**DEVELOPMENT OF WATER and Irrigation Laws**

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The origin of water Laws is found in common law principles. Water Law is divided into two major components:

1. Surface Water Law

2. Ground Water Law

**1. Surface Water Law :** In ancient times people lived in area where there was water. This is evident from the fact that all major ancient civilizations sprang up on the banks of rivers. The regime of surface water Law is developed through a doctrine i.e. doctrine of *riparian rights*.

The riparian rights doctrine originated in Roman Law and later found its way into the English Common Law. It has been defined thus 'owners of land adjacent to a natural stream have equal rights to use the water passing through or by their land/property'. A riparian owner is thus a person who owns land abutting a natural stream, and who as such has certain rights to take water from the stream.

**2. Ground Water Law :** The position of Ground Water Law in Indian perspective, it is totally under developed. Origin of Ground Water Law in India is found under **Indian Easement Act, 1982**. According to provisions of Indian Easement Act, the ownership of water beneath a land is with the owner of the land. This provision was just and equitable prior to Industrialization and Green Revolution.

Fresh Water is a scarce resource. It is a finite resource with no substitute, and upon which there is total dependence. The challenges facing the resources are immense. The population of world has increased more than four times from 1.6 billion to 7 billions approximately during the last century, competing over the same amount of water. Industrialization, urbanization and environmental degradation are additional challenges. Nearly 450 million people in 29 countries face water shortage problems, and the figure is to jump to 4 billion by the year 2050, with conditions particularly severe in Africa, the Middle East and South Asia. About 1.4 billion people live without clean drinking water, 2.3 billion lack adequate sanitation and 7 million die annually of diseases linked to water. Half the world's rivers and lakes are seriously polluted, 50 percent of the world's wetlands have disappeared in last century and some important groundwater aquifers are being over-mined, with water tables already very deep and dropping by metres every year.

Technological progress have narrowed the gap between availability and use of water. The demand for water in the world may exceed its supply by 40 percent with in the next 20 years due to global warming and population growth. As looming water shortages threaten agriculture, industry and the communities. The importance of water as a basic survival need, as an input for agriculture and hence food sovereignty and as an input for economic development related, activities have given it a central role in governance from time immemorial. The essential nature of water for human survival led most societies to give it a special status in law. During British rule, significant attention was put on the development of irrigation laws. The first major development in water resources regulation came through the Bengal Regulation VI of 1819, at that time British Rulers had acquired revenue rights in Bengal presidency. Britishers planned to raise revenue, and agriculture was main source of revenue generation. Agriculture was totally dependent on Monsoon and they constructed man-made water structures for the purpose of Irrigation and to raise cultivated area. To resolve the problems during construction of these structures and for equitable sharing of water through these structures they drafted Irrigation and Embankment Laws. First Law drafted was Embankment Act 1829 and was amended in 1866, 1873 and 1882. The other major law was Northern India Canal and Drainage Act, 1873. A Prime Law for Rivers Conservation was drafted as the Madras Rivers Conservancy Act 1884. For the purpose of Drinking water supply the law drafted was 'Jharia Water Supply Act, 1914'. These laws were amended till the introduction of Government of India Act, 1935. This has had lasting impacts because some of the basic principles deemed to govern water overall are only found in irrigation acts from the colonial period. Water resources conservation law is underdeveloped to-date in our country. Water law in our country has been heavily influenced by early development of water legislation that focused on the economic potential of water and the types of rights that landowners could claim over water found underneath or adjoining their land. A broader framework need to be developed for water resources conservation. The premise must be that water is first of all essential for sustenance of life, essential to protect ecosystems and extremely important as a resource for a variety of activities ranging from food production to power generation. This proves water law a prime role in poverty eradication and the realization of a socially equitable and environmentally sustainable process of development. What we have in relation to water resources in our country is a pitchwork of laws of diverse origins, developed over a long span of time. There are elements drawn from ancient local customs and traditions, and others drawn from British common law through the colonial rule and its courts. Some laws reflect the imperfect knowledge of earlier times, for example, a distinction was made by British Courts between flowing surface water and ground water because very little was then known about ground water. Laws relating to irrigation, though enacted by the colonial rulers, could be described as Indian origin because they were specific to the Indian context. International conventions such as the *Helsinki Rules* have also been drawn upon by our tribunals in dealing with inter-state disputes over sharing of waters of the rivers.

According to scheme of Government of India Act, 1935 water was placed as a subject matter of Union List and State List as well, most elements of water was placed in State List. According to the constitutional scheme, water is designated as a 'State' subject, subject to central intervention to regulate the development of inter-state rivers and for settlement of inter-state water disputes. Water is not in the concurrent list, but it is both in Union List and in the State List. Irrigation, hydropower, flood control and multi-purpose projects have been subjected to the requirement of Central Clearance for inclusion in the national plan. This has been questioned by some state governments but the clearance requirement remains, and there is of course the requirement of environment clearance and clearance under the Forest Conservation Act. It could be plausibly argued, subject to correction by legal experts that even without any constitutional amendment the Centre can do a great deal in relation to water. There are some weaknesses of the Constitutional provisions relating to water management. Firstly, even the most general entry regarding water, namely, Entry 17 in the State List, quickly slips into specific uses of water such as water supply, irrigation etc. Secondly, looms large and the reference to canals, embankments, drainage, water storage and so on, shows the heavy influence of the engineering point of view. Thirdly while the word 'Water' may doubtless be taken to include groundwater, there is no specific reference to ground water, the constitutional framers seem to have been thinking mainly of river waters. Fourthly there is no explicit provision for a nation-wide sharing of water resources. Ground Water governance has its place under Indian Easement Act 1882 till date. However, Indian Apex Court rejects this legal dilemma and shift water under the domain of 'Public Trust' through the verdict of *M.C. Mehta V Kamal Nath*.

The water situation in India seems to be going from bad to worse. Not only is there a growing scarcity of water in the country, the agriculturally important states like Punjab, Haryana, Tamil Nadu, Uttar Pradesh, Madhya Pradesh and Rajasthan are facing a steady fall in their ground water levels. While per capita availability of utilizable water in India in 1951 was 3,450 cubic metres in 1999 it came down to 1,250 cubic metres. According to sources, is expected to decreased to 662 Cubic metres per capita in 2050. Of the total rain water received in the country, only approximately one third is recharged into the aquifers while the two third is lost due to run-off and evapo-transpiration. High conveyance loss of water, lack of equity, adequacy and reliability of water supply, wastage of water by over-irrigation, excessive exploitation of ground water in fresh and marginal zones. Rapid depletion of the ground water level is a cause of great concern for India as its agriculture depends on underground water. One estimate has it that groundwater sources account for as much as 70 to 80 percent of the value of agricultural produce attributable to irrigation. Rain fed farming also has a distinct place in the country's agriculture, occupying 67 percent of the cultivated area. In fact even after realizing the complete irrigation potential of the country, 50 percent of the cultivated area will continue to depend on the rainfall.

The reservoir of underground water, estimated at 432 billion cubic metres, has been declining at a rapid rate of 20 cm annually in as many as 15 states. As a result, it is feared that major metropolitan centres may go dry as early as 2015 on account of over-exploitation and misuse of water resources. UN studies indicate that the rate at which the underground reservoirs are being emptied all over the world, including India, is at least 10 times faster than it can be naturally recharged.

The ecological consequences of drawing heavily on ground water too are grave. Deep aquifers are a vital link in the hydrological cycle because they release water slowly into rivers, lakes and wetlands in the dry seasons and soak up water to prevent flooding in the wet times. The problem of urban water scarcity is further expected to intensify in the near future. By 2050, more than 50 percent of the Indian population may shift to cities, making water scarcity a acute problem. The water conflicts between states as well as nations too are expected to intensify on this account. The states that figure high on the list of potential water scarcity are Punjab, Haryana, Bihar, Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Orissa.

The stress on water resources is the result of a multitude of factors such as rapidly rising population and changing lifestyles that have increased the need for freshwater and intense competition among agriculture, industry and the domestic sector that is pushing the ground water table deeper. It has been mentioned that availability of water varies very widely from one region to another. While eastern and north-eastern regions have, by and large, adequate availability of water both for domestic and agricultural uses, the states in western and southern regions suffer from acute scarcity of water, particularly during the summer months. Though India has 14 major rivers and receives about 4,000 Billion Cubic Metres of Water annually from precipitation, water shortage has become an incessant problem across various states, in the country. Traditionally, water management has been the Government's responsibility, private sector participation in water project now recognized as a growing imperative. The revised National Water Policy adoped in April 2002 has focused on the area needing attention in the water sector and has given a roadmap for further development of this sector to make it viable and self sustaining. State Governments have prepared State Water Policies. Presently National Water Policy 2012 has a provision to legislate a National Water Framework Law. It is a good effort to resolve water related issues and to manage water properly in near future. Under this provision a National Water Law Framework Bill-2013 has been drafted. However, it is not properly drafted and most of the issues and challenges has not been taken care of. There is an urgent need to draft a comprehensive water law to meet out the challenges of water related issues and to combat the challenges during the completion of Inter-linking of rivers and to resolve problems arising out after completion the inter-linking project

Water law is made up of a member of elements comprising a human right dimension as well as economic, environmental or agricultural aspects. Historically one of the central concerns of water law has been the development of principles concerning access to and control over water. Water has always played the central role in sustaining life, human lives and human economies, the development of formal water law has been relatively slow and often patchy. At the domestic level, colonial legislation first focused on the regulation of water for economic reasons, for instance through the development of legislation concerning irrigation and navigation. Existing Water law is made up of a number of different instruments that do not necessarily make up a comprehensive framework. It remains difficult to identify a coherent body of comprehensive law concerning water. 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 human right to water.

Colonial law in this sector remains relevent to date because acts like the Madhya Pradesh Irrigation Act, 1931 are still in force. Further in Madhya Pradesh again, the Regulation of Waters Act, 1949 reasserted that 'all rights in water of any natural source of supply shall vest in Government.' The much more recent Bihar Irrigation Act 1997 still provides that all rights in surface water vest in the government. Powers of Central Parliament in the matter of inter-state watercourses are further specified through Article 262, which rules that the parliament may by law provide for the constitution of a tribunal for the adjudication of any dispute or complaint with respect to the use, distribution or control of inter-state river waters, for this purpose, a specific act, the Inter-State Water Dispute Act was adopted in 1956. 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. Parliament also enacted the River Board Act 1956, which provides a framework for the setting up of river boards by the Central Government to advise state governments concerning the regulation or development of an inter-state river or river valley. River boards can advise state governments on a number of issues including conservation, control and optimum utilization 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. However, River Board Act never seems to fulfill its purpose and proved a draft kept with statute book only. The task to amend and almost o redraft his Act, a committee under the chairmanship of Justice Doabia had been constituted in 2012. Under the scheme of new draft it has been decided to rename the Act. Inter-State Water Dispute Act, 1956 was also amended through recommendations of Sarkaria Commission. Besides statutory framework, a number of common law principles linking access to water and rights over land are still prevailing in India. These include separate rules for surface and ground water. With regard to surface water, existing rules still derive from the early common law 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.

As a result of the rapid expansion of ground water use, the Central Government has tried to persuade states to adopt ground water legislation. It is only over the past decade that some states have adopted ground water acts and policies. The legal framework concerning ground water is still in rapid evolution. Further, ground water is increasingly likely to be linked to surface water. In the context of the setting up of water regulatory authorities that are celled upon to manage surface and ground water over the past decades. The water situation has become increasingly dire in many parts of the country, this is due to increased use of water by all categories of users, to increased demand due to economic and rapid population growth. One of the specific problems that have arisen is the huge increase in ground water use, which has led to depletion in many areas.

The Government of India took the initiative of promoting legislation on ground water by providing draft model groundwater bill in 1970, 1972, 1992, 1996 and lastly in 2005. In pursuance of this initiative, several State Government have enacted groundwater legislation over the years. The Central Model Bill as well as the State Acts deal with 'groundwater users' without referring to ownership rights. The statutes proceeds to empower state agencies or the Ground Water Authorities to issue 'permits' or `licenses' to well 'users' on a presumption of the state's superior powers to control groundwater. Recently Uttar Pradesh has enacted Uttar Pradesh Water Management and Regulatory Commission Act, 2008. More recently Government of Uttar Pradesh drafted a bill to control, overexploitation of groundwater and for conservation of Water resources, the UP Ground Water Conservation, Protection and Development (Management, Control and Regulation) Bill, 2010. Almost on the same pattern the Government of Kerala has also drafted a Bill in 2011.

Our ancient religious texts and epics give a good insight into the water storage and conservation systems that prevailed in those days. Efforts have been made to collect water by building dams and reservoirs and digging wells; some countries have also tried to recycle and desalinate (remove salts) water. Water conservation has become the need of the day. The idea of ground water recharging by harvesting rainwater is gaining importance throughout the country. In the forests, water seeps gently into the ground as vegetation breaks the fall. This groundwater in turn feeds wells, lakes, and rivers. Protecting forests means protecting water `catchments'. In ancient India, people believed that forests were the `mothers' of rivers and worshipped the sources of these water bodies and roof-top rain water harvesting has been made mandatory under by-laws of development authorities in many cities for the purpose of clearance of building construction.

The Indus Valley Civilization, that flourished along the banks of the river Indus and other parts of western and northern India about 5,000 years ago, had one of the most sophisticated urban water supply and sewage systems in the world. The fact that the people were well acquainted with hygiene can be seen from the covered drains running beneath the streets of the ruins at both Mohenjodaro and Harappa. Another very good example is the well-planned city of Dholavira, on Khadir Bet, a low plateau in the Rann in Gujarat. One of the oldest water harvesting systems is found about 130 km from Pune along Neneghat in the Western Ghats. A large number of tanks were cut in the rocks to provide drinking water to tradesmen who used to travel along this ancient trade route. Each fort in the area had its own water harvesting and storage system in the form of rock-cut cisterns, ponds, tanks and wells that are still in use today. A large number of forts like Raigad had tanks that supplied water. In ancient times, houses in parts of western Rajasthan were built so that each had a rooftop water harvesting system. Rainwater from these rooftops was directed into underground tanks. This system can be seen even today in all the forts, palaces and houses of the region. Underground baked earthen pipes and tunnels to maintain the flow of water and to transport it to distant places, are still functional at Burhanpur in Madhya Pradesh, Golkunda and Bijapur in Karnataka, and Aurangabad in Maharashtra.

Conservation of water in the agricultural sector is essential since water is necessary for the growth of plants and crops. A depleting water table and a rise in salinity due to overuse of chemical fertilizers and pesticides has made matters serious. Various methods of water harvesting and recharging have been and are being applied all over the world to tackle the problem. In areas where rainfall is low and water is scarce, the local people have used simple techniques that are suited to their region and reduce the demand for water. In India's arid and semi-arid areas, the `tank' system is traditionally the backbone of agricultural production. Tanks are constructed either by budding or by excavating the ground and collecting rainwater. We have heritage to manage and conserve water properly in the form of these old techniques and indigenous knowledge. We have rich and developed water jurisprudence in Vedas, and Kautilya's Arthshastra provide strict and strong regulations to conserve water and to protect water-bodies. We could draft strong and comprehensive water law on the basis of these texts.

Water Jurisprudence has also been developed through court's interventions. One of the first case in this era was *Fischer V Secretary of State,* which discussed the right of the government over natural sources of waters against those of the riparian owners. The court rules that the government had the power to regulate, in the public interest, the collection, retention and distribution of water or rivers and streams flowing in natural channels or in manually constructed works, provided that they do not thereby inflict injury on any other riparian owners and diminish the supply that they have traditionaly utilised. In *Subhash Kumar V* *State of Bihar,* the Supreme Court recognized that the right to life includes the right of enjoyment of pollution free water and air for full enjoyment of life. The Supreme Court went further and directly derived the right to water from Article 21 and stated water is the basic need for the survival of the human beings and is part of right to life and human rights. The need for proper management of groundwater resources was recognized earlier by the Kerala High Court in a public interest litigation filed by local Islanders against the government scheme of pumping out ground water on the Island. Recognizing the importance of fresh water to the Islanders and holding that the right to fresh water was an aspect of the fundamental right to life. In *Narmada Bachao Andolan V Union of India*, the Supreme Court Commented "Water is the basic need for the survival of human beings and is part of right to life and human rights as enshrined in Article 21 of the Constitution of India and can be served only by providing source of water where there is none.''

Pricing of water can be used as an economic incentive through which people's behavior is influenced and can therefore be suitable as an instrument of water management and conservation of water resources. Water is a common and shared resource. It does not belong to any individual or a nation but both together. Therefore, there should be a joint effort on the part of the people, government as well as the judiciary of a nation is accountable to protect this common resource. The legislature should draw up rules which would take into account the precise nature of problem in its various dimensions. The concept of liability should be expanded keeping in mind the economic loss suffered by the injured party. Once a general duty not to harm other is developed there will no longer be any need to draw attention to it. The Supreme Court of India has invoked the Doctrine of "Public Trust" number of times, under the doctrine, natural resources such as air, water, forest, lakes, rivers and wild life are public properties. The doctrine enjoins upon the government to protect the resources for the enjoyment of the general public rather than to permit their use for private ownership or commercial purposes. Absolute liability for the harm caused by industry engaged in hazardous and inherently dangerous activities is a newly formulated doctrine free from the exceptions to the strict liability rule in England. The Indian Supreme Court has developed the doctrine of absolute liability as an indigenous Jurisprudence free from the influence of English law.

There are many National and International NGOs working in this burning area. Both the Andhra Pradesh Farmers' Management of Irrigation System rules, 2003 and the Chhatisgarh Sinchai Prabandhan Me Krishkon Ki Bhagidari Niyam, 2006 not only talk about the rights of the Water Users Association but also try and pin down the right of its members. The analysis of the rights of the Water Users Associations and the individual water user should make clear that while everyone agrees that India should evolve a formal water rights system, this is simply a starting point. The recognition of rights has to move beyond this commonly agreed, indeed axiomatic, proposition. We must identify the precise nature of the water rights. We are discussing and also how to evolve them in the specific social and legal context of our country. The fact that this has not happened in India and the argument that this needs to happen fast can be more strongly put in a historical context. Notably, medieval inscription of South India have revealed various functions relating to irrigation, which were exercised by the village assemblies. These included ownership of water resources, powers to arrange for construction, repair and maintenance of tanks, powers regarding land transactions relating to irrigation, levy and collection of cess, powers to engage and remunerate local functionaries, maintenance of records, dispute settlement and relations with the Central Governments. The State of Maharashtra has already taken a lead in this regard in the Maharashtra Management of Irrigation System by Farmers Act 2005 by building in such water entitlements in the Act.

Following are some suggestions to improve water availability and to achieve water security in our country :

1. An integrated watershed approach is one of the most effective strategies in ensuring sustainable source augmentation. It is not enough to build check dams to stop water, it is important to ensure that the rate of runoff is reduced (via plantations with special focus on locally adapted varieties) and percolation is enhanced. It has been observed that the best interventions are those that keep in mind local socio-cultural sensibilities. Traditional structures, small earthen dams etc. ensure local water recharge without disastrously hampering minimum flows and downstream regions.

2. Planning of interventions should be undertaken on a basin level. Upstream and downstream flows, uses and quality should be taken into account. There is a need for scientific mapping of water resources with information on current water flows, annual precipitation, and amount of water withdrawn for use, effluent discharge as well as the projected demand of the settlements along its course. Decisions should be taken after carefully considering the above factors and the downstream impacts. This information needs to be in the public domain. It is always beneficial to involve the people residing in the area to be a part of  such planning's, as ownership starts with the awareness and involvement. In the cases where community's involvement was from the planning stage the outcome of the processes was far reaching.

3. Precipitation is a major source of fresh water. However besides the little water that accumulates in natural water bodies and manages to percolate; most of it is lost as surface run-off. Thus the primary concern should be that of collection and using water as it falls where it falls. This also reducing pressure on ground water. Rain water is mismanaged resource. There is urgent need to promote individual and community harvesting structures. Besides construction, there is also an urgent need to influence behavior change of communities to accept rain water as pure.

4. The National Water Policy 2002 has mainly stressed on creation of new water resources, instead of paying heed to more effective and important matters such as `emphasis on recycling techniques'. Since water sources are quite limited, there is an urgent need to revive old water sources like dug wells, talaabs and *bawlis* with involvement of the communities.

5. The governance of Water should lie with the community. Water falls under the purview of the public trust domain, indicating that it belongs to the community, for use by all, under the trusteeship of government. Hence communities should have a stake in the planning and management of water resources at a local level. Communities should decide the allocation of water for various uses in a consultative manner. Special Programmes should be made in government plans and programmes for awareness generation, to keep the communities and village level institutions involved as the recycling issues need lot of behavioral change at the individual level.

6. Groundwater estimation should be done basin wise/water shed wise. This will enable efficient planning and implementation of groundwater development and Management. Micro level water balance studies should be undertaken in areas of water stress in hard rock terrain and user-friendly decision support system in water management should be worked out with the help of premier scientific organizations in collaboration with expert and skilled Civil Engineers in Water Resources Management. Groundwater overdraft exceeding annual recharge should be avoided. However, National Water Policy 2012 is completely silent on that most important and Engineering aspect to govern ground water resources. This is necessary for present and future perspective in Ground Water Governance.

7. The Central Ground Water Board/State Ground Water Organization/Universities may develop simple and Cost Effective Technology for water harvesting, recharging the aquifers and share these technologies with the farmers/public for adoption.

8. State Government may adopt necessary legislation to regulate use of groundwater and promote community irrigation structures instead of individual projects in water scarcity areas. Irrigation Laws must be amended / Redrafted according to present and future challenges and with modern technology and engineering aspects.

9. State Ground Water Organization should be strengthened to study and innovate cost effective, eco-friendly rain water harvesting techniques in coordination with Agriculture Universities, State Soil Conservation and Ground Water Organizations. The Programme of Water education and training must be continued with the publicity and awareness mechanism of Ministry of Water Resources, River Development and Ganga Rejuvenation.

10. Justice, Altmas Kabir and Justice Markandey Katju the, then justice of Apex Court had drawn most valuable conclusion by way of its, landmark verdict for water resources management and planning in the case, *State of Orissa V Government of India and Another*. These concluding remarks must be taken into consideration for drafting comprehensive water law for present and future perspective of water resources management and to develop effective dispute resolution mechanisms for Inter-State Water Sharing.

11. National Water Policy 2012 is a good piece of work to improve water scenario of the country. However, it seems unsuccessful to mitigate the apprehension of States over ground water sovereignty. We would have to overcome nexus between states and union over ground water right/sovereignty. We would prepare a consensus to work in harmony (between Union and State) to properly manage our ground water resources in National Interest and to overcome Development and Energy challenges. Presently there is paradigm shift in ground water governance from Easement Act to 'Public Trust'

12. Water Users Associations (WUAs) should be formed in all areas where canal or tube well irrigation systems are prevalent and water users must be involved in the governance of water resources.

13. The Ministry of Water Resources, River Development and Ganga Rejuvenation must set up a Integrated Water disputes tribunal, it would be a step forward to resolve inter-state water disputes timely and successfully. This type of permanent dispute resolution mechanism will therefore proved to be economic.

14. Forest cover is a key element to regulate hydrological cycle therefore forest cover must be protected and its covered area must be enhanced. To enhanced the forest cover, social forestry should be encouraged on the pattern as one of the army unit is doing its work in Uttarakhand State. More and more states and Non-Government agencies should be involved in forestry task.

15. There must be a National Water Act as well as a National Water Grid and a National Water Code.

16. Water resource conservation must have a place as a fundamental right of the constitution of India as South African constitution.

***Water is precious, every drop of water should be saved, Water Resources of the Country should be conserved.***