commission’s recommendation, which stipulated that any dispute settled by the tribunal before the commencement of the Inter-State Water Disputes (Amendment) Act, 2002 shall not be re-opened.

This introduces a procedure for addressing disputes among states concerning inter-state rivers that have not been solved through negotiations. It provides for the establishment of specific tribunals to adjudicate such conflicts and has been used in several cases.\(^\text{29}\) Parliament also enacted the River Boards Act, which provides a framework for the setting up of river boards by the Central Government to advise state government concerning the regulation or development of an inter-state river or river valley.\(^\text{30}\) River boards can advise state governments on a number of issues including, conservation, control and optimum utilisation of water resources, the promotion and operation of schemes for irrigation, water supply or drainage or the promotion and operation of schemes for flood control.\(^\text{31}\) This act has however, never been used in practice.

While the intervention of the Central government in water regulation is limited by the constitutional scheme, the importance of national regulation in water has already been recognised in certain areas. Thus with regard to water pollution, parliament did adopt an act in 1974, the Water Act.\(^\text{32}\) This act seeks to prevent and control water pollution and maintain and restore the wholesomeness of water. It gives power to water boards to set standards and Regulations for prevention and control of pollution.

Besides statutory frameworks, a number of common law principles linking access to water and rights over land are still prevailing in India. These include

\(^{29}\) Narmada Water Dispute Tribunal Final Order and Decision of the Tribunal, 12 December 1979.

\(^{30}\) River Boards Act, 1956, s 4(1).

\(^{31}\) River Boards Act, 1956, Section 13.

\(^{32}\) Water (Prevention and Control of Pollution) Act, 1974.
separate rules for surface and groundwater. With regard to surface water, existing rules still derive from the early common rule of riparian rights. Thus, the basic rule was that riparian owners had a right to use the water of a stream flowing past their land equally with other riparian owners, to have the water come to them undiminished in flow, quantity or quality.\(^3^3\) In recent times, the riparian right theory has increasingly been rejected as the appropriate basis for adjudicating water claims.\(^3^4\) Further, common law rights must today be read in the context of the recognition that water is a public trust.\(^3^5\) If the latter principle is effectively applied in the future, it would have important impacts on the type of rights and privileges that can be claimed over surface water.

Common law standards concerning groundwater have subsisted longer. The basic principle was that access to and use of groundwater is a right of the landowner. The appropriateness of this legal principle has been rapidly challenged during the second half of the 20th century with new technological options permitting individual owners to appropriate not only water under their land but also the ground water found under neighbours' lands. Further the rapid lowering of water table in most regions of the country has called in question legal principles giving unrestricted rights to landowners over ground-water. Similarly, the growth of concerns over the availability of drinking water in most regions has led to the introduction of social concerns in groundwater regulations. As a result of the rapid expansion of groundwater use, the central government has tried since the 1970's to persuade states to adopt groundwater legislation.\(^3^6\)

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33. *Hanuman Prasad V Mendwa* AIR 1935 All 876.

34. Chapters 8 and 9, Report of the Narmada Water Disputes Tribunal with its decision in the matter of Water Disputes Regarding the Inter-State River Narmada and the River Valley thereof Between the States of Gujarat, Madhya Pradesh, Maharashtra and Rajasthan (New Delhi : Government of India, Vol. 1, 1979)


It is only over the past decade that some states have eventually adopted groundwater acts.\textsuperscript{37} The legal framework concerning groundwater is still in rapid evolution. It is likely that common law principles will be increasingly challenged despite the fact that the Plachimada High Court decision seems to uphold landowners rights to a large extent like.\textsuperscript{38} Further groundwater is increasingly likely to be linked to surface water in the context of setting up of water regulatory authorities that are called upon to manage surface and ground-water.

Water law includes a number of other laws and regulations that are directly or indirectly concern with water like dams. Two major aspects of dam building are regulated by laws and regulations, which are only partly concerned with water. With regard to environmental impact assessment, the Environmental Impact Assessment Notification provides a framework for assessing the environmental impacts of planned big hydropower and irrigation project.\textsuperscript{39} Further, there are guidelines for Environmental Impact Assessment of River Valley Projects, which provide a general framework since 1985 for assessing the impacts of planned big dam projects.\textsuperscript{40} With regard to irrigation water, all human structure such as tanks and check dams include a system of allocation.\textsuperscript{41}


\textsuperscript{38} Hindustan Coca-Cola Beverages (P) Ltd. V. Perumatty Grama Panchayat, M. Ramachandran & K.P. Balachandran (JJ), 7 April 2005.

\textsuperscript{39} Notification on Environmental Impact Assessment of Development Projects, 2006.

\textsuperscript{40} Guidelines for Environmental Impact Assessment of River Valley Projects, 1985.

\textsuperscript{41} For Tamil Nadu, A. Gurunathan & C.R. Shanmugham, Customary Rights and their Relevance in Modern Tank Management : Select cases in Tamil Nadu (Paper prepared for the workshop ‘Water Law and the Commons’, Delhi, 8-10 December 2006, International Environmental Law Research Centre).
Ground Water Legislation:

Ground water regulation is the most pressing and challenging part of water law reforms at present. This is due to the fact that ground water is now the main source of water for most water users and that the current outdated framework can do little more than adjudicate claim that may arise between two landowners over their respective use of groundwater under their plot and in its vicinity. The challenge that groundwater poses has been recognized for quite some time, as witnessed by the fact that the Union government already put out a model bill for adoption by the states in 1970. This relatively early date of adoption of the model bill is reflected in its approach to groundwater regulation. Indeed, in the early 1970s, there was comparatively little discussion of the need for control by panchayats over natural resources or water and environmental concerns had only just made an appearance on the agenda of policy makers. It is thus not surprising to find that the 1970 model bill reflects the concerns and perceptions of that period. What is more surprising is that, despite several revisions, the model bill proposed further in 2005 is still based on the same premises.

Groundwater law reforms are noteworthy for several reasons. Firstly, the proposed changes conform to a model that is neither directly in line with water sector reforms nor influenced by the 73rd constitutional amendment, human rights, and environment principles. Secondly, they perpetuate the sectoral treatment of surface and groundwater in the twenty-first century, perpetuate a system that links access to groundwater and land and fail to acknowledge that ground-water is the primary source of drinking water and thus primordial in the realization of the human right to water. Thirdly, they constitute the only major law reform currently ongoing which is not directly influenced by water sector reform principles.

The Proposed Reform Model

A model bill for groundwater regulation was first proposed by Ministry of Agriculture for adoption by the states in 1970. It was revised twice, once in 1992 and then in 1996 by the Ministry of Water Resources but the basic framework of the latest 2005 version retains the basic framework of the original bill. The reasons for the repeated attempts to foster the adoption of groundwater legislation by states can be explained by different factors.

Firstly, the political implications of groundwater use have become more significant with every passing year and with the increased importance of groundwater for irrigation and drinking water. As a result, individual states refrained from introducing legislation for as long as they could to avoid generating confrontation with political vote banks.43 Secondly, for similar reasons, the Union government has shied away from introducing legislation through the route used for the adoption of the Water Act 1974. Thirdly, it was technically possible for a while to simply dig further to access groundwater. Governments thus often found it easier to increase power subsidies than to regulate groundwater use. The limitations of such strategies have convinced an increasing number of states to legislate.

Recent legislative activity by state indicates that they are generally ready to follow the framework provided by the model bill. This is the case of states adopting a general groundwater legislation like Kerala,44 or states focusing on its drinking water aspects like Karnataka, Madhya Pradesh, and Maharashtra.45

44. Kerala Ground Water (Control and Regulation) Act 2002.
The basic scheme of the model bill is to provide for the establishment of a groundwater authority under the direct control of the government. The authority is given the right to notify areas where it is deemed necessary to regulate the use of groundwater. The final decision is taken by the respective state government.\footnote{Model Bill to Regulate and Control the Development and Management of Ground Water 2005, s 5.} There is no specific provision for public participation in this scheme. In any notified area, every user of groundwater must apply for a permit from the authority unless the user only proposes to use a handpump or a well from which water is drawn manually.\footnote{Model Bill, s 6.} Wells need to be registered even in non-notified areas.\footnote{Model Bill, s 8.} Decisions of the authority in granting or denying permits are based on a number of factors which include technical factors such as the availability of groundwater, the quantity and quality of water to be drawn and the spacing between groundwater structures. The authority is also mandated to take into account the purpose for which groundwater is to be drawn but the model bill does not prioritize domestic use of water over other uses.\footnote{Model Bill, s 6 (5) (a) only provides that the purpose has to be taken into account while Section 6 (5) (h) which is the only sub-section referring to drinking water only considers it as an indirect factor.} Basic drinking water needs are indirectly considered since, even in notified areas, hand-operated devices do not require the obtention of a permit.\footnote{Model Bill, s 6 (1).}

The model bill provides for the grandfathering of existing uses by only requiring the registration of such uses.\footnote{Model Bill, s 7.} This implies that in situations where there is already existing water scarcity, an act modelled after these provisions will not provide an effective basis for controlling existing overuse of groundwater and will, at most, provide a basis for ensuring that future use is more sustainable.

Overall, the model bill extends the control that the state has over the use of groundwater by imposing the registration of groundwater infrastructure and providing a basis for introducing permits for groundwater extraction in regions...
where groundwater is over-exploited. It is the brainchild of an era that promoted governmental intervention without necessarily thinking through all the checks and balances that needed to be introduced alongside. As a result, the model bill is not adapted to the current challenges that need to be addressed. It fails to include specific prioritization of uses, does not specifically address the question of domestic use, does not differentiate between small and big users, commercial and non-commercial uses and does not take into account the fact that non-landowners/occupiers are by and large excluded from the existing and proposed system which focuses on the rights of use of landowners. It is thus surprising that states are still drafting acts based on this outdated model. What is required is legislation that recognizes that water is a unitary resource, that drinking water is the first priority as well as a human right, and that panchayati raj institutions must have control over and use of groundwater.

State Reforms:

Most states have either adopted groundwater legislation in the past decade or are in the process of developing it. While most states are yet to adopt legislation, the need for one seems to be generally acknowledged. However, in an interesting twist, a state like Punjab that has 85 per cent of its land under cultivation is not contemplating the adoption of groundwater legislation because of the impact it would have on farmers. Instead, Punjab is proposing to give incentives for crop diversification, to invest in artificial groundwater recharge, to meter electricity supply in critical areas, and to promote micro-irrigation.

The states that have adopted legislation that specifically focuses on ground-water include Goa, Himachal Pradesh, Kerala, Tamil Nadu, and West Bengal. They differ in their coverage since some apply only to notified areas


53. Pondicherry and Lakshadweep, two Union Territories have also adopted groundwater regulation instruments, respectively in 2002 and 2001.
while others apply to all groundwater. As noted above, Karnataka, Madhya Pradesh and Maharashtra have adopted limited groundwater legislation focusing on drinking water. The only state that has consciously put groundwater in a broader framework is Andhra Pradesh where the groundwater legislation directly links surface and ground water in a general context of environmental conservation. Apart from a conceptually broader framework for groundwater regulation and specific consideration of drinking water issues, the Andhra legislation addresses groundwater in a similar manner to other groundwater acts.

**Authority for Regulation and Control of Water Extraction & Use**

The main institutional innovation proposed in the groundwater acts and the Andhra legislation is the setting up of a new authority or cell made of government civil servants and members nominated by the government because of their expertise. In Goa, the act simply authorizes the government to nominate members without specifying their origin. In West Bengal, the majority are civil servants. In Kerala only four of the thirteen members of the Authority are civil servants while the rest is made of a combination of people with different expertise.

The authority set up under the act is then tasked with different functions, such as notifying areas of special concern and granting permits to use groundwater in notified areas. Among the acts that specifically focus on groundwater, the West Bengal legislation is the only one that gives the Authority a broader mandate that includes the development of a policy to conserve groundwater and organizing people’s participation and involvement in the planning and use of groundwater.

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56. Kerala Ground Water (Control and Regulation), Act 2002, s 3 (3).


58. West Bengal Ground Water Resource (Management, Control And Regulation) Act 2005, s 6 (2).
Following on the steps of the model bill, most acts fail to give drinking water clear priority of use even though most acts devote specific attention to the issue of drinking water.\textsuperscript{59} The Himachal Pradesh legislation stands out insofar as it imposes on the Authority to give first priority to drinking water.\textsuperscript{60} Additionally, some instruments specifically indicate that the use of groundwater as a public drinking water source is not affected by any control measures.

An important aspect of most of these acts is to avoid altogether the thorniest question, which is the legal status of groundwater itself. Most acts avoid direct statements on this issue but the very fact of promoting the setting up of institutions controlled by the government that can regulate groundwater use in indirect and direct ways reflect a conception of water that sees it as being under the control of the government. The Himachal Pradesh legislation is rather forthcoming in this regard since it specifies that users of groundwater in notified areas must pay a royalty to the government for its extraction.\textsuperscript{61} Additionally, the government is not even bound to use this royalty for groundwater-related activities, thus reflecting an understanding that groundwater is a resource controlled by the government. This can be understood as an extension of the full control given by several irrigation acts adopted in the twentieth century to the government over surface water. It is, however, surprising for at least two reasons. Firstly, there has been no debate on the status of groundwater and such a major change would warrant in-depth consideration. Secondly, in view of the traditional distinction between ground and surface water and in view of the adoption of acts that maintain this distinction, there is no reason for adopting principles that do not apply any more to surface waters following the Supreme Court’s decision to recognize surface water as a public trust.

\textsuperscript{59} Goa Ground Water Regulation Act 2002, s 23.

\textsuperscript{60} Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Act, 2005, s 7 (3).

\textsuperscript{61} Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Act 2005, s 12 (1).
Besides strengthening the control that the government claims over ground-water, the various acts adopt a non-confrontational strategy in refusing to tackle existing overuse of groundwater. Thus, in the main, acts provide for the grandfathering of most existing uses. This amounts to refusing to tackle the real problem affecting groundwater. Indeed, as long as it is landowners that have most control over groundwater, there will be no scope for groundwater regulation that is socially equitable and environmentally sustainable. There is no incentive in the common law rules or in the acts that are being adopted for landowners to use the water responsibly and equitably. There is also no mechanism to ensure that groundwater is shared with non-landowners. Further, without a broader perspective, no single water user has any reason to recognize environmental needs ensuring that all ecosystem functions are met in the long term.

**Over Exploitation of Ground Water by Coca Cola Company in Perumatty (Kerala)**

The limits of the old common law regime and new legislative efforts are well illustrated in the context of the dispute between the Perumatty Grama Panchayat in Kerala and the Coca Cola Company. The controversy erupted after the panchayat that first granted the exploitation licence decided not to renew it because of the lowering of the water table in neighbouring properties, as well as decreasing water quality to the extent that the local government primary health centre had concluded that the water was not potable.\(^\text{62}\) The issue was brought to the courts and is now pending in the Supreme Court. The two decisions given by judges in Kerala gave two opposed views of groundwater regulation. On the one hand, the first judge found that even without groundwater regulation, the existing legal position was that groundwater is a public trust and that the state has a duty to protect it against excessive exploitation.\(^\text{63}\) Additionally the judge made the link between the public trust and the right to life. It was thus recognized that a system which leaves groundwater exploitation to the discretion of landowners can result

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in negative environmental consequences. The next decision took a completely different perspective and asserted the primacy of landowners' control over groundwater. 64 These two contradictory decisions illustrate the need for a framework that effectively ensures the sustainability of use of groundwater and the prioritization of drinking water over all other uses. Reliance on old common law principles is only able to justify individualized control but cannot in any way provide a broader framework of analysis. The inapplicability of the groundwater to this dispute was noted by the judges. However, what is apparent is not the fact that the new legislation is not applicable but the fact that it would not have provided a framework for a more socially equitable and environmentally sustainable decision. The application of the act to future similar disputes may clarify matters in terms of institutional decision-making but it would likely lead to results fairly similar to the decision of the second judge. What is needed is a radically new perspective, something that the first judge perceptively understood. The Supreme Court now has the chance to provide a boost towards a new framework for groundwater regulation.

**Power and Groundwater**

The link between access to groundwater and power has rapidly become prominent alongside the introduction of tubewells. At the most basic level, once access to water is mediated through a tubewell, the availability of power, and in particular electricity, becomes a direct determinant of access to water.

Where electricity is available, the next important variable is its price. Where the price is very low (or where power is free), 65 water is easily accessible but the easy availability of power may contribute to over-consumption of water and depletion of existing water sources. Where the price is too high, this may have equity consequences since the likely impact will be that rich people get more access to water than poor people because they can pay. The relation between groundwater and electricity is, however, much more complex than a

64. Hindustan Coca-Cola Beverages v Perumatty Grama Panchayat 2005 (2) KLT 554 (High Court of Kerala, 2005) para 43.

straight-forward cost issue. On the one hand, by making groundwater extraction economically viable for farmers, states have contributed to farm incomes and to agricultural production. This explains in large part the unwillingness of most state governments to upset the delicate equilibrium as long as they can avoid it. On the other hand, the unreliable provision of electricity at uncertain times often leads to wasteful use of water. Cost is thus not the only issue that matters in terms of the development of measures that ensure equitable and environmentally sustainable use of groundwater.

Link Between Access to Groundwater and Electricity

The link between access to groundwater and electricity implies that the availability of electricity and its price directly impact access to drinking water. Thus, electricity policies should in principle's be directly tied to drinking water policies to ensure that electricity tariffs do not impinge on the realization of the human right to water. Yet, in a policy context where electricity is increasingly being privatized, it becomes difficult to conceive of linking electricity with the realization of the human right to water. The existing legal framework does not provide the basis for making the necessary linkages. Indeed, the Electricity Act is framed is such a way that electricity tariffs cannot be based on social policies. Thus, Section 62 specifically prohibits any preference to any consumer of electricity thereby barring any possibility of making the use of electricity for pumping drinking water the ground for a special tariff. The only possibility for drinking water to be taken into account is where a state government specifically decides to subsidize a class of consumers. This is insufficient in a context where states are enjoined to avoid providing subsidies since the basic principle of the new electricity regulatory framework is to foster competition and efficiency rather than social policy objectives.

The low price of electricity is also seen as directly causing overexploitation of groundwater. The policy solution proposed is thus to increase electricity tariffs

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to control over-consumption.\textsuperscript{68} The need to take measures to control ground-water exploitation must be done in such a way that access to drinking water does not become a casualty of such measures. Wells that had been the main or only source of domestic water supply up to about 20 years ago had all been abandoned for a variety of reasons including falling water tables. This had an economic cost for villagers forced to invest in their own handpumps and in a number of places huge health implications have arisen since in many cases salinity has become a major problem.

The importance of power, and electricity in particular, in the regulation of groundwater has largely been sidelined in existing regulatory frameworks. On the whole, states have often failed to tackle the electricity-groundwater conundrum because of the political costs involved. Additionally, the new regulatory framework for electricity has made it difficult even for willing states to adopt socially and environmentally conscious electricity policies linked to groundwater. The two factors have led to a situation where groundwater regulations remains largely blind to the nexus between access to groundwater and electricity.

**Features of Laws Relating to Management of Water Supply**

The right to drinking water as an essential component of right to a "dignified life". This approach is reiterated in the international human rights instruments. The International Covenant on Economic, Social and Cultural Rights (ICESCR), 1966, specifically lays down an obligation on the member states for the progressive realization of this right. The General Comment No. 15.\textsuperscript{69}

\textsuperscript{68} Government of Rajasthan, Sector Policy for Rural Drinking Water and Sanitation (Draft, August 2005) s 3 (14).

encapsulates the right to drinking water as a priority item. India being a member
state of ICESCR is obliged to gradually realize this right vis-a-vis its population.
In the past two decades, more and more space has been devoted to the
discussion on redefining the role of the State in the water sector reforms with
special focus on public-private/community participation in the drinking water
supply.

A two way approach is adopted by India, in this regard, viz.:

1. Legislations focusing on water supply and at times on water supply and
sanitation, to be driven by the state agencies.

2. Policy initiatives by the central government in order to assist and
supplement the States' activities with the overall objectives of providing safe
drinking water and thereby promoting public health.

**Tenth Five Year Plan and Drinking Water Sector**

The Tenth Plan indicates the measures to be adopted for reforming the
drinking water sector in India. Which are ; the need for people's participation;
need to create awareness about the economic use of water; need for private
actors' involvement; conservation of water resources; active integration of
drinking water supply with sanitation programmes; filing of return by Panchayat
Raj Institutions;70 constitution of village committees in charge of operation and
maintenance of water works; and promotion of traditional methods of water
conservation.

In the legislation on water supply, we find that the definition of "domestic
purposes" includes water for drinking. The common trend in these legislations is
to use an exclusionary mode. For, instance, the UP water supply and Severage
Act 1975 (UP Act) defines water supply for domestic purposes as : those
purposes excluding trade, or buisness; for gardens or irrigation purposes; for

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70. Since the Planning Commission feels that the reality of ground level data on rural
water supply is not convincing, a re-survey is needed to be done by the PRIs and a return is to be
filed periodically. This method of return filing, the Planning Commission desires, to be inserted as
a condition precedent to the allocation of funds in future. Tenth Planning Commission Report,
building purposes including constructions of streets; for fountains, swimming 
baths, public baths or tanks or for any ornamental or mechanical purpose; for 
animals, where they are kept for sale or hire or for sale of their produce; for the 
consumption and use at a restaurant or by inmates of a hotel, boarding house or 
residential club; for the consumption and use by persons resorting to theatres 
and cinemas; for watering streets; or for washing vehicles where they are kept for 
sale or hire. Water supply is defined as a system of providing water to a 
community for meeting its requirement for drinking and other domestic uses, 
industry, recreation and various public uses.  

The legislations are enacted with a single objective of providing and 
regulating water supply in the state. or with a dual objective of water supply in 
the state and the setting up of corporations or boards for the same. In the case of 
state laws establishing corporations or boards, these institutional arrangements 
possess the authority to set standards in the state with respect to water supply 
and sewerage services. At times, the subordinate boards like the UP Jal 
Sansthan supplement these boards. The Kumaun Act aims at protection of water 
resources in public interest with a sustainable, conservation perspective.  

In the Assam Act, the creation of an urban board for development, 
regulation and maintenance of water supply and sewerage services is stipulated. 
The legal personality of the Board is specified in Chapter VI wherein it is deemed 
to be a corporate body, having the status of a local authority. The Kerala Water 
Authority is considered as an autonomous body.

71. UP Water Supply and Sewerage Act, 1975. Under the Kerala Water Authority (KWA), 
domestic purpose is specified as supply for households, residential flats, Government 
dispensary/clinic, Government schools (Government Hospitals), Orphanage/poor homes. 

72. Regulating water supply could mean regulating the supply for public, commercial or 

73. Section 4, Kumaun and Garhwal Water (Collection, Retention and Distribution) Act, 
1975 (hereafter Kumaun Act). Under the section, the state has the power to regulate and control 
the collection; retention and distribution of any water and water resources demarcate the area for 
protection of water resources and declare the area as protected area.
The Karnataka Act acknowledges the inefficient functioning of local authorities in charge of water supply and aims to improve the situation through the creation of a board, which will have the powers of monitoring various schemes and allocating financial resources via loans to the local bodies. However, the board's function is limited to the urban areas.

**Regulation and Control of Water Resources and Public Interest**

In our country we find a state legislation, which focuses upon the regulation and control of water resources in the public interest. This is with respect to the Kumaun and Garhwal division. The Act in its preamble states that such a measure is needed to ensure rational distribution of water for the purpose of human and animal consumption, irrigation and industrial development. A study sponsored by the Planning Commission of India provides a narration about the background of the legislation.\(^{74}\) The study shows that the Act is an instance of gradual substitution of the rights of indigenous community with respect to the management of the water resources, including the drinking water supply with a formal state system. As per the study, the first Rules for the regulation of water resources-the Kumaon Water Rules-were framed under the Scheduled Districts Act of 1874, in 1917. The Rules of 1917 while retaining the state sovereignty over water resources recognized the customary rights since the British Government found it rational to do so in the absence of any potential for extensive commercial exploitation of water resources in the hills in comparison with the forest resources. The Water Rules of 1917 were modified in 1930 as Kumaon Water Rules of 1930 and there was no change in the law on water resources in the period from 1930 to 1975. During this period a significant extent of loss of forest cover, loss of people's access rights to forests, and the social tensions relating to forest resources occurred the impact of which was not taken seriously in official policy till 1975.

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Regulation of supply

The supply of water is regulated depending on the purpose for which it is used. A protective umbrella is given to drinking water purposes. If the supply is meant for non-domestic purposes, the restriction or prohibitions apply from time to time. For example, Section 4 of the J & K Water Supply Act, 1963 stipulates that the license for water supply for purposes other than domestic, may be withdrawn if it is felt necessary to do so to sustain the supply for domestic purposes.

The regulatory mechanism envisaged by the Kumaun Act secures the objective by abolishing all the customary/community rights, which existed at the time of the enactment with respect to the use of water.75 However, the Act ensures a preferential treatment for village communities or persons whose rights are abolished while the state exercises the powers in terms of regulation and control.

Water charges

All the water supply laws introduce the system of charges levied on water consumed whether for domestic or other purposes.76 (on the basis of meter or number of points installed from the main connecting pipe). However, there is a subsidized system for domestic consumption. The overall responsibility for meter repair, connections, pipes and other matters incidental to water supply is vested with the government.77 Some of the enactments stipulate that meters shall be installed at the expense of the consumer, though repairs are to be governed by the respective byelaws.78

75. Section 3 of the Act states that on and from 15 July 1975 all the existing rights (whether customary or otherwise and whether vested in any individual or in village communities) of use of water, if any, in the areas to which the Act extends, shall stand abolished. See the Kumaun Act.

76. Other purposes include non-domestic (except for industries), industrial (To supply water for manufacturing process which includes service stations, factories, Railways, Roadways, any other establishments where water is used as a raw material) or casual (fairs or any other special use) purposes.


78. UP Act, Section 69.
Under the Himachal Pradesh Act (HP Act), the water rate may be determined by the local authorities in those cases where the water supply schemes are handed over to them after payment of capital costs, maintenance and replacement costs. In these situations the local authorities shall have the responsibility for efficient management of the schemes.

In the legislations the various divisions of supply include public, commercial and domestic purposes. The public stand posts erected and operated by the government are meant to provide free water. Hence no water charges are levied under some of the laws. But the Kerala Water Authority imposes the charge for street taps on the respective local authorities.

**Permit/Licence system**

It is evident from the legislations that water supply is provided by the respective state authorities on the basis of the application submitted by the required party. It is processed after examining the purpose for which it is to be used and the quantity needed. However, as discussed earlier, the non-domestic purposes are meant to be regulated strictly. This means domestic purposes receive a priority over other purposes. It is also clear that not every one in India is dependent on the water supply provided by the state. In the Assam Act, prior permission of the managing director of the Board is required for sinking tube wells in the urban areas.

**Strategy for Water Supply**

The supply of water is provided and regulated by the state authorities constituted for that purpose. As discussed above, different state legislations work on different objectives. In states like Kerala, there is an overall authority, namely, the Kerala Water Authority constituted under the Kerala Water Supply and Sewerage Act, 1986. The laws mandate that the authorities will not be

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80. Kerala Water Authority is a successor to the Public Health Engineering Department, which was constituted under the Kerala Water Supply and Waste Water Ordinance in 1984. The Ordinance was replaced by the 1986 Act.
responsible for the failure in supply due to repairing works or reasons beyond their control.81 The legislations provide for advance notice to the public. If the authorities apprehend a disruption in supply. In our country we come across pictures of leaking pipes, resulting in wastage of water through distribution, which in turn is responsible for many of the open access pipes producing air than water through the outlets. The law seems to be more inclined to punish the violators of the regulatory structure than fixing responsibility for inefficient supply, distribution and management of this basic utility. In the Jammu and Kashmir law, an overall immunity to the jurisdiction of the courts is given to the order annulled, modified or reversed by the Minister-in-Charge of Water Works Department with respect to water supply in the state.82

**Scheme of Himachal Act**

The HP Act outlines a different scheme altogether. The Act distinguishes between the beneficiary and consumer. As per the Act, the beneficiary is a local authority, which derives benefit from a water supply scheme offered by the state. A consumer on the other hand means either a person who depends upon the beneficiary for water supply or who uses the water from a scheme fully managed by the government. It places the whole responsibility of launching drinking water supply schemes on the government. However, the Act stipulates that although the government will spend on the entire schemes and improvement of water supplies, a cost recovery mechanism has also to be implemented. Under Section 4 of the Act, the costs shall be recovered from the beneficiaries and consumers as the case may be, which shall be 25% in the case of urban water supply schemes and 12.5% in the case of rural areas.

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Extent of Implementation

Studies are conducted in India about the performance of state water supply laws. A study of the water supply system of Tamil Nadu.\(^{83}\) serves as an indicator to the generality of the problems suffered by the state water supply agencies in India. Main highlights of the study hold the following as lacunae of the system in Tamil Nadu: inadequate supervision and monitoring; lack of skilled/trained operating staff; schemes not operating in their full efficiency; huge differences in the quality produced and distributed (known as Unaccounted For Water-UFW); visible leaks remain unattended for long; standby units in pumping plants, chlorinating units and other equipment remain under repair for long; many components of treatment plants not functioning for years; water meters not functioning right from inception; air valves and valve glands dripping and valve pits susceptible to flooding and pollution; no single individual having comprehensive information about the quantity of production, beneficiaries, reasons for non-supply, rate of flow, water level in tanks etc.; public tampering with water installations due to scarcity; officials not interested in placement of maintenance jobs; and non-payment of water charges by local bodies.

As suggested by Tiwari, the concept of water governance has wider meanings in wider contexts. In the water supply sector, governance shall mean efficiency and equity in distribution; delivery process transparent, accountable, participatory and responsive; empowerment of citizens and delegation of powers to enhance their welfare.\(^{84}\) His survey results prefer management contracts as the delivery option and corporatization as favoured by the consumers. Probably preferences indicated by the survey group has a base in the way of performance

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of water board constituted for the purpose of water supply. The causative factors of poor performance by state agency in Delhi tally with those mentioned in the Tamil Nadu study.  

An analysis of the functioning of the water boards/municipalities in the metros of Calcutta, Chennai, Delhi and Mumbai makes a comparison among the agencies and the findings of the study places the Chennai Metro Water Board on a high pedestal, even though it acknowledges that the latter agency is mostly structured around procedures, namely, technical and administrative, and not about providing services. The study points out some deficiencies in the organizational settings and accountability of the agencies in the water supply sector. In Calcutta, there is neither volumetric charges nor charges on the basis of estimated consumption. The revenue is generated from a share of the property tax, which is known for low rate of collection and non-assessment of property value on a periodical basis. Water supply in Calcutta is provided by Calcutta Municipal Corporation while the provision for equipments and finance is the concern of Calcutta Metropolitan Development Authority and Calcutta Metropolitan Water Development Agency.

During the period 1994-95, the revenue department of Delhi had shown a figure of Rs. 290 million as total arrears in the water supply sector. Delhi being the capital city faces serious problems of lack of coordination between the Delhi Jal Board and a number of other nodal agencies involved in the development of Delhi like Slum Wing Department, National Capital Region Board, Delhi Development Authority, Delhi Pollution control Board, Central Groundwater Authority. Above all, at times an intervention by the judiciary is needed for enabling Delhi to receive adequate supply of unpolluted water.

85. Tiwari's study states : the non-market framework of providing these services has brought substantial inefficiencies in the system, high leakage rates, tampering with meters, theft of water and poor billing collection. In Delhi, the UFW is 40% compared to the acceptable norm at the global level of 10-15%, available at http://aqua.isf.es/semana_aqua/CAST/wgrw/pon_presentadas/Doc7__aptiwari_2pag_xcara_a_dobre%20cara.pdj

Mumbai Municipal Corporation is responsible for planning, building and management of water supply. However the financial allocation is routed through political inter-sectoral arbitration of the Corporation. Apart from a number of documentary requirements, an applicant has to pay an amount of Rs. 3000-5000/- for water connection while it is Rs. 2000/- in Chennai. At times a high amount of connection fee is charged in order to compensate for low tariff and insufficient revenues, which is facilitated by financial agencies like HUDCO.

The authorities envisaged in the water supply legislations are meant to strengthen the objectives for which the laws are enacted. These laws serve a miniscule section of the Indian population and water supply is in the hands of state agencies. However, any kind of supply of basic utilities constantly reminds us about the need for transparency and accountability. Even the autonomous water boards set up by the states to improve efficiency suffer from political nomination of members and lack of financial autonomy.

**Particularity of Andhra Pradesh Experiment**

The Andhra Pradesh Water Resources Development Corporation, 1997 seeks to consolidate efforts to manage all water resources through coordination and cooperation between the conflicting sectors like domestic, industrial, and irrigation. Under the new schema, all the sectoral water needs and their management is through the single window agency i.e., the Corporation and this includes construction and operation of irrigation and command area development, flood control, drinking water and industrial water supply schemes, and promotion of water related activities like fisheries, floriculture, sericulture, tourism, water sports.

**Composition**

The Corporation\(^{87}\), which is based in Hyderabad consist of elected representatives (Minister [Major and Medium irrigation] is the chairman),

\(^{87}\) The Corporation set up under the Act has a legal status and shall be a body corporate having perpetual succession.
bureaucrats (principal secretary/secretary to the government, irrigation department and principal secretary/secretary to the government, finance department); representatives from a financial institution to be nominated by the state government and nominees of the Government; nominees of the Government (officer to be appointed by the State Government as the member secretary, who shall be designated as the Managing Director of the Corporation and three other members from official or non-official category). The term of office of the members shall be for a period of one year. The state government shall appoint a Managing Director, Chief Engineer, Superintending Engineer, and Chief Accounts and Finance Officer.

The properties and assets comprising movables and immovable including irrigation projects, works under construction and management of completed schemes, situated in the area of operation of the Corporation, which vested in the State Government and were under the control of the Command Area Development Department, are by virtue of this enactment now vested in and transferred to the Corporation. The rights, liabilities and obligations of the State Government, whether arising out of any contract or other wise pertaining to the said project of the State Government, shall be transferred to the Corporation. Effectively, this results in the Corporation taking over all the irrigation projects of the State Government.

**Powers and Functions With Regard to Irrigation**

The Corporation has been vested with wide ranging functions from promoting and operating irrigation projects and command area development including flood control; plan, investigate, design, construct and manage the irrigation projects and command area development, drinking water supply schemes, industrial water supply schemes; to enter into contracts, invite tenders, bids, offers and to promote participation of any person or association of individuals, in planning, investigation, designing, construction and management of irrigation projects and command area development including flood control. The Corporation has also been given a wider mandate to promote irrigation related activities such as fisheries, pisciculture, floriculture, horticulture, sericulture,
tissue culture, etc; and to promote tourism, water sports and other related activities on and around the irrigation projects. And on more commercial lines, the Corporation has the powers to develop the land around or nearby lakes and other locations with irrigation facilities and lease it to interested parties. Interestingly, the list of powders and functions enumerated in the Act, does not, even in the passing, refer to according community ownership and traditional management systems a continuing role in the matter of water resources management.

The Corporation has been vested with the powers to accord administrative approval, technical sanctions, acceptance of all tenders, sanctioning budget and making financial provisions and settling disputes arising out of contracts, to acquire and hold property, both movable and immovable as the Corporation may deem necessary for the performance of any of its functions.

Further is has the powers to lease, sell, exchange or otherwise transfer any property held by it, to construct or cause to be constructed such dams, barrages, reservoirs, irrigation, flood control and drainage canals and such other works and structures as may be required. The Corporation has vast powers to take measures to prevent pollution of any water under its control and to prevent the discharge of effluents which are harmful to water supply, irrigation, public health or aquatic life. It is permitted also to stock its reservoirs or water sources with fish and to sell fish or fishing rights and prohibit taking out fish or fishing rights from the water under its control.

The Corporation is required to assist in the establishment of water users associations and other organization formed under the Andhra Pradesh Co-operative Societies Act, 1964. To lease rights for water sports, other recreational activities related to the use of reservoir and its surroundings. To establish, maintain and operate laboratories, experimental and research stations and farms for conducting experiments and research, for—(a) utilising the water, and other resources in the most economical manner for the development of the River Valleys; (b) determining the effect of its operations on the flow conditions in the river valleys; (c) providing navigation condition in the river valleys; In order to
do all this, it can engage suitable consultants or persons having special
knowledge or skill to assist the Corporation in the performance of its functions.\textsuperscript{88}

Under the Act, all dams, wiers, any installation or other work for the
extraction of surface water, can be carried out only by the Corporation or with the
permission of the Corporation. The only exceptions to this rule are the State
Government or the local authority in that area. In effect, the Act, hands over the
control and management of surface water to the Corporation.\textsuperscript{89}

The corporation shall have and maintain its own fund, which shall be
credited with all moneys received by the Corporation from the State Government
by way of grants, subventions, loans, advances and the loans raised under this
Act; all fees, costs, and charges received by the Corporation; all moneys
received by the Corporation from the disposal of lands, buildings and other
properties, moveable and immovable and other transactions; all moneys
received by the Corporation by way of water charges, rents and profits or from
any other source.

Section 34 provides that the Corporation may borrow money from the
financial institutions or non-resident Indians or from the open market by issue of
guaranteed or unguaranteed bonds, debentures, stocks, for the purpose of
providing itself with adequate resources.

\textbf{Role of Water Users Association}

The Act states that the Water Users Association shall be responsible for
maintenance of the canals and management of water. The Corporation shall
determine and levy water charges according to the volume, for supply of water
for irrigation, industrial and domestic purposes to the state government, local
authorities, government agencies, cultivators and water users associations.
Provided that, the levy of water charges shall be such that water charges so
recovered shall be sufficient at least to cover the interest charges of the loan
raised by the Corporation from the open market. Section 22 clearly states that
the Corporation shall pay the interest on the borrowed money through the
recovery of water charges.

\textsuperscript{88} Section 19, Andhra Pradesh Water Resources Development Corporation Act, 1997.
\textsuperscript{89} Section 23, Andhra Pradesh Water Resources Development Corporation Act, 1997.
The Andhra Pradesh Water Resources Development Corporation was formed but it has not undertaken any activities of any significance. Presently, there is one member secretary, who holds additional charge of the Corporation. The Andhra Pradesh Water Resources Development Corporation was set up to raise funds for funding the irrigation sector. The budget allocated from the Central and State Governments were found to be inadequate and it was imperative to raise loans to fund projects. However, the government could mobilise loans up to Rs. 3000 crores only, through this corporation from banks and other organisations and its efforts at raising funds by floating bonds has not been very successful.\(^9\)

Given that there is no activity, the enactment needs to be examined on its merit, to ascertain its possible impact. It is found that the "legislation has not been as strong in including transparency and accountability in its performance: nor in providing incentives and disincentives to staff and water users (in all sectors) to enhance water use efficiency. The Act is not clear about water rights. Furthermore, the Act emphasizes controlling extraction only of surface water, and groundwater is untouched."\(^1\)

The Andhra Pradesh State Irrigation Development Corporation, which provided irrigation facilities to hilly areas and lands of weaker sections, including tank irrigation which is completely neglected in the World Bank-sponsored projects, has been closed down around the same time that the APWRDC (Andhra Pradesh Water Resource Development Corporation) was set up.\(^2\) This component of social justice and larger community interest, does not find a place in the present legislation.

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By linking the determination of water charges (Section 22) to the borrowings of the Corporation as opposed to the needs of the WUAs (Water Users Association) at the ground level, the Act reveals the true nature of the association between the WUAs and the Corporation. The uni-dimensional nature of the association, given that the WUAs do not have a say in the borrowings (either individually or through a federation) of the Corporation, displays the imbalance in the institutional framework. Decentralisation, obviously, is only a disingenuous method to service the overtly centralising rationale of the water sector reforms.

**Law of Water Resources Management in South Asia**

South Asia is a region comprising India, Pakistan, Bangladesh, Srilanka and Nepal. India had countenanced water related disputes with Pakistan, Nepal and Bangladesh. Resolution of water disputes alongside these nations generates a body of rules and regulations arising out of various treaties concluded between India and Pakistan, India and Nepal and India and Bangladesh. It is within the ambit of this study to have glimpses of these treaties.

**Treaty Between India and Pakistan**

As a consequences of Partition of India, the Indus Basin got partitioned and lay spread over the two new dominions. This was formerly a dispute between the former two provinces of India, namely, Sindh and Punjab, for sharing of the waters of Indus Basin, then became an international dispute. The Indian Independence Act, 1947 and the orders issued thereunder, did regulate many controversial fields but they did not make any provision regarding the distribution of the waters of the rivers of Indus Basin between two new dominions of India and Pakistan, the problem was thus left for the new dominion to be solved through mutual agreements. After several round of meetings and negotiations many proposals were presented for the discussion of the Governments. Such proposals formed the basis of further negotiations and after exchange of proposals and counter proposals a treaty was concluded on September 19, 1960 at Karachi, Pakistan.
PREAMBLE: The Government of India and the Government of Pakistan, being equally desirous of attaining the most complete and satisfactory utilization of the waters of the Indus system of rivers and recognising the need, therefore, of fixing and delimiting, in a spirit of goodwill and friendship, the rights and obligations of each in relation to the other concerning the use of these waters and of making provision for the settlement, in a cooperative spirit, of all such questions as may hereafter arise in regard to the interpretation of application of the provisions agreed upon herein, have resolved to conclude a Treaty in furtherance of these objectives.93

Pertinent Provisions of Indus Water Treaty of 19 Sept. 1960

Article II and III of this Treaty are the key articles which allocate waters of the rivers of Indus Basin to India and Pakistan respectively. Article II contains the "provisions regarding Eastern Rivers", whose water has been allotted to India and Article III incorporates provisions regarding Western Rivers", whose water, in terms of the said Treaty, has been allocated to Pakistan. The text of these Articles is given as under:94

Provisions Regarding Eastern Rivers:

(1) All the waters of the Eastern Rivers shall be available for the unrestricted use of India, except as otherwise expressly provided in this Article.

(2) Except for Domestic use and non-consumptive use, Pakistan shall be under an obligation to let flow, and shall not permit any interference with, the waters of Sutlej Main and the Ravi Main in the reach where these rivers flow in Pakistan and have not yet finally crossed into Pakistan. The points of final crossing are the following: (a) Near the new Hasta Bund upstream of Suleimanka in the case of the Sutlej Main, and (b) about one and a half miles upstream of the syphon for the B.R.B.D. Link in the case of Ravi Main.


94. B.R. Chauhan, "Settlement of International and Inter-State Water Disputes in India", ILI New Delhi, 1992, p. 86.
(3) Except for Domestic Use, Non-Consumptive Use and Agricultural Use (as specified in Annexure B), Pakistan shall be under an obligation to let flow, and shall not permit any interference with, the waters (while flowing in Pakistan) of any. Tributary which in its natural course joins the Sutlej Main or the Ravi Main before these rivers have finally crossed into Pakistan.

(4) All the waters, while flowing in Pakistan, of any Tributary which, in its natural course, joins the Sutlej Main or the Ravi Main after these rivers have finally crossed into Pakistan shall be available for the unrestricted use of Pakistan: Provided however that this provision shall not be construed as giving Pakistan any claim or right to any releases by India in any such Tributary. If Pakistan should deliver any of the waters of any such Tributary, which on the Effective Date joins the Ravi Main after this river has finally crossed into Pakistan, into a reach of the Ravi Main upstream of this crossing, India shall not make use of these waters; each Party agrees to establish such discharge observation stations and make such observations as may be necessary for the determination of the component of water available for the use of Pakistan on account of the aforesaid deliveries by Pakistan, and Pakistan agrees to meet the cost of establishing the aforesaid discharge observation stations and making the aforesaid observations.

(5) There shall be a Translation. Period during which, to the extent specified in Annexure H, India shall

(i) limit its withdrawals for agricultural use,

(ii) limit abstractions for storages, and

(iii) make deliveries to Pakistan from the Eastern Rivers.

(6) The Transition Period shall begin on 1st April 1960 and it shall end on 31st March 1970, or if extended under the provisions of Part 8 of Annexure H, on the date up to which it has been extended. In any event, whether or not the replacement referred to in Article IV (1) has been accomplished, the Transition Period shall end not later than 31st March 1973.
(7) If the Transition Period is extended beyond on 31st March 1970, the provisions of Article V (5) shall apply.

(8) If the Transition Period is extended beyond 31st March 1970, the provisions of Paragraph (5) shall apply during the period of extension beyond 31st March 1970.

(9) During the Transition Period, Pakistan shall receive for unrestricted use the waters of the Eastern Rivers which are to be released by India in accordance with the provisions of Annexure H. After the end of the Transition Period, Pakistan shall have no claim or right to releases by India of any of the waters of the Eastern Rivers. In case there are any releases, Pakistan shall enjoy the unrestricted use of the waters so released after they have finally crossed into Pakistan: Provided that in the event that Pakistan makes any use of these waters, Pakistan shall not acquire any right whatsoever, by prescription or otherwise, to a continuance of such releases or such use.\(^9\)

**Provisions Regarding Western Rivers (ARTICLE III)**

(1) Pakistan shall receive for unrestricted use all those waters of the Western Rivers which India is under obligation to let flow under the provisions of Paragraph (2).

(2) India shall be under an obligation to let flows all the waters of the Western Rivers, and shall not permit any interference with these waters, except for the following uses, restricted (except as provided in item (e) (ii) of Paragraph 5 of Annexure C) in the case of each of the rivers, The Indus, The Jhelum and The Chenab, to the drainage basin thereof.\(^6\)

(a) Domestic use;

(b) Non-consumptive use;

(c) Agricultural use, as set out in Annexure C; and

(d) Generation of hydro-electric power, as set out in Annexure D.

\(^9\) The above mentioned rules are contained in the Article II of the Indus water Treaty. Available in, B.R. Chauhan, "Settlement of International and Inter-State Water Disputes in India", ILI New Delhi, 1992 pp. 80-104.

\(^6\) B.R. Chauhan, "Settlement of International and Inter-State Water Disputes in India", ILI New Delhi, 1992 p. 88.
(3) Pakistan shall have the unrestricted, use of all waters originating from sources other than the Eastern Rivers which are delivered by Pakistan into The Ravi or the Sutlej, and India shall not make use of these waters. Each Party agrees to establish such discharge observation stations and make such observations as may be considered necessary by the Commission for the determination of the component of water available for the use of Pakistan on account of the aforesaid deliveries by Pakistan.\(^\text{97}\)

(4) Except as provided in Annexures D and E. India shall not store any water of, or, construct any storage works on, the Western Rivers Article IV of the Indus Water Treaty embodies some provisions, regarding both the Eastern as well as Western Rivers, which provisions throw some light upon the co-related rights and obligations of each of the parties and for the purpose of having an overall picture of these rights and obligations the text of Article IV is as under:

(1) Pakistan shall use its best endeavours to construct and bring into operation, with due regard to expedition and economy, that part of a system of works which will accomplish the replacement, from the Western Rivers and other sources, of water supplies for irrigation canals in Pakistan which, on 15th August 1947, were dependendent on water supplies from the Eastern Rivers.

(2) Each Party agrees that any non-consumptive use made by it shall be so made as not to materially change, on account of such use, the flow in any channel to the prejudice of the uses on that channel by the other Party under the provisions of this Treaty. In executing any scheme of flood protection or flood control each Party will avoid, as far as practicable, any material damage to the other Party, and any such scheme carried out by India on the Western Rivers shall not involve any use of water or any storage in addition to that provided under Article III.

(3) Nothing in this Treaty shall be construed as having the effect of preventing either Party from undertaking schemes of drainage, river training, conservation of soil against erosion and dredging, or from removal of stones, gravel or sand from the beds of the Rivers : Provided that

\^\text{97} Article III of the Indus Water Treaty, as quoted by B.R. Chauhan, "Settlement of International and Inter-State Water Disputes in India", ILI New Delhi, 1992 p. 88.
(a) in executing any of the schemes mentioned above, each Party will avoid, as far as practicable, any material damage to the other Party;

(b) any such scheme carried out by India on the Western Rivers shall not involve any use of water or any storage in addition to that provided under Article III;

(c) except as provided in Paragraph (5) and Article VII (1) (b), India shall not take any action to increase the catchment area, beyond the area on the Effective Date, of any natural or artificial drainage or drain which crosses into Pakistan, and shall not undertake such construction or remodelling of any drainage or drain which so crosses or falls into a drainage or drain which so crosses as might cause material damage in Pakistan or entail the construction of a new drain or enlargement of an existing drainage or drain in Pakistan; and

(d) should Pakistan desire to increase the catchment area, beyond the area on the Effective Date, of any natural or artificial drainage or drain, which receives drainage waters from India, or, except in an emergency, to pour any waters into it in excess of the quantities received by it as on the Effective Date. Pakistan shall, before undertaking any work for these purposes, increase the capacity of that drainage or drain to the extent necessary so as not to impair its efficacy for dealing with drainage waters received from India as on the Effective Date. 98

(4) Pakistan shall maintain in good order its portions of the drainages mentioned below with capacities not less than the capacities as on the Effective Date:

(i) Hudiara Drain

(ii) Kasur Nala

(iii) Salimshah Drain

(iv) Fazilka Drain

(5) If India finds it necessary that any of the drainages mentioned in Paragraph (4) should be deepened or widened in Pakistan, Pakistan agrees to undertake to do so as a work of public interest, provided India agrees to pay the cost of the deepening or widening.

(6) Each Party will use its best endeavours to maintain the natural channels of the Rivers, as on the Effective Date, in such condition as will avoid, as far as practicable, any obstruction to the flow in these channels likely to cause material damage to the other Party.

(7) Neither Party will take any action which would have the effect of diverting the Ravi Main between Madhopur and Lahore, or the Sutlej Main between Harike and Suleimanke, from its natural channel between high banks.

(8) The use of the natural channels of the Rivers for the discharge of flood or other excess waters shall be free and not subjects to limitation by either Party, and neither Party shall have any claim against the other in respect of any damage caused by such use. Each Party agrees to communicate to the other Party, as far in advance as practicable, any information it may have in regard to such extraordinary discharges of water from reservoirs and flood flows as may affect the other Party.99

(9) Each Party declares its intention to operate its storage dams, barrages and irrigation canals in such manner, consistent with the normal operations of its hydraulic systems, as to avoid, as far as feasible, material damage to the other Party.

(10) Each Party declares its intention to prevent, as far as practicable, undue pollution of the waters of the Rivers which might affect adversely uses similar in nature to those to which the waters were put on the Effective Date, and agrees to take all reasonable measures to ensure that, before any sewage or industrial waste is allowed to flow into the Rivers, it will be treated, where necessary, in such manner as not materially to affect those uses: Provided that the criterion of reasonableness shall the customary practice in similar situations on the Rivers.

(11) The Parties agree to adopt, as far as feasible, appropriate measures for the recovery, and restoration to owners, of timber and other property floated or floating down the Rivers, subject to appropriate charges being paid by the owners.

(12) The use of water for industrial purposes under Articles II (2), II (3) and III (2) shall not exceed:

(a) in the case of an industrial process known on the Effective Date, such quantum of use as was customary in that process on the Effective Date;

(b) in the case of an industrial process not known on the Effective Date;

(i) such quantum of use as was customary on the Effective Date in similar or in any way comparable industrial processes; or

(ii) if there was no industrial process on the Effective Date similar or in any way comparable to the new process, such quantum of use as would not have a substantially adverse effect on the other Party.

(13) Such part of any water withdrawn for Domestic Use under the provisions of Articles II (3) and III (2) as is subsequently applied to Agricultural Use shall be accounted for as part of the Agricultural Use specified in Annexure B and Annexure C respectively; each Party will use its best endeavours to return to the same river (directly or through one of its Tributaries) all water withdrawn therefrom for industrial purposes and not consumed either in the industrial processes for which it was withdrawn or in some other Domestic Use.

(14) In the event that either Party should develop a use of the waters of the Rivers which is not in accordance with the provisions of this Treaty, that Party shall not acquire by reason of such use any right, by prescription or otherwise, to a continuance of such use.¹

(15) Except as otherwise required by the express provisions of this Treaty, nothing in this Treaty shall be construed as affecting existing territorial rights over the waters of any of the Rivers or the beds or banks thereof, or as affecting existing property rights under municipal law over such waters of beds or banks.

¹ B.R. Chauhan, "Settlement of International and Inter-State Water Disputes in India", ILI New Delhi, 1992 p. 91.
Article IX makes provisions for settlement of differences and disputes between the parties concerning the interpretation or application of the said Treaty or the existence of any fact which, if established, might constitute a breach of this Treaty. The matter is first to be referred to the Permanent Indus Commission, created under Article VIII of the Treaty, for the purpose of establishing and maintaining co-operative arrangements for the implementation of the Treaty and for promoting co-operation between the Parties in the development of the waters of the said rivers, and if the commission is unable to reach an agreement on the questions involving points of differences or controversies, the matters are to be settled by 'Neutral Experts', and 'Court of Arbitration', as the case may be, in terms of the provisions of Article IX and other relevant provisions of the Treaty.

**Evaluation of Indus Water Treaty**

In this the provisions of Article XI (General Provision), clause (2) are significant. This clause reads: "Nothing in this Treaty shall be construed by the Parties as in any way establishing any general principle of law or any precedent."

These express provisions indicate that the said Treaty has merely resolved the dispute for sharing of waters of Indus Basin between India and Pakistan and it has not laid down any general principle of law or precedent for future. Rather, in a way, it has prohibited the derivation of any general principle of law or precedent, from the Treaty as such. The Treaty has also not given any hint in its Preamble or elsewhere that in reaching the conclusions contained therein, it has followed or applied any existing principles of law, whatsoever, or any prevailing theories as such.\(^2\)

Now, more than 60 years after these waters have been peacefully shared, there are mounting accusation that India could choke this supply line by building a series of dams. In recent months, the buzz in Pakistan has been that India is building more than 100 dams on the Sutlej and Chenab and this will deplete supplies to farmlands that feed Pakistan's 180 million people. While some Pakistani experts stuck to that position, most appeared convinced that India was not violating the International Water treaty by building these dams.

\(^2\) B.R. Chauhan, "Settlement of International and Inter-State Water Disputes in India", ILI New Delhi, 1992 p. 91.
Sitting across the table for two days, top water-management experts and irrigation engineers from India and Pakistan discussed the issue and give some recommendations, which are as under:\(^3\):

- Make water flow data public
- Monitor flows jointly
- Joint study factors for depleted flows

### Treaty between India and Nepal

India and Nepal needed each other’s co-operation for various multipurpose works and specific-works for mutual benefits or benefits for either of the parties separately. These works included barrage and headworks on the Kosi with flood banks, storage dams, detention dams and canals for flood control, irrigation, generation of hydro-electric power and prevention of soil erosion. Canal head-regulators were also needed for the purpose of irrigation and development of power. Some such works were needed at Gandak river also. Some works were to be constructed in Nepal territory and therefore the land for the same had to be acquired by Nepal but India, also being the beneficiary of such works, had to share the cost of the same.

Being conscious of its sovereignty Nepal, while entering into any arrangements with India, had to protect its sovereign rights as well as riparian rights within its territory and on the other hand, for the purpose of proper execution of the contemplated works and effective implementation of the involved schemes, India had to ensure freedom of operational activities within Nepalese territory, wherever necessary.\(^4\)

### Solutions and the Concerned Treaties

For the solutions of the problems and controversies, the treaties, mentioned below, were concluded between the Government of Nepal and the Government of India:

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3. The Times of India, New Delhi, 31 July 2010.

(i) An Agreement between the Government of India and the Government of Nepal on the Kosi Project was signed on April 25, 1954. This agreement envisaged the construction of a barrage, headworks and other appurtenant works about three miles upstream of Hanumannagar town on the Kosi river. The works also included the afflux and flood banks, canal and protective works for the purpose of flood control, irrigation, generation of hydro-electric power and prevention of erosion of Nepal areas on the right side of the river, up stream of the barrage.

The needed land situated in Nepal was acquired by the Nepal Government and the cost of the same was paid by the Indian Union. In lieu thereof the Indian Union acquired the ownership of land and specific water rights and rights over hydropower of the said project while Nepal retained its sovereign and jurisdictional rights over its territory used for the said project. Under cause 10 the fishing rights in the Kosi river in Nepal, except within two miles of the barrage, were agreed to be vested in Nepal. In terms of clause 16, the Nepal Government also gave its consent for construction of storage or detention dams on Kosi river, in future, on terms and conditions similar to those contained in the said Agreement.

(ii) The Government of Nepal and the Government of India concluded an Agreement on December 4, 1959 on ‘the Gandak Irrigation and Power Project.’

Under the terms of this Agreement, the contracting parties, agreed, in the common interests of both, to construct a barrage, canal, head regulators and other appurtenant works about 1000 feet below the existing Tribeni Canal Head-regulator and to take out canal systems for the purposes of irrigation and development of power for Nepal and India.

Under clause 6 the Government of India acquired the ownership, operation and maintenance of the works and under clause 7 it undertook to construct, at its own cost and for irrigation purposes of Nepal, ‘the Western Nepal Canal including the distributary system thereof and ‘the Eastern Nepal Canal' from tail-end of the Don Branch Canal up to river Bagmati, including the distributary system.5

(iii) Exchange of Notes dated December 4, 1959 between the Ambassador of India in Nepal and the Deputy Prime Minister of Nepal envisaged certain "understandings" pertaining to the Gandak Irrigation and Power Project Agreement of December 4, 1959.

(iv) The Revised Agreement between the Government of Nepal and the Government of India dated April 30, 1964, made certain amendments to the Agreement of December 4, 1959, which affected clauses 7 (v) and 9, thereof so as to emphasize Nepal's 'riparian rights' concerning irrigation and make some suitable changes pertaining to "supplies during period of shortage."\(^6\)

(v) The Revised Agreement between the Government of Nepal and the Government of India, dated December 19, 1966, on the Kosi Project, amended the Agreement of April 25, 1954 so as to make additional provision for construction of 'storage dams' and 'detention dams' on the river Kosi as already contemplated in the earlier agreement in the form of provision for future works. Under the Revised Agreement, lease of the 'Project area' was granted to India for 199 years on 'annual nominal rate.'\(^7\)

(vi) Summary Record of Discussions at the meeting held in the Department of Irrigation New Delhi on February 19, 1976 between the representatives of Government of India and the Government of Nepal covered problems relating to speedy execution of all the ongoing works for the benefit of Nepal under the Gandak Project. As a result of these discussions, decisions were taken for extension of Nepal Western Canal and extension and speedy completion of Nepal Eastern Canal.\(^8\) Gandak Project comprising Nepal Eastern Canal was completed and handed over to the Government of Nepal on June 30, 1976 itself. Subsequently, all the sub-projects of the Gandak Project were completed and handed over to the Government of Nepal by India.

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8. B.R. Chauhan, "*Settlement of International and Inter-State Water Disputes in India*", ILI New Delhi, 1992 p. 98.
(vii) An Agreement was signed by the Government of Nepal and the Government of India on April 7, 1978 on the 'Renovation and Extension of Chandra Canal, Pumped Canal and Distribution system of the Western Kosi Canal in Nepal.' These projects extended the irrigational and other facilities for utilization of water resources to Nepal beyond the facilities envisaged and accomplished under the Agreement of April 25, 1954 as revised and amended on December 19, 1966.

Problems with Bangladesh

The Farakka Barrage Project on Ganga, in India, is intended for the preservation and maintenance of the Calcutta Port by improving the regime and navigability of the Bhagirathi-Hooghly river system. The river Bhagirathi, the feeder canal and the navigational lock at Farakka Barrage form part of the Haldia-Allahabad Inland Waterway for which a separate Act has been enacted by India, namely, the National Waterway (Allahabad-Haldia stretch of the Ganga-Bhagirathi-Hooghly-River) Act, 1982. All the principal works connected with the two barrages and the Feeder Cana have been completed. The navigation locks at Jangipur and Farakka have also been completed and commissioned accordingly.

Bangladesh has been putting forth its requirements and expecting release of upto some specific quantum of water from Farakka in normal seasons as also in this seasons. Measures to tackle these problems are taken from time to time.

In addition to the Ganga River, India and Bangladesh have also to tackle problems concerning use and management of some other rivers such as Manu, Mahuri, Khowai and Gumti rivers.

Bilateral Arrangements

In order to tackle the problems concerning the common water resources, the Indo-Bangladesh Joint Rivers Commission was set up in July, 1972 and its objective is to maintain liaison between India and Bangladesh to ensure the most

effective joint efforts for deriving maximum benefits from common river systems, for both the countries and to formulate programmes and adopt measures for mutual benefits in various fields including the field of flood forecasting and warning, flood control and river management.

The Commission has several Committees such as the Standing Committee and the Local Level Committee. The Standing Committee tackles issues relating to border common rivers and data and information on water availability and requirements of both parties in several rivers, namely, Manu, Muhuri, Khowai and Gumthi rivers. The Local Level Committees resolve problems of embankment and river training works, etc., at the local level.

On November 5, 1977 an Agreement was concluded between the Government of India and the Government of Bangladesh. This Agreement dealt with the making of interim arrangements for sharing of Ganga waters at Farakka and also made provisions for solving the long-term problem of augmenting the flows of Ganga.\(^\text{10}\)

Articles I and II of the said agreement provided as an interim arrangement, that sharing of water between India and Bangladesh will be at Farakka and the quantum of share of each party, from 1 January to 31 May every year, had been scheduled.

In according with the schedule wide Article II (i), the release was to made on a 10 day period basis. It may further be noted that in the first proviso to clause (ii) of article II, it was stated that "if the actual availability at Farakka of the Ganga waters during a 10 day period is higher or lower than the quantum shown in column 2 of the schedule the same shall be shared in the proportion applicable to that period."

The second proviso further provided that if "during a particular 10-day period, the Ganga flows at Farakka come down to such a level that the share of

\(^{10}\) B.R. Chauhan *Settlement of International and Inter-State Water Disputes in India*, I.L.I., New Delhi 1992 p. 99.
Bangladesh is lower than 80 per cent of the value, the release of waters to
Bangladesh during that 10-day period shall not fail below 80 per cent of the
value."\(^{11}\)

This guarantee, naturally, operated in the form of a special protection for
Bangladesh.

Under Article IV a provision was made for the appointment of a Joint
Committee consisting of the representatives nominated by the two governments.
The Joint Committee was required to set up suitable teams at Farakka and
Hardings Bridge to observe and record, at Farakka, the daily flows below Farakka
Barrage and in the Feeder Canal as well as at Hardings Bridge. The Joint
Committee was authorised to decide its own procedure and was required to
submit to the two governments data collected by it as also an annual report. The
committee was made responsible (under Article VII) for implementing the
arrangements contained in Part A of the agreement, dealing with interim
arrangements contained in Part A of the agreement, dealing with interim
arrangements. As regards the solution of the long-term problem of augmenting
the flows of the Ganga during dry season, the Indo-Bangladesh Joint Rivers
Commission, established in 1972 was required to carry out investigation and
study of the schemes relating to the augmentation of the dry season flows of the
Ganga. The Committion was to submit its recommendations to the two
governments within three years, which were to be considered and implemented
by the two governments as speedily as possible. The differences arising out of
the implementation process were to be resolved by the Commission, and in
failure thereof by the two governments.\(^{12}\)

Entering into force, on being signed, the agreement was to remain in force
for a period of five years from the date of its coming into force. However, it could
be further extended for a specified period by mutual agreement in the light of the
review or reviews contemplated in Article XIII. In the first instance, the agreement
was to be reviewed by two governments at the expiry of three years from the

\(^{11}\) B.R. Chauhan *Settlement of International and Inter-State Water Disputes in India*,

\(^{12}\) *Id*, at p. 101.
date of its coming into force. Further review was to take place six months before the expiry of the agreement or as may be agreed upon between the two governments.

It is noteworthy that this agreement provided in its preamble that the agreement was not to affect the rights and entitlements of either country other than those covered by the Agreement and was not to establish any general principles of law or precedent.\textsuperscript{13}

As the agreement of November 5, 1977, was to expire on November 4, 1982, the efforts for arrangements for the future continued and at the conclusion of the Indo-Bangladesh talks, which also covered the issue of sharing of waters of the Teesta and some other border and common rivers, it was stated in a joint press release issued in Dhaka on August 31, 1982 that "India and Bangladesh have achieve what could be termed a 'greater measure of understanding on the elements to be taken into account for finding an equitable solution' to the problem of sharing the waters of the Ganga at Farakka and augmentation of the flow."\textsuperscript{14}

During these talks the two sides also agreed that the Joint River Commission should endeavour to finalise a formula for sharing the Teesta waters, to continue efforts to find a mutually acceptable solution to the Ganga issue and to exchange data and information, on a reciprocal basis, on the five rivers-Manu, Muhuri, Howai, Gomti and Dharla in order of priority and to complete their task by submitting their reports by December 31, 1982.\textsuperscript{15}

At the end of a four-day meeting of the Joint Committee in Calcutta, an accord was reached on January 7, 1983, between India and Bangladesh, known as the Protocol of Understandings on making new arrangements for sharing of Ganga waters for another two years.

Both sides agreed on methods and functioning of modalities for sharing the dry season flow (of the river) between January and May for two years.

\begin{footnotesize}
\begin{enumerate}
\item \textit{Ibid.}
\item \textit{Id}, at p. 102.
\end{enumerate}
\end{footnotesize}
Simultaneously an eight-member Indo-Bangladesh Joint Committee of Experts for pre-feasibility study for augmenting the Ganga flow at Farakka was set up.16

On July 20, 1983, India and Bangladesh reached an Ad-hoc Accord, to be valid upto 1985, on the sharing of the Teesta waters, according to which 39 per cent of the waters of this river are allotted to India and 36 per cent to Bangladesh and the remaining waters remain unallocated, which will be shared after scientific studies concerning the same are completed.17

On November 22, 1985, India and Bangladesh signed a Memorandum of Understanding (MOU) on sharing of Ganga Waters at Farakka for the next three dry seasons. The two sides agreed to undertake a joint study of the available river water resources and work out various alternatives for sharing them. The MOU, in a way, serves as a step for continuation of the arrangements of the Agreement of 1977 as renewed in 1982-83, on sharing the Ganga Waters at Farakka, minus the protection of the guarantee of 80 per cent, in favour of Bangladesh, of the availability flow in case of fall of the flow below the prescribed limits. Under this MOU, the two sides agreed to hold immediate consultations in case of an exceptionally low flow during the next three dry seasons so as to minimize either side's burden.18

At the end of a three-day meeting India and Bangladesh signed on 18th January, 1986 an agreed plan of action for the joint study of the dry season flow of the Ganga, augmentation of water supply at Farakka and sharing of waters of other common rivers. The plan envisaged the completion of the work in ten months by the Joint Committee of Experts.

Technically the MOU of 1985 should be treated as having expired at the end of the dry season in 1988. It seems no renewal or other alternative arrangement has taken place till the end of 1988 or even during the years 1989 and 1990.

17. Ibid.
18. Ibid.
It may be pointed out here that the Indo-Bangladesh Joint Committee of Experts functioned to facilitate smooth implementation of the arrangements envisaged in the MOU of November 1985 and it undertook joint inspection and monitoring of the sharing arrangements for the Ganga flows at Farakka during the dry season. Besides, the Joint Committee for Joint Inspection and monitoring of the arrangement for the sharing of Ganga flows at Farakka during the dry season was also set up in pursuance of the MOU of November 22, 1985 and has been functioning, as such, since then.

In December 1996 treaty was signed for sharing the Ganga waters, under the december 1996 pact, both countries will receive 35,000 cusec (cubic feet per second) of water in alternative 10 day periods during the dry months from March to May.\(^\text{19}\)

If the flow is between 50,000-70,000 cusec at Farakka, both countries share equally. However, if the flow drops below 50,000 cusec in a 10 day period the two sides must immediately meet to make adjustment on an emergency basis.\(^\text{20}\)

**International Law of Water and its Resources Management**

Having discussed the South Asian water resources law and its development the researcher kept focus on international law relating to water resources management.

Throughout history, the rise and fall of civilizations has been connected to water availability and management. The importance of water and its regulation has not diminished, given the global water crises. The international law on water has developed through several attempts to deal with transboundary conflicts.\(^\text{21}\)


The analysis of modern international water law has resulted in the identification of three main principles of international water law, the principle of equitable and reasonable utilization, the no-harm principle and the principle of co-operation.\textsuperscript{22}

**Evolution of International water law**

Water law originated some two thousand years ago.\textsuperscript{23} During the centuries, various civilisations have coped with the issue of water allocation and its legal aspects. The rise and fall of early hydraulic civilisations, such as the Egyptian, Mesopotamian, Hindu, Hebrew, and Meso-American civilisations seem to have been closely linked with their development and maintenance of water control systems. During the period in which the Roman Empire flourished (753 BC to the fall of the Western Empire in 476 AD) several water laws were enacted. The compilation of the Eastern Roman Emperor Justinian (527-565 AD)—the *Corpus Iuris Civilis*—contains both classical and post-classical systems of Roman water law.\textsuperscript{24} Key principles of law during the Roman period were the distinction between private and public ownership of water (determined by the legal status of land); public supply of water; water use rights; a right to divert water; a right to draw water and a right of access to water; a distinction between uses of water for drinking and domestic purposes, watering of cattle, fishing and transportation, irrigation, industrial purposes, and navigation; prevention of over-flow; the prohibition of use of water by the right holder for the sole purpose of damaging his neighbour; and the protection of beneficial uses downstream.\textsuperscript{25} Roman law remains influential in Europe as well as other parts of the world. Through European continental law, Roman law was exported with the colonization of Africa, the Americas, Asia and Australia. European laws influenced or were superimposed on the law of colonies and to this day are


\textsuperscript{24} Id. at p. 41.

\textsuperscript{25} Id. at pp. 30-43.
reflected in the laws of the former colonies. Other important sources of water law are, Moslem law, Hindu and Buddhist laws, which have their origin in religious texts.

Throughout history, laws have developed in response to an experienced need in different regions and throughout various sectors. International regulations on navigation were one of the first important issues of international water law, freedom of navigator, based on the idea of common interest, was established in Europe in 1815 by the Final Act of the Vienna Congress, peaked around 1920 with the Peace Treaty of Versailles (1919) and the Barcelona Statute on the Regime of Navigable waterways of International concern (1921), and declined with fascism as well as during the cold war and decolonisation. Particularly since World War II, issues other than navigation found their way into various bilateral conventions, such as those concerning the use of frontier rivers and the protection of certain rivers or bodies of water from pollution. For a long time, international treaties mainly focused on surface water. The increase in awareness of the biocomplexity of the environment over the last couple of centuries is reflected in treaties, for example, acknowledging the link between surface and groundwater.

**Contribution of Non-Governmental Organisations**

Intergovernment organisations and Non-Governmental Organisations (NGOs) are of great importance in assisting in the coming into existence of water laws, information gathering and exchange, as a forum for cooperation and in the provision of transparency. Although international bodies dealing with aspects of water were already developed in the eighteenth century, the increasing involvement of international organisations within international law is a recent

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trend. The focus on surface water contrast with the importance of groundwater as a source for human uses, which holds by far the main water reserves, and does not necessarily follow the flow of surface waters, even when connected to them.  

At present, international water law also includes many regional and bilateral treaties that regulate various uses of freshwater resources, both surface and underground. Documents such as the 1992 Rio Declaration and Agenda 21 play an important part in guiding the further development of international water law.

International law regulates water for the following three reasons. Firstly because of the inter-state character of international river basins. Secondly because human rights or other principles of international law are affected by water management. Thirdly, in cases and to the extent that the hydrological cycle internationalises national water resources, causing trans-boundary effects. International law therefore regulates water contained in international rivers such as the contiguous international river the Danube, which is also a successive international river as is the Rhine. It also regulates water in international aquifers such as the Nubian acquifer, international drainage basin such as the Aral Sea Basin or sub-drainage basin, as well as in national rivers, and lakes.

The Economic commission for Europe (ECE) Convention and the water courses convention are two recent conventions that include almost the whole spectrum of established and emerging international water law. The ECE Convention is an interregional treaty that includes highly developed industrial countries as well as economies in transition, and lower as well as upper riparian states. The ECE Convention came into existence under the auspices of the United Nations Economic Commission for Europe.

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The ECE Convention contains 28 articles and 4 annexes. The Convention includes provisions dealing with measures to be taken by all parties (Part I) such as on monitoring the conditions of transboundary waters (Article 4) provisions only relating to riparian states (Part II) such as on cooperation through arrangements (Article 9), and institutional and final provisions (Part III). Article 1 of ECE convention defines transboundary waters to include both surface water and groundwater involving two or more states.\(^\text{32}\) All parties to the ECE convention are obliged to prevent, control and reduce any transboundary impact (Article 2.1), relating to water and pollution and use. Article 2 includes reference to: reasonable and equitable use of transboundary waters, equality and reciprocity, and catchment areas. It also includes principles such as the precautionary principle, polluter-pays principle, sustainable development in water resources ('water resources shall be managed so that the needs of the present generation are met without compromising the ability of future generations to meet their own needs'). Article 3 elaborates upon the measures to be taken to prevent, control and reduce trans-boundary impact, including emission of pollutants and environmental impact assessment.

The scope of the watercourses convention (Article 1) concerns non-navigational uses of international watercourses and their waters and measures of protection, conservation related to it.\(^\text{33}\)

**The United Nations Water Courses Convention and Its Procedural Rules:**

The adoption by the United Nations General Assembly of the United Nations Convention on the Law of the Non-Navigational uses of International watercourses on 21 May 1997 marks the most important development in the

\(^{32}\) Article 1 (1) ECE Convention: "Transboundary waters" means any surface or groundwater which mark, cross or are located on boundaries between two or more States; wherever transboundary water flow directly into the sea, these transboundary water end at a straight line across their respective mouths between points on the low-water line of their banks.'

\(^{33}\) The watercourses convention, according to its Article 1: 'applies to uses of international watercourses and of their waters for purposes other than navigation and to measures of protection, conservation and management related to the uses of those watercourses and their waters'.

history of international water law.\textsuperscript{34} The preamble to the United Nations watercourses convention itself acknowledges the valuable contribution of international organisations, both governmental and non-governmental, the codification and progressive development of international law in this field.\textsuperscript{35}

The United Nations Convention is a frame-work convention, which aims at ensuring the utilization, development, conservation, management and protection of international watercourses and promoting optimal and sustainable utilization thereof for present and future generations.

The decision to opt for a framework convention was quite realistic given the varying and competing interests of the upper and lower riparians,\textsuperscript{36} as well as the issue of which of the two principles prevails over the other, the equitable and reasonable utilization principle, or the obligation not to cause harm.

The strongest element of the convention is its procedural mechanism. Those elements are based on the essential and primary obligation of the riparian states to co-operate with each other. In the context of the law of international watercourses, the obligation to co-operate is affirmed in numerous treaties and conventions, whether in general terms. The United Nations Convention addressed this issue in a comprehensive manner, and included the obligation to exchange data and information regularly, the obligation to notify other riparian States of planned measures, the establishment of joint mechanisms,

\begin{itemize}
\item \textsuperscript{34} L. Boisson De Chazournes and S.M.A. Salman, "Water Resources and International Law," Hague Academy of International Law, 2005, p. 61.
\item \textsuperscript{36} The three countries that voted against the convention (Burundi, China and Turkey) are all upper riparians. Similarly most of 27 countries that abstained are upper riparians. This could lead to the conclusion, adopted by some upper riparian countries, that the convention is biased in favour of lower riparian countries. How ever, it should be stressed that not all upper riparian countries have abstained, nor are all the countries that abstained are upper riparians. As quoted by, L. Boisson De Chazournes and S.M.A. Salman. "Water Resources and International Law." Hague Academy of International Law 2005, p. 62.
\end{itemize}
environmental impact assessments, the provision of emergency information, the obligation to enter into consultations, and the obligation to negotiate in good faith.

**International Groundwater Law**

One other major contribution of the United Nations Watercourses Convention is the attention it has given to transboundary groundwater. Although groundwater has been an important water source in-arid regions for centuries, it was only in the middle of the last century that groundwater use expanded from meeting strictly local needs to serving as a primary source of freshwater for whole nations.\(^{37}\) Today, a majority of the world’s population is dependent on groundwater for its basic needs.\(^{38}\) Twelve of the twenty-three megacities that have populations of over 10 million are heavily dependent on ground water.\(^{39}\)

Although the United Nations Watercourses Convention addressed groundwater, this has not been completed. The convention defines the term "Watercourse" to include both surface water and groundwater which is connected to surface water. This definition leaves out confined ground water—that is ground water not connected to surface water. This incomplete definition is attributed, by and large, to the fact that the scientific knowledge on groundwater is still limited.

Thus, despite the fact that the issue of confined ground water has been addressed by the International Law Association in 1986, as well as by other scholars, the United Nations Water-Courses Convention has fallen short of addressing the issue of groundwater in a complete manner. However, this situation is not difficult to understand. A number of scientific and technical issues with regard to ground water remain unresolved. Even the inclusion of "connected groundwater" in the definition of the term "water course" in the convention has

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not been without controversy and "was cited as a reason for the abstentions of two states from the vote on the convention." Those elements are likely to persist for some time and could slow down further co-operation in the field of transboundary groundwater.

**The European Community Water Framework Directive**

Another regional approach to the management and protection of transboundary water resources can be found in the European Community Framework for Action in the field of Water Policy. This Water Framework Directive which entered into force on 22 December 2000 constitutes an innovative approach to the development of water policy of the European Community. It rationalizes the Community's highly fragmented water legislation under one coherent legal frame-work which takes an integrated approach towards the conservation and management of water resources in the Member States of the Community.

Hence, the Community, decided on the adoption of the Water Framework Directive. The Directive takes a holistic and comprehensive approach towards water management as it covers the relevant components of water, namely, inland surface waters, transitional waters, coastal waters and ground-water. For the first time surface waters and groundwater are managed in an integrated manner at the European level.

The specific administrative arrangements to achieve the Directive's objectives take place within the Community Member States at the level of the national, sub-national, or local authorities. The basic reference unit for water management is the "river basin". The key managerial tool for the implementation of these objectives is the River Basin Management Plan (RBMP) which consists of a standardized set of programmes of measures.

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41. River basin is defined as "the area of land from which all surfaces run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta." Article 3 of the Framework.
The Key to understanding the Directive as a regional approach towards the management of transboundary freshwater resources in Europe lies in the capacity of the Directive to exert influence on three different legal spheres, namely directly shaping the supranational law of the European Community itself influencing the national water legislation of the European Community Member States, and having the potential to have a considerable effect on the development of international law on transboundary water resources in Europe.

With regard to freshwater resources which extend beyond the territory of the European Community—like Europe's most important transboundary watercourses, the Danube and Rhine—it is clear that the Directive does not have any legally binding force beyond the territory and jurisdiction of the European Community. Nevertheless, the Directive has the potential to exert considerable influence on the development of new and already existing international agreements on the management and conservation of transboundary water resources in Europe.

Hence, it can be agreed that the Directive functions as a unique interface between the supranational law of the European Community, national water law as well as international law on transboundary fresh water resources. Indeed, the potential of the Water Framework Directive to exert influence on conventions and treaties on international water resources involving both Members and non-Members is considerable. This will in turn reshape international water law in Europe by confirming the Directive regional approach to the management of transboundary water resources throughout Europe.


Human Right to Water

The United Nations Water-Courses Convention provides in Article 10 (2) for special regard to be given to the requirements of vital human needs, in the event of conflict of uses of an international watercourse. This is the only provision in United Nations Convention addressing this issue, and the closest the convention gets to in connection with water and human rights.

Amongst the international instruments that addressed the issue of human right to water, directly or indirectly, are the 1948 Universal Declaration of Human Rights, the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights, and the Convention on the Right of the Child. The General Comment issued in November 2002 by the Committee on Economic, Social and Cultural Rights of the United Nations proclaimed that there is a human right from Article 11 and 12 of International Covenant on Economic, Social and Cultural Rights. According to this General Comment, everyone has a right to "sufficient, safe, acceptable, physically accessible and affordable water.

Another approach to the issue of human right to water is linking it to environmental law. The underlying contention for deriving a human right to water from the emerging principles of environmental law is that there exists some form of individual human right to the environment, as well as a general right of the environment, whereby States must consider the importance of preserving nature for nature's sake. Inherent in both of these ideas is the notion of water as a human right, both as deriving from an individual's right to water, as well as the obligation on the State to account for water resources both now and in the future.

44. The first three instruments do not have a specific reference to water but that is implied from the text. For example, Article 25 of the Universal Declaration of Human Rights States that "Everyone has the right to a standard of living adequate for the health and well being of himself and of his family, including food, clothing, housing .......". Water is explicitly mentioned only in the convention of the Rights of the child. Article 24 states that a child has the right to enjoy the highest attainable standard of health through inter alia "the provision of nutritious food and clean drinking water."
Moreover, the notion of human right to water implies a passive approach to water resources management and does not place any corresponding duties on those who are to be conferred with this right. In other words, the notion, "is unclear with regard to overall water resources management." Thus, perhaps rather than placing the right to manage or participate in the management of the water resources.

Indeed, the second of the Dublin Principles emphasizes that water development and management should be based on a participatory approach involving users, planners and policy-makers. This participatory approach confers "empowerment" on the users and results in both rights and corresponding duties.