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## Water resource management and legal framework in India

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### Abstract

Water is perhaps the most fundamental natural resource for supporting life. Its development and management play a vital role in agriculture production. Integrated water management is imperative for neediness decrease, environmental food, and feasible financial turn of events. Considering the fast expansion in populace, urbanization, and industrialization, the demand for water for meeting different prerequisites is ceaselessly expanding. Accordingly, we are confronting various difficulties in the water area, which incorporate diminishing per capita water accessibility.

The paper attempts to take a gander at the legal structures in the water area in India, from the main laws drafted during British India to the modifications and augmentations post-independence. It discusses the arrangements in the law as well as the flaws and oversights and proposes an assessment of and fortifying of the current water laws and strategies to resolve the issues of environment, biology, value and improvement. There is a need to devise an option for socio-legal talk and practice where the concerned specialists utilize natural information on water resource management as genuinely as the scientific information and work through of individuals' battles for water resource management as the quest for human rights.

**Keywords:** water resource management, water law, water policy, water administration, sustainable development

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### Introduction

Natural resources (NR) are fundamental for the endurance of all types of life on planet earth. The impractical utilization of these resources in all structures (because of expansion in human populace and significant expansion in demand) has intensified the opposition for various purposes of NR prompting boundless consumption. The steadily expanding rift among accessibility and use has brought about a wide spread danger to the ecosystem. Water arrangements in the beyond twenty years have zeroed in more on the extension and physical accessibility of water regardless of supportability. This approach has lead to unfortunate management of institutional designs and water resources. Flow practices in water management may not be sufficient to address the water difficulties of the following century. There is a need to rethink these institutional designs. Water rights in India are firmly connected to property rights in land. At a total level, the ramifications of this is ground water over double-dealing. Customary water reaping has taken a secondary lounge. Provincial drinking water is an issue. Panchayats have denied neighborhood individuals of control of customarily overseen tanks and other normal pool resources (Cpr's). The paper endeavors to feature the vital elements in the current legal structure where holes and shortcomings in the current legal system have added to the current circumstances, which are conflicting with sustainability.

Water is an ancient resource not concerning sequence but rather its utilization and related standard rights. Standard Rights over water were delighted in by client networks for quite a long time and have developed throughout a significant stretch of time. These casual guidelines and regulations, which developed throughout an extensive stretch of time, mirrored the financial and political construction of society at some random place in time. They were also impacted by factors, for example, geophysical and climatic circumstances, financial and political circumstances and the level of innovative improvement at a given time. In India, the development of expansionism and arrangement of government assistance states have adjusted the power relations and have added to breaking down of these rights over natural resources, in particular water. Urbanization set off by post-independence industrialization, gave the state rights to broaden urban areas and towns, and stretch out water system systems to bring more regions under their command. The state has essentially removed the current rights of individuals. Water law in India has been firmly connected with land. The arrangements of the pioneer time frame say a lot about such nexus. Since 80% of the ranchers don't possess the land, a similar rate is denied the right to water. Further, greater advancement activities, for example, dam development and recovery and resettlement plans of the governments every once in a while have removed the standard/client rights to water, which the occupants of the particular region were getting a charge out of for ages. Subsequently, minimized individuals, whose rights have been appropriated, are exposed and can't look for justice in that frame of mind of law as there is no legal structure which discusses standard rights of water and community control of water

resources in India. The issue of improvement and the duty of the state to disseminate impartial water command over resources discuss how the standard rights were driven away by state institutions.

### **Water Requirements of India**

Customarily, India has been a farming-based economy. Consequently, improvement of the water system to increment farming creation for making the country self-maintained and for neediness mitigation has been of vital significance for the organizers. Likewise, the water system area was relegated to an extremely high need in the 5-year plans. Monster plans like the Bhakra Nangal, Hirakud, Damodar Valley, Nagarjunasagar, Rajasthan Canal project, and so forth were taken up to increment water system potential and boost agrarian creation. Long haul arranging needs to represent the development of the populace. As per National Water Policy, the development of food grains has expanded from around 50 million tons in the fifties to around 203 million tons in the year 1999-2000. Various people and organizations have assessed the possible populace of India continuously between 2025 and 2050. As per the appraisals embraced by NCIWRD, constantly 2025, the populace is supposed to be 1333 million in high growth situation and 1286 million in low development situation. For the year 2050, the high pace of populace development is probably going to bring about around 1581 million individuals while the low development projections place the number at almost 1346 million. Keeping in view the degree of utilization, misfortunes away and transport, seed necessity, and support stock, the projected food-grain and feed demand for 2025 would be 320 million tons (high demand situation) and 308 million tons (low-demand situation). The prerequisite of food grains for the year 2050 would be 494 million tons (popularity situation) and 420 million tons (low demand situation). The accessibility of water in India shows wide spatial and fleeting varieties. Also, there are exceptionally huge bury yearly varieties <sup>[1]</sup>.

### **Water Resources Management in India**

In view of the existing status of water resources and expanding demands of water for meeting the prerequisites of the quickly developing populace of the country as well as the issues that are probably going to emerge in future, a comprehensive, very much arranged long haul procedure is required for practical water resources management in India. The water resources management <sup>[2]</sup> practices might be founded on expanding the water supply and dealing with the water demand under the focus on water accessibility conditions. Information observation, handling, capacity, recovery and dispersal comprise the vital parts of the water resources management. This information might be used for management as well as for the preparation and plan of the water resources structures. What's more, presently days decision emotionally supportive networks are being produced for giving important contributions to the decision creators for water resources management. Also, information sharing, individuals' participation, mass correspondence and limit building are fundamental for viable water resources management. Water protection suggests working on the accessibility of water through expansion through the capacity of water in surface repositories, tanks, soil and groundwater zone. It accentuates the need to modify the existence accessibility of water to satisfy the needs. This concept also features the requirement for prudent utilization of water. There is an extraordinary potential for better preservation and management of water resources for its different purposes. On the demand side, an assortment of monetary, managerial and community-based measures can assist with moderating water. Rainwater collecting is the cycle to catch and store precipitation for its proficient usage and protection to control its spillover, vanishing and leakage one more way through which we can further develop freshwater accessibility is by reusing and reuse of water. It is expressed that in the city of Frankfurt, Germany, each drop of water is reused multiple times. Utilization of water of lesser quality, like recovered wastewater, for cooling and putting out fires is an attractive choice for enormous and complex enterprises to diminish their water costs, increment creation and lessen the utilization of energy. This monitors better quality waters for consumable purposes. Right now, reusing of water isn't practised for an enormous scope in India and there is a significant degree and motivation to utilize this other option. Another system, which needs to be thought of, is changes in water valuing structures.

Water resources management isn't just about moving water any longer. The water resources management practices might be founded on expanding the water supply and dealing with the water demand under the focus on water accessibility conditions. Information checking, handling, capacity, recovery and scattering comprise a vital role in water resources management <sup>[3]</sup>.

### **Flood Management**

As per the report of Central Water Commission (CWC) <sup>[4]</sup> under the Ministry of Water Resources, Government of India, the yearly typical region impacted by floods is 7.563Mha. This perception depends on the information for the period 1953-2000 distributed by the Indian Water Resources Society (IWRS) <sup>[5]</sup>. Thirty-three million individuals have been impacted during this period. The primary drivers of floods in India are waterway bank disintegration, silting of silver beds and lacking limit of stream banks to contain high streams. In some cases, landslides frequently impede the waterway from the stream and make its redirection in the course. Unfortunate natural seepage in flood inclined regions, weighty precipitation, cyclonic impacts, snow liquefies and the frigid explosion is also answerable for floods. As stated by Mahapatra and Singh <sup>[6]</sup>, Flood management programs were sent off at the country level by the Government of India after the overwhelming surge of 1954. The government of India has arranged numerous advisory groups since 1954 and got a few significant proposals from the boards with respect to flood management issues <sup>[7]</sup>. Different sorts of underlying and nonstructural measures have been

taken up to decrease the harm of flood fields. As underlying measures, the development of banks, levees, and spikes have been executed in a portion of our states. At present 16,800km banks and 32,500km seepage channels have been built. A sum of 1040 towns and 4760 towns are as of now safeguarded against flood. The nonstructural measures, for example, flood determining and cautioning are also being embraced and this system started in India in 1958 for the stream Yamuna in Delhi. The CWC has laid out a flood gauging system covering 62 significant waterways with in excess of 157 stations for giving flood gauges covering practically all the flood inclined states. Service of Water Resources comprised satellite-based remote detecting for flood risk regions in 1999 with a perspective on giving push towards execution of flood plain drafting measures <sup>[8]</sup>.

### **Draught Management**

The planning and management of the impacts of the draft seem to have the least need because of related randomness and vulnerability in characterizing the beginning and end of the draft. As of now, the draft inclined region surveyed in our nation is of the order of 51.12 Mha. The vast majority of the draft arranging and management plans are for the most part sent off in the wake of persevering draft conditions. Food feed agribusiness data sources and water banks might be laid out in weak zones rather than their capacity in surplus locales to keep away from transport bottlenecks during the draft. Hearty and precipitation autonomous off-ranch vocation open doors might be designated in the draft moderation system. For draft management, there is a requirement for the improvement of a decision support system(DSS)for the observing and management of draft on a bowl scale using the high-level capacities of remote detecting, geological data system and information-based systems <sup>[9]</sup>.

### **Groundwater Management**

According to National Water policy <sup>[10]</sup>, the impending environmental results of over abuse of groundwater should be really forestalled by the Central and State Governments. Over abuse of groundwater ought to be stayed away from, particularly close to the coasts to forestall the entrance of seawater to freshwater aquifers. In basically over took advantage of regions, borewell penetrating ought to be controlled till the water table achieves the ideal rise. Artificial re-energize measures should be desperately carried out there <sup>[11]</sup>. Among the different re-energize strategies, permeation tanks are the most affordable as far as beginning development costs. Many such tanks now exist however a greater part of these designs have silted up. In such cases, cleaning the bed of the tank will make them reusable. Shah <sup>[12]</sup> referenced that three huge scope reactions to groundwater exhaustion in India have arisen lately in an un-facilitated way, and each presents a component of what may be its sound technique of resources administration as: a) Energy-irrigation nexus- Inter-basin transfers to recharge unconfined alluvial aquifers, and c) Mass-based recharge movement.

### **Water Conservation**

Water protection suggests working on the accessibility of water through expansion through the capacity of water in surface supplies, tanks, soil, and groundwater zone. It accentuates the need to modify the existence accessibility of water to satisfy the needs. There is an extraordinary potential for better preservation and management of water resources for its different purposes. On the demand side, an assortment of monetary, regulatory and community-based measures can assist with preserving water. Also, it is important to control the development of the populace since a huge populace since enormous populace is putting monstrous weight on every single natural resource <sup>[13]</sup>. Since agriculture accounts for about 69% of all waters are withdrawn, the best potential for preservation lies in expanding water system efficiencies. Simply 10% improvement in water system productivity could preserve sufficient water to twofold the sum accessible for drinking.

### **Watershed Management**

Watershed is the unit of management in Integrated Water Resources Management (IWRM), where surface water and groundwater are inseparably connected and connected with land use and management. Watershed management expects to lay out a functional and proficient structure for coordinated use, regulation and improvement of land and water resources in a watershed for socio economic growth <sup>[14]</sup>. Neighbourhood people groups assume a central part in the preparation, execution and financing of activities inside participatory watershed improvement programs. In these drives, individuals utilize their conventional information, accessible resources, creative mind and imagination to foster watershed and execute the community-focused programs.

### **Rainwater Harvesting**

Rainwater collecting is the catch, redirection and capacity of rainwater for various different purposes including, yet not restricted to, landscape water systems. Rainwater gathering may also incorporate land-based systems with man-made landscape elements to direct and amass rainwater in either capacity bowls or established regions. An old innovation is acquiring prevalence in another manner. It is rainwater gathering. There is a need to re-energize aquifers and ration rainwater through water gathering structures. Indeed, even in ancient days, individuals knew about the strategies for the protection of rainwater and had practised them with progress. Different techniques for rainwater collecting were created to suit the geological and meteorological states of the locale in different parts of the nation <sup>[15]</sup>. Those are catching overflow from housetops, catching spillover from nearby catchments, catching occasional floodwaters from neighbourhood streams, saving water through

watershed management and so on. These procedures can fill the accompanying needs: give drinking water, give water system water, increment groundwater re-energize, decrease stormwater releases, metropolitan floods and over-burdening of sewage treatment plants, and Reduce seawater entrance in beachfront regions. Conventional rainwater reaping; which is as yet pervasive in provincial regions, is finished by utilizing surface capacity bodies like lakes, lakes, water system tanks, and so on.

### **Laws Existing in India to Prevent and Control Water Pollution**

Admittance to a healthy environment is viewed as a great worry of the state. Water is viewed as an extremely valuable resource moved by the country. Pollution of water is one of the extreme issues which are being looked at by the country in the flow situation. Different laws and approaches are being outlined to control the pollution of water in various ways. This talk about a portion of the Indian laws, which are being passed by the parliament of the country to screen the pollution of water in the country <sup>[16]</sup>.

#### **The Easement Act, 1882**

The need to consider water rights emerges when water resources are scant and the unbending disposition of clients requires a clear meaning of rights and qualifications. As per the Indian Easements Act (1882), the government has the sole right to direct the assortment, confinement and conveyance of the waters of waterways and streams streaming in natural channels and/or natural lakes or lakes or the water streaming, gathered, kept or dispersed in/or by any channel developed at the public cost for water system. Numerous experts have contended that the state might guarantee such a right for the major and medium waterways and the networks ought to reserve an option to use waters of little streams and minor streams. It is contended that this approach would prompt a more feasible utilization of water. Nonetheless, this could bring about questions because of infringements in one another's jurisdiction <sup>[17]</sup>.

The Indian Easements Act (1882) presents the proprietor of the land, with the right to gather and arrange, inside his own limits, all water under the land which doesn't pass in a characterized channel. This empowers the proprietor to full control of the water underneath his property and he is allowed to pull out and involve it as he feels fit. In any case, this has prompted a circumstance where a resourceful rancher can dig further cylinder wells and siphon enormous amounts of water and consequently deny close by land proprietors from their genuine rights. This has also brought about the mining of groundwater in many places.

#### **The Merchant Shipping Act, 1970**

After the independence to suit the prerequisites of a sea country like India, the Merchant Shipping Act, 1958 was passed by the Indian Parliament. This Act had made great the fundamental lack in the previous laws that they didn't accommodate an enrollment of what might be named as Indian Ships. Certain empowering arrangements were also consolidated in the Act to speed up the speed of advancement of transportation in the post-independence period. This Act is separated into 24 parts, each part managing specific parts of shipper delivering like enlistment of boats, cruising vessels and fishing vessels, National Shipping Board, monitoring of boats, commitment, release and bringing home of sailors and understudies, security of traveller and freight ships, control of Indian endlessly transports participated in the drifting exchange, impacts, counteraction and control of pollution of the ocean by oil from ships, impediment of shipowners' obligation, the common risk for oil pollution harm and so on <sup>[18]</sup>.

#### **Water Prevention and Control of Pollution Act, 1974**

The excellent object of this Act is to accommodate the avoidance of water pollution and take care of the upkeep of the water bodies and complete activities to advance the reclamation of water. With the goal of giving practical execution to this Act, the Central Pollution Control Board and the State Pollution Control Board have been laid out by the central and state specialists. The Central Pollution Control Board is to advance the cleanliness of streams and wells in different regions of the state. The Central Pollution Control Board has the power to exhort the central government on different issues, which are worried about the counteraction and control of pollution of water. Under the Act referenced over, the board has the power to support and lead research and examination with a perspective on advancing, the counteraction of defilement of water in a significant way <sup>[19]</sup>.

#### **The Water (Prevention and Control of Pollution) Cess Act, 1977**

The Water (Prevention and Control of Pollution) Cess Act, 1977 means to accommodate the duty and assortment of a cess on water drank by people carrying on specific businesses and by nearby specialists, so as to expand the resources of the Central Board and the State Boards for the counteraction and control of water pollution comprised under the Water (Prevention and Control of Pollution) Act, 1974.

#### **The Water (Prevention and Control of Pollution) Cess Rules, 1978**

For the reasons for estimating and recording the amount of water consumed, each purchaser will attach water meters, venturi meters or orifice meters with integrators and recorders in congruity with the standards set somewhere around the Indian Standards Institution and where no standards have been set somewhere around that foundation in similarity with so much standard as might be specified by the Board <sup>[20]</sup>.

**The Shore Nuisance Bombay and Kolaba Act**

The goal, with which this act was being brought into force, was determined to work with the expulsion of annoyances underneath the high watermark in the islands Bombay and Kolaba. This act focused on the safe route of the harbour in Bombay alongside the target of giving significance to the interest of the public. The Act empowered the land income gatherer of Bombay to issue a notification to eliminate the irritations or hindrances which exist beneath the high watermark. The strategy for giving such notification is by joining something very similar at an obvious spot or close to the hindrance or the harbour underneath the elevated tide. Under this Act, the state is empowered by an equipped position to eliminate the deterrent if the notification isn't being consented to in any less than one month of issuance of the notification. The execution can be administered or judged by the fact that a fine was being forced by this act for repudiating the pollution of water <sup>[21]</sup>.

**Orissa River Pollution Act, 1953**

Ill-advised removal of wastes has been one of the main sources of the pollution of water in India. Removal of wastes by the factories, ventures, and unloading of different harmful and noxious substances into the stream has been viewed as the profound main driver of the rising pollution of water in the country. This Act was figured out with the perspective of managing the removal of waste and effluents into the stream by the factories and empowering the support of the streams and water bodies. Determined to give this Act a practical execution, the state of Orissa had laid out a board to oversee the arrangements of the Act above. This Act gives the board the skill to address the occupants of a particular territory.

There is an earnest need to assume command of the rising degree of water pollution in the state of Orissa. As per a new study of water pollution, streams in Orissa like Mahanadi and Brahmani add up to be the most polluted waterways among the streams present in the state of Orissa. Around 50% of water is polluted in these streams which eventually makes the endurance of human life very difficult. Sewage, waste from factories and mines, and removal of weighty metals like lead and magnesium are the significant pollution causing specialists in Orissa.

**The Water Prevention and Control of Pollution Cess Act, 2003**

Industrial waste is one of the reasons for water pollution. Frequently the waste from the businesses is being discarded into the waterways which contaminate the stream to a significant degree. As per Section 2 of this Act, enterprises incorporate any activity or cycle or sewage or removal treatment or any modern gushing. Section 3 of this Act gives an exclusion to businesses from imposing cess on those enterprises, which polish off the water beneath as far as possible. Water gets polluted through the poisonous or non-biodegradable substances while the handling of these materials is being done in any industry, and such businesses are expected to pay cess under this law <sup>[22]</sup>.

**The Indian Penal Code and Pollution**

Under Indian criminal law, arrangements have been expressly set down to punish the individual who carries out an offence in contradiction to the Code. Section 277 of the Code accommodates the punishment to be given to the individual who commits an offence of fouling a public repository or a public spring deliberately will be responsible to be punished with the detainment of 90 days or with a fine of 500 Rupees or with both. The clarification of this present circumstance can be given through a representation. A, an occupant of Chandigarh, goes close to a repository and willfully puts a poisonous substance with an expectation to truly hurt the environment and in thought dirties the water. The repository was good for public use previously, however after the Act of A, the supply became unsuitable for the use of the public. Thusly, A was being expected to take responsibility for the offence under Section 277 of the IPC, and he was punished with the detainment of as long as 90 days and a fine of Rupees 500.

**The River Boards Act, 1956**

This act focused on the foundation of streams and the regulation of interstate water debates. The interest of the public is viewed as the great worry of this Act. The Act provides the power to the State Government to lay out Boards by giving an extraordinary notification. The object of this Act is to determine and manage the state water disputes <sup>[23]</sup>. Article 262 of the Constitution of India provides the power to the Union to layout and arbitrate the between state water debates winning in the country. Through this Act, grants and courts were being figured out to direct the interstate question winning in a particular country <sup>[24]</sup>.

**Damodar Valley Corporation Prevention of Water Pollution Act, 1948**

The Damodar Valley has been among the most thrived stream bowls which the nation has seen since days of yore. With the perspective of keeping a beware of the working of this valley, Damodar Valley Corporation was laid out. During the rainstorm season, 80% of the waste including waste from mines and enterprises is released into this waterway. With the approaching of this Cooperation, the farming area had undergone a change. The agricultural area decreased <sup>[25]</sup> from 59 percent in 1925 to just 10 percent in 1984. The mining industry had turned into a need of great importance during that period. The release of effluents from these mines was made into this stream. This outcome is the pollution of water <sup>[26]</sup>.

### Right to Clean Water: a Fundamental Right

The Indian Judiciary has started a positive advance, with the perspective on controlling pollution of water. Under the Indian Constitution, the legal executive has given a liberal translation to Article 21 of the Constitution of India and incorporated the right to clean water and environment under the ambit of Article 21, Article 48, Article 51(g) of the Constitution of India. Different legal decisions over the course of Fundamental Rights have cleared a way to the expansive concept of the Right to Life. The legal executive had propounded that the Right to Clean water goes under the ambit of the right to life and consequently the extent of Article 21, Article 48 and Article 51(g) can incorporate the right to clean water. On account of Narmada Bachao Andolan Vs. The Union of India, the Supreme Court, held that the right to clean water is a basic right under Article 21 of the Indian Constitution. The court had observed that the right to clean water is a part of the fundamental need of the human's right to life. The state duty will undoubtedly keep the water from getting polluted. In the main case of MC Mehta versus The Union of India, the court held that keeping the water of stream Ganga from being polluted is the need of great importance<sup>[27]</sup>.

Although many acts have been passed by the Parliament to control the pollution of water still, there is a pressing requirement for forestalling our streams, supplies, waterways, and lakes from being polluted. The government ought to keep a mind the working of supplies, streams, lakes and a body ought to be laid out to screen the working of the government.

### Conclusions

Reform of water law is urgent for India's monetary, natural and social turn of events. The current legal structure acquired generally from the provincial time frame is needing significant changes and democratization and the suitable options are the need of great importance. Procedures concerning socio-legal angles for the management of the water system in India anyway have so far remained terribly disregarded. An examination of the approach and legal system empowers the creator to reason that the system of water law as far as rights and duties, started in common society and it isn't something produced by the state. Second, the rise of the state in pre-frontier and post-pilgrim periods in India has been a time of appointment and misappropriation of water laws by different governments. Likewise, the transformation of systems of individuals' rights over water includes different confounded hypotheses of advancement by the state. Consequently, there is a requirement for future work in water law to devise an option socio-legal talk and practice where the concerned specialists utilize natural information on water resource management as truly as the scientific information and work thought of individuals' battles for water resource management as the quest for human rights.

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