

EVOLUTION OF WATER RIGHTS



To advocate a paradigm shift in present water use, ownership and management system by revisiting the water rights existing in medieval and contemporary Rajasthan

ABOUT JAL BHAGIRATHI FOUNDATION

Jal Bhagirathi Foundation (JBF) was instituted as a Trust on January 15, 2002. The organization has taken up the responsibility of creating an environment of Gram Swaraj – a dynamic, self-reliant and responsive village community. And positioning its work and learning at the national level for further replication and contributing towards the ongoing debate of pro-poor policies and creation of village republics.

The strategy of the Foundation involves ecological restoration, economic revival, strengthening democratic governance through village-level institutions, developing a cadre of local volunteers, and networking with government agencies, research organisations and other non-government organizations to facilitate policy reforms.

The organizational structure is a unique integration of a village-level volunteers' pool and a professional resource base, both complementing each other's effort. Presently, the village-level volunteers are being assisted by the professional and technical workforce to effectively adopt the rights-based approach by sensitizing and mobilizing communities and by planning, implementing and monitoring development interventions for strengthening democratic decentralization in the region.

JBF is proactively functioning in one administrative block each of Jodhpur, Barmer, Pali and Jalore districts.

The Foundation has a Board of Trustees comprising of four members: HH Maharaja Gaj Singh is the Chairman, Shri Rajendra Singh is the Vice Chairman, Shri Prithvi Raj Singh is the Managing Trustee and HH Maharani Hemlata Rajye is a Trustee.



contents

1
Water:
An Invaluable Resource **4-7**

2
Federal
Governance Regime **8-17**

3
Centralized
Governance Regime **18-33**

4
Looking Into
The Future **34-45**



Finite and mismanaged, making the study of rights to it all the more relevant

Water An Invaluable Resource

1



Water is a finite resource: this reality has manifested itself in a fresh water crisis across the globe. Competition over limited supplies of water for use in agriculture, industry, recreation and for animal and human consumption is becoming more intense. Inadequate water management and environmental degradation has led to reduced access to safe water supply for millions of people. The gap between demand and supply of water is increasing rapidly, and has to be viewed in the context of ever increasing requirements of a growing population, which making it imperative to review the methods used by the various stakeholders to exercise their rights over water.



The gap between demand and supply of water is increasing rapidly





RAJASTHAN: A HISTORY OF WATER CHALLENGES

Rajasthan, the largest state of India, is also one of the driest: a significant part of its land is a desert, and the state faces recurring droughts. It has only 1.15 percent of the total water resources of the entire country. This, coupled with the limited and uncertain rainfall in the region, results in a chronic water shortage in the state. The social and economic development of the region is also influenced by the shortage of water, as the various demands on the resource, for drinking, irrigation, industrial use etc., cannot be met. Water is revered in Rajasthan and forms a special part in the lives of the people, be it in religion, rituals, customs or traditions.

The communities living in Rajasthan have evolved many cultural beliefs and practices that have ensured judicious use of this scarce resource. Over the centuries these cultural beliefs and practices have enabled them to keep competing pressures on the natural resource base within manageable limits.

In a state where there is such an acute shortage of water, the importance of groundwater cannot be overemphasized. Groundwater is viewed as a reliable source of water, since it is not as affected by climatic variability as are other sources. The population of

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this drought-stricken state has relied almost completely on groundwater for meeting its needs of irrigation and drinking water.

Various issues related to water management, such as water use, technology and conservation etc., have been highlighted and discussed at different fora, but a study of the evolution of water rights has been a relatively neglected topic. In a dry state like Rajasthan, the study of water rights is particularly relevant because of the importance of issues such as those of ownership, control and usage.

EVOLUTION OF WATER MANAGEMENT SYSTEMS IN INDIA

Water management systems in India evolved over hundreds of years which included some significant historical interjections. The formation of the new Indian Nation in 1947 was one such event which had a far-reaching impact on the Indian social structure as a whole, consequently changing the pattern of ownership, responsibility and rights related to water.

Therefore, the year 1947 serves as a convenient demarcation for dividing this study into two periods:

- **Federal Governance Regime** or the pre-independence period
- **Centralized Governance Regime** or the post-independence period



Water management systems in India evolved over hundreds of years, which included some significant historical interjections





Managed by communities - usurped by the State

Federal Governance Regime

2



India, from time immemorial, had local self-governing bodies in village communities, which were like little republics having nearly everything they needed within themselves. The year 1857 was a momentous year in the making of modern India: its government was placed directly under the British Crown. Regulatory frameworks were thereafter introduced to control the resources of the State leading to a steady decline of the self-governing institutions. The Federal Governance Regime can therefore be studied under the following phases:

- Medieval period : pre-1857
- Colonial period : post-1857 till the Indian Independence

MEDIEVAL PERIOD

Traditionally water resources had been managed by local communities. Over a period of time, they had evolved techniques of water use and a system of water management that helped them achieve a degree of self-sufficiency and

sustainability in meeting their water needs.

This was even more relevant in the rural areas since hardly any drinking water sources were constructed through direct sponsorship or patronage of the State. On the other hand, in urban areas, the State played a more substantial role in the planning and execution of water management systems. Cities like Jaipur, Jodhpur and Udaipur had extensive water systems that were laid out in a very planned and systematic manner by the State.

Apart from the State, patronage for many water bodies came from the generosity of philanthropists and important personalities of the society.

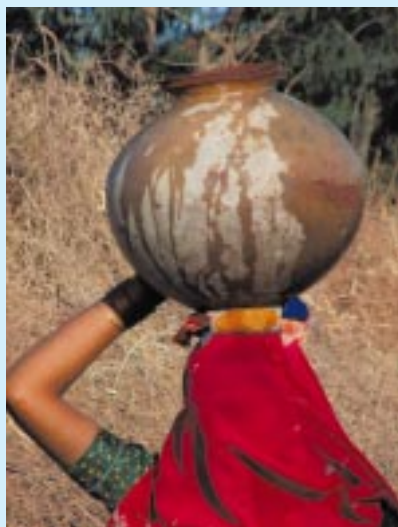


Traditionally water resources had been managed by local communities





Customary Water Rights



In ancient times, when communities traveled in groups, the principle of discovery applied to ownership of land and water. Whoever “discovered” or possessed a particular piece of land first or cleared it for agriculture and was domiciled on it, had a right to it and to any property (such as water) attached to it.

This principle of discovery automatically led people to exercise a set of rights known as “*riparian rights*”. These refer to the privilege of a landowner to use the water adjacent to or flowing through his property. Thus, these rights are related to the ownership of the land abutting upon a stream and were applicable wherever any stream or water body was located.

A riparian owner had the right to use water for certain specified purposes, such as for drinking and irrigation. He could not, however, deny riparian rights to the owners of downstream properties along the waterway - meaning the water could not be dammed and channeled away from its natural course. Thus, a riparian owner had a right to use the water of the stream flowing through his land and to have water come to him, undiminished in flow, quantity and quality and to go beyond his land without obstruction.

The discovery doctrine is a blatant application of the “finders keepers, losers weepers” principle. The person or group of persons who discovered the water resource could allow or disallow use of the resource at will. The resource was like a slave to the property and hence the concept of servitude applied. When the dominant owner allowed the resource to be used, the principle of *profit à prendre* could apply. A landowner could create a *profit à prendre* by permitting someone else to share a resource of the land. When the *profit à prendre* is shared between the landowner and the *profit à prendre* holder, it is called a *profit in common*.

Sharing of common resources also evolved into *easement rights* where the dominant owner could ease out his claim over the resource, allowing for an easement to share the resource.

However, in the desert regions of the Thar, water was not allowed to be under the dominion of any individual. Water rights were recognized as *natural rights*, since it was believed that all people, whatever their moral, legal, social or civil status, had a natural claim to water which could not be denied to them.

Traditionally in India, there have been both individual and group rights over water. Apart from individual claims to specific sources of water, groups like different ethnic communities, castes, clans and tribes also had rights over specific tanks, ponds, wells and riverbanks.

As mentioned earlier, there was minimal intervention by the State in the management of water, which was left entirely to the village communities. This gave cause for creation of “*negative rights*”, which meant that ownership of water that may have belonged to the State was assumed by the beneficiaries due to the absence of State intervention in its management.

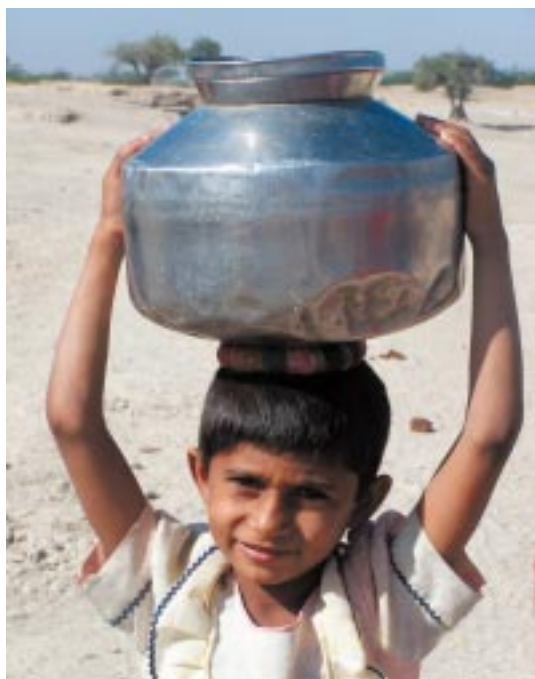
Water was not allowed to be under the dominion of any individual. Water rights were recognized as *natural rights*





TRADITIONAL ECOLOGICAL WISDOM OF RAJASTHAN

A remarkable feature of the traditional water resource management practices in Rajasthan was that almost all communities present in the village contributed in building and maintaining water structures in the area. Different communities specialized in performing different tasks: the *Satnami* community dug the wells, the *Ode* community removed the surface earth for the construction of *bunds* and *nadis*, the *Suthars* did the the woodwork, the *Lohar* community was responsible for the iron work and the *Paki community* guarded the structures. Specific days were assigned for community work



in villages. On the days of *Amavasya* (new moon) and *Poornima* (full moon), the villages contributed towards the maintenance of water structures. Before the onset of monsoon, villagers cleared the *agor* (catchment area) and desilted the ponds. Thus, maintenance of the water structures was the responsibility of the entire community.

The communities used social customs and religious sanctions for the effective management of water. Village ponds were named after local deities, temples were constructed near water bodies, sacred groves were planted around the village water structures, contributions towards providing water was considered the ultimate form of charity, water festivals were celebrated and social rituals were performed around the water bodies.

A remarkable feature of traditional water resource management practices in Rajasthan was that almost all communities present in the village contributed in building and maintaining water structures in the area





These water resources were treated as community property, and hence the question of individual ownership did not arise. Associating traditional religious beliefs with the management of these resources prevented their degradation and exploitation and also prevented a direct domination over them. Those who were closer to the water resource were in an advantageous position with respect to its use but could not claim ownership rights arising out of proximity to it. Communities also evolved indigenous methods of equitable distribution and harvesting of water:

- The *Anga* system was one such method. *Anga* means a unit. The daily requirement of water was determined in terms of units of households and units of animals- each human household constituted one unit, but animals were counted

per head, 10 heads of goat made one unit, each head of cattle constituted one unit and so on. Once the requirements were determined, each household contributed a day's labor for drawing out the due quantity of water from the source.

- The land irrigated by canals from large tanks was known as *Nahri*. A number of cultivators would join together to enclose as much land as they could with small earthen embankments, which were then surrounded with thorns to keep animals away. Water was allowed to collect within these embanked fields for a few months

and, after the soil was thoroughly saturated, *rabi* (winter) crops were grown without further irrigation.

- The *khadin* system is an indigenous practice based on the principle of collecting rainwater on farmland. This system was devised by the Paliwal Brahmins in the 15th century and was practiced in the arid zones of the State. The Paliwal Brahmins were granted land by the Darbar (State) to develop Khadins, and were required to pay one fourth of the grain harvested, however the ownership of the land remained with the state. Rainwater was allowed to collect on the farmland and this water saturated land was then used for agriculture production. The Khadin system is still practiced in many parts of Rajasthan.

Communities also evolved indigenous methods of equitable distribution of water



CUSTOMARY RIGHTS AND NATURAL RESOURCES OF RAJASTHAN

‘Customary rights’ to natural resources in rural areas are often associated with ‘common property’ – such as village common lands, village forests, community irrigation systems, community water bodies, etc. These rights are evolutionary and dynamic in nature.

Customary groundwater rights of the people were generally related to ownership and usage patterns of the wells and also followed the social hierarchies laid down by the communities. For instance, the upper castes in the desert regions had direct access to the source of the water at the well. Further away, there was a *kundia* (well) marked for the next caste group in the hierarchy and so on. A separate water body was used for providing drinking water to cattle and other animals.



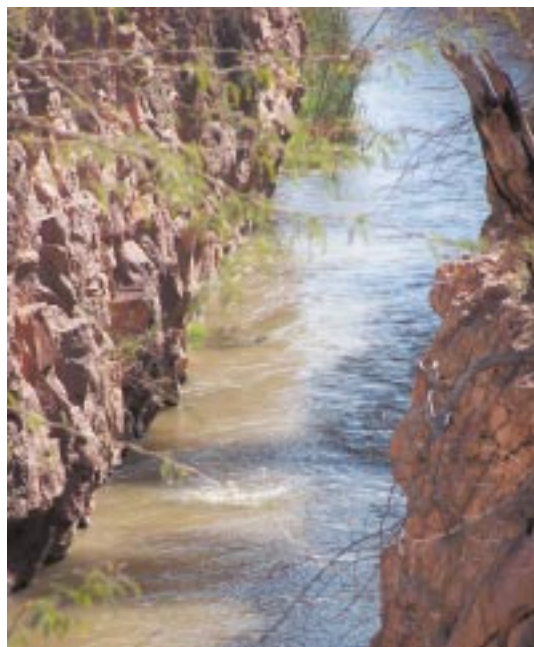
Groundwater exploitation and water markets were also prevalent, an example of this is the ‘*Nalbat*’ system. Prior to the commencement of the Rajasthan Tenancy Act, the ‘*Nalbat*’, a right relating to water marketing was prevalent. This right empowered the owner of the well to collect charges for water used from his well.

LEGAL RIGHTS AND NATURAL RESOURCES OF RAJASTHAN

Dharma, Royal Order and Custom were the three sources of law in the traditional Indian jurisprudential framework. A delicate balance was maintained between the three, with each having a distinct and specific position vis-à-vis the others.

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COLONIAL PERIOD

Till 1857, there is very little evidence in Rajasthan of any documented law or legislature pertaining to the ownership, control and management of water resources. The State recognized customary rights to water, and water resources were managed mainly according to customs and traditions. A need for specific laws pertaining to water was not felt since the people themselves managed the water resources, taking into consideration their needs and requirements.

After the First War of Independence in 1857, a new era of legislative thinking began. It marked the beginning of British intervention in the management of resources, including water.

The British had apportioned lesser importance to water management as compared to other services like railways since the latter were more

economically profitable and politically beneficial for them. Moreover, their vision of water management in India concentrated mainly on navigation and irrigation, since these were sources of revenue, and thus their focus in this regard were the water-rich areas of Punjab, Bengal and Uttar Pradesh. The physical features of Rajasthan offered very little scope for inland navigation. Moreover, because of the limited and uncertain rainfall pattern, the possibility of revenue generation from agriculture was also very limited. This left little interest for the British to actively plan for the development of water resources in the region, particularly in the rural areas.

Also, in the beginning of the British rule in India, all public works, except the railways, were under the management of the military board. Military engineers, known as the royal engineers, were responsible for preparing and executing water resource projects, mainly for agriculture. It was only later that separate departments like the 'Public Works Department' came into existence and were entrusted with the responsibility of water resource development and management.

REGULATION OF LEGAL RIGHTS IN THE COLONIAL PERIOD

In the past (pre-1857), court judgments generally followed the common law tradition of recognizing customary practices. After the enforcement of legislations such as the Land Acquisition Act of 1894, there was a shift in court decisions.

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The judgments gradually started focusing upon interpretations of the statutes for substantive matters, paying lesser attention to the prevailing customs.

Historically, it was with the coming of the Easement Act in 1882, the Limitation Act and the Land Acquisition Act in 1894, that water was dealt with legally, albeit in connection with the land. These Acts provided that directives would be based on customary law, *“unless it was opposed to justice, equality and good conscience or unless it had been abolished or altered by a legislative enactment.”*

The Easement Act of 1882 was the first legislative act that explicitly provided for water rights. According to this Act, the state recognised three types of rights :

- Customary rights
- Those bequeathed by express grant
- Those granted by statute, eg. irrigation laws



The Act also legitimized customary rights of the people and provided guidelines for recognizing such rights :

- By local customs
- By long use or prescription

Under the Easement Act, an individual acquired the right to use water to his best advantage.

However, the State had the sovereign right of ownership over water, which could not be challenged or breached by any individual. The

proprietary right on groundwater belonged to the owner of the land, but was subject to the power of the State to regulate the use of water by the individual.

Other laws, like the Limitation Acts (1859-71), the North India Canal and Drainage Act (1873) and the Specific Relief Act (1877), recognized rights implicitly. These

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The underlying presumption was that the state was that supreme body in which the interests of the individuals resided securely. This legal construct resulted in the continued exercise of State power and authority over people and resources in “public interest”. By employing this principle and subordinating individual and group interests to the

laws did so by protecting the natural rights they presumed to already be in existence. The laws subsequent to the Easement Act slowly shifted the emphasis of water rights from natural to proprietary or usufruct rights.

In the North India Canal and Drainage Act of 1873, a provision was made according to which if it became necessary for the government to invade the rights of an individual in public interest, proper compensation would be paid to the person whose rights were invaded. This provision thus granted the State the license to take over any water supply in possession of an individual “*in the same general manner that it had the power to take land for a public purpose and to redistribute water in the way most conducive to the good of the community at large.*”

interests of the society as a whole, the colonial masters were able to establish their domination upon the territory and were able to secure their sovereign power.

The first law related to groundwater is contained in Section 2 of the Indian Easements Act, 1882. According to this, rights in groundwater belonged to the dominant owner which was a part of the heritage and tenancy laws of the State that governed land ownership. Thus, a landowner had a complete right to the water that lay beneath his land and could extract as much of it as he wanted, without any consideration about the effect it had on the groundwater level of his neighbors. Two other laws related to groundwater are the Transfer of Property Act and the Land Acquisition Act. The former states that the

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right to groundwater can be transferred to someone else only if the dominant heritage (land) is transferred while the latter asserts that if someone is interested in getting rights over the groundwater (in this instance), he would have to be interested in the land. The consequence of such a legal framework was that only the

landowners could own groundwater. The result of such acts was that the construction and development of water bodies by the community steadily decreased, as the ownership and control was transferred to the State. The dynamics between the British government and the princely states determined the exact nature of

ownership, controls and laws on water, which were settled through agreements and treaties. The laws themselves varied from one princely state to the other.

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State ownership replaces traditional management

Centralized Governance Regime

3



After independence, the Indian government took over ownership of all water bodies. The intermixing of two different streams of governance—the traditional system of water management and the centralized system of governance—led to a period of destabilization of the existing systems. The State introduced by the new political system started taking over the ownership of water resources, making the local community increasingly dependent on itself, but was unable to create an adequate system of management which led to an acute water crisis. The new State also did not apply itself to making any major changes in laws from those made in the British Raj ; neither did it see the relevance of the old laws in the Indian context nor did it enact new ones.

This can be witnessed from the fact that the 'Public Works Department', set up in the middle of the nineteenth century, is still entrusted with the same responsibilities as it was more than 100 years back.



No new laws were framed and little effort was made to see the relevance of the old laws in the Indian context





EXISTING LEGAL AND FUNCTIONAL FRAMEWORK

The oldest acts affecting water and the traditional forms of rights, like the Easement Act of 1882, are applicable even today. In many cases, the post-independence acts were copied verbatim from the acts and legislations made long before independence. Except for some superficial changes, the Rajasthan Irrigation and Drainage Act, 1954 is almost completely copied from the North India Canal and Drainage Act, 1873, even

bureaucrats and engineers. This suggests that the State was reluctant to allow reviews of and changes in the acts and laws, as it would mean relinquishing the extensive controls they enjoyed. Numerous government departments stake a claim in the ownership or control of a single water management system but there is generally no mechanism to interrelate the tasks being done by these departments. Hence, responsibilities keep getting transferred from one department to the other. As a result, there is hardly any coordination between them and hence little is achieved.

The change in the socio-economic fabric is an important issue related to community management of water resources in present times. The inter-personal, inter-family and inter-community relations are not the same as before. Land ownership patterns have also been changing because of population pressures. These factors are slowly creating a mismatch between the traditional water management systems and the present socio-economic realities.

An example of this is the traditional system of *Khadins*, which are degenerating due to increasing land fragmentation attributed to a breakdown in the traditional ownership pattern of the *Khadin* land. With increasing population, there has been a gradual division of families and continuous fragmentation of land holdings, whereas the *Khadin* system requires large tracts of land and a cooperative effort for the distribution of water.

though the former was framed by the British for water-rich areas like Punjab and Uttar Pradesh. It is difficult to accept the relevance of an act similar to it in a dry state like Rajasthan, where the geography, rainfall patterns and local needs are very different. This act is still applicable, after almost 57 years of independence.

It is important to note here that the pre-independence laws and acts granted extensive powers to the State. Post-independence, these powers were transferred to the politicians,

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STATE OF CUSTOMARY RIGHTS IN MODERN INDIA

In the past, the existence of customary rights was closely related to the federal nature of the traditional Indian society, wherein decision-making powers rested at the local level. These decisions, made under strong local self-governance, were effective because this system was closest to the ground realities of the region. The individuals who were most affected also had the power to make the decisions and hence, the solutions were more effective. Also, such decisions were sustainable since those involved in the decision-making process were also involved in

and affected by its implementation.

Post-independence, the erosion of customary rights took place at an increasing pace. The government took over powers from the village level and redistributed them between the Center and the State. Rights and responsibilities go together, and although the government took over the rights to all water bodies except groundwater, it did not assume all the responsibilities associated with it. This has led to the breakdown of the federal system.

However, customary rights and traditions have been in effect for many years, and hence they did not disappear completely. They still exist in some form or the other, albeit to a much lesser extent. The customs of villages relating to water are recorded in the *dastoor ganwai*. The Rajasthan Land Revenue Act of 1956 adopted a system of recording customary rights of villages: according to it, during settlement operations, *dastoor ganwai* should contain statements pertaining to the customs relating to irrigation of the land, and those associated with the tanks, streams and other natural water structures.

In some ways, people still exercise riparian rights over the water resource near their lands. This can be witnessed in the Hanumangarh and Ganganagar districts of Rajasthan, where people have started practicing double/triple cropping because of the easy accessibility of water from the Indira Gandhi Canal passing through the region.

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REGULATION OF LEGAL RIGHTS IN MODERN INDIA

In modern law, the three identified sources of law are *statute*, *precedent* and *doctrine*, in order of precedence, with statute bearing overriding authority over the other two. Wherever precedent or doctrine contradict statute, however old the former, the latter will prevail.

The sovereign powers of the State over natural resources, including water resources, in terms of making laws and administration, are elaborately stated in the Seventh Schedule of the Constitution. The power is essentially located in and distributed between the state governments and the central government. Ponds, water supplies, irrigation, canals, drainage and embankments, water storage and hydroelectric power generations within each state are under the control and authority of the respective state governments. The Center has the power of

regulating activities in relation to inter-state rivers and river valleys through a parliamentary enactment. The government's right to control the supply and distribution of irrigation and other waters is not a proprietary right but a sovereign right. This right, however cannot be exercised arbitrarily. The government should not inflict injury on other riparian owners or

diminish the supply which the irrigators or other users have hitherto utilized. The government cannot abdicate its duty of seeing that there is an equitable distribution of water between users under each channel source.

Prior to the land reform laws, the customary rights of village communities over village common land were recognized and protected. After the enactment of the various acts, the situation with regard to rights over village common land has become complex, as different states have different laws and policies. At present, in villages, the revenue department, the forest department or the *gram panchayat* regulate all lands not privately owned. In addition, the Agriculture Department can indirectly regulate cultivable land. In India, under the *panchayati raj* system, certain use and regulation rights for common lands, such as *gauchar* and other prominent pastures, have been transferred to village *panchayats*.

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EMERGENCE OF STATE-REGULATED SURFACE WATER RIGHTS

Surface water has become State property. Hence, the government is entitled to use and control the water and all water bodies, like rivers, streams, lakes, ponds, etc for public purposes. The government also allocates water to users depending on availability and other uses.

However, in a changing scenario of water-use priorities, the issue is whether original assurances of allocation can be withdrawn in favor of new uses. This amounts to violation of an established riparian right and exemplifies the State's ultimate supremacy.

For example, if the government diverts water committed to irrigation to meet different development need, like industry, environment, etc, which have a better economic value, it becomes a disputable issue. Existing laws and

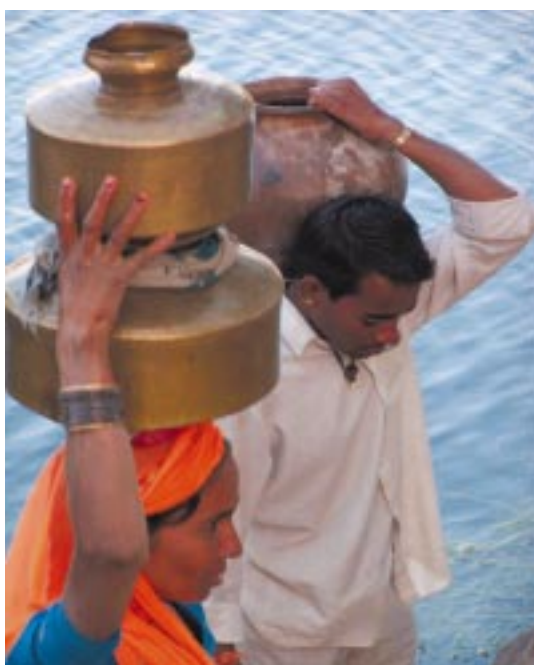
guidelines are not clear about how to deal with conflicts that arise between irrigation and other uses of water, like domestic and industrial uses.

DOMINANCE OF ARCHAIC GROUNDWATER RIGHTS

Post-independence, the rights over groundwater are being exercised in the same manner as before, that is, the groundwater belongs to the land owner as an easement connected to the land and he enjoys unrestricted right to exploit the groundwater underlying his land, subject to the sovereign powers of the State. Although the State can regulate the use of groundwater, in practice there is no effective control over groundwater extraction. This has resulted in undesirable excessive extraction in many areas.

Surface water sources have a relatively flashy nature; both drought and rainfall have an immediate effect on the availability of water. Groundwater has long been viewed as a reliable source of water since it is not as affected by

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DRAFT GROUNDWATER BILL, 1997

Although no groundwater regulation exists in the state as of now, a draft groundwater bill was introduced in 1997, and is still pending. It begins with rules related to the registration of existing wells in any area which is notified by a competent authority. The existing wells in both rural and urban areas

climatic variability as are other sources. The population of the state therefore relies on groundwater to a large extent, wrongly believing that it is not affected by meteorological drought. The buffering capacity of groundwater has been taken for granted, resulting in its over-exploitation. This may lead to a 'groundwater-drought', which is largely a man-made phenomenon. There is an urgent need for immediate steps to be taken to check this over-exploitation.

The State has guidelines for regulating tube wells on land that have been allotted to any allottee. These rules are under the Rajasthan Land Revenue Rules, 1969. The Collector may allot the land for making tube well and he is entitled to take back the tube well and the tube well land if the allottees fail to cultivate at least two-thirds of the land within two years, or if they have used it for a non- agricultural purpose. The allottees are also under an obligation to provide free drinking water to the human and cattle population of the area near the tube well.

will have to be registered with this authority. All the new wells will have to be compulsorily registered with the competent authority. The competent authority is entitled to cancel any registration, if it feels that the registration granted is not based on correct facts. Any person desiring to sink a well in an area that has been notified as an over exploited area shall have to apply to the competent authority for grant of permit. The factors that will be considered before the permit is granted are:

- The purpose for which the water is used
- Existence of other competitive users
- Availability of water
- Quality of groundwater
- Long-term groundwater behavior
- Any other relevant factors

The proposed bill entrusts the State with the power of declaring protective measures in scarcity areas, inquiry and survey, closure and requisitioning of wells and seizure of equipment. This bill does not address the issue of rights,

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control over groundwater resources and groundwater exploitation in a wholesome manner. Most importantly, it seems to be an adaptation of previous acts related to water and gives little attention to the specific needs of groundwater management.

ARTICLE 21, RIGHT TO LIFE

The potable water crisis in the state is so serious that the Rajasthan High Court has in January 2003, ruled that the right to receive potable water is a basic and fundamental right of the people, guaranteed by Article 21 of the constitution, and the Court has directed the State government to expedite completion of drinking water schemes. The article has been interpreted to mean right to environment and hence water. In doing so, the court has partly resurrected the natural claim or meaning of 'rights', which could earlier be found in the customary laws and the Easement Act.



ACTS GOVERNING WATER RESOURCES IN RAJASTHAN

The State has time and again made Acts that govern the ownership and management of water resources in some form or the other. The different Acts relevant for Rajasthan that were enacted after independence are as follows:

● The Rajasthan Minor Irrigation Act, 1953:

It was enacted to regulate the construction, improvement and maintenance of minor irrigation works.

● The Rajasthan *Panchayat* Act, 1953:

It provides the power to construct, repair or maintain any small tank or reservoir and regulate the supply of water for irrigation purposes. The Act also provides that the *panchayat* will

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have control over waterways other than channels. The panchayat can prohibit the use of water from any water body in the village if it is suspected to be dangerous to public health.

● The Rajasthan Requisition of Private Resource Act:

It was enacted when the Collector reported a scarcity of water. The State had to intervene because due to rapid urbanization, frequent droughts and exploitation of water, the water crisis was becoming endemic. According to the Act, the requisition officer may take position of private water resources on payment of compensation. The private resource thus requisitioned may be released whenever the scarcity is over



The Rajasthan Irrigation and Drainage Act, 1954 has failed to take note of the specificities of Rajasthan

● The Rajasthan Irrigation and Drainage Act, 1954:

The Act is basically a copy of North India Canal and Drainage Act, 1873, which was made to suit the requirements of states like Punjab, Uttar Pradesh and Delhi. The Act failed to take note of the specificities of Rajasthan. This Act recognizes that the right to water is merely usufructuary and that an individual, group of individuals, or legal entity can exercise it. The state does not exercise control over water as a proprietor but as sovereign, and in exercising its sovereign power it regulates the water flowing within its territories. The Act makes provisions for payment of compensation to those who will be affected adversely by state action. To check unauthorized irrigation and wastage of water, the Act specifically provides that persons responsible for waste shall be liable to pay charges, and if the defaulter is not found, it shall be the joint liability of persons using the watercourse or outlet to pay the penalty. This Act also specifies certain rules for the irrigation of crops: if permission to use water is given for one crop, that permission will continue only till the crop matures. However, the Act is silent about groundwater, in fact, it does not describe groundwater at all.

● The Rajasthan Irrigation and Drainage Act and Rules, 1955:

It contains provisions which regulate marketing of irrigation water. The government is authorized to determine water charges, which are recovered as land revenue. The irrigator





who is entitled to use water from the irrigation work is not allowed to sell, sublet or otherwise transfer his right to water use without the permission of the superintending irrigation officer.

● **The Water (Prevention and Control of Pollution) Act, 1974:**

This Act has been enacted by the Parliament for the purpose of providing for the prevention and control of water pollution and for maintaining or restoring the wholesomeness of water. This Act has established a Central Board at the National level and a State board at the union territory levels to carry out the said purpose. The act provides that, with certain exceptions, no persons shall knowingly cause or permit any poisonous or polluting matter to enter into any stream or well or impede its flow.



● **The Rajasthan Water Prevention and Control of Pollution Board:**

It was constituted by the governor on September 11, 1975 for the prevention and control of water pollution in Rajasthan. Prior to the composition of the board, pollution control in the State had been entrusted to the Public Health Engineering Department (PHED). The function of the board is to Act as a watchdog organization in controlling pollution.

● **The Water (Prevention and Control of Pollution) Cess Act 1977:**

The Water Cess Act, 1977 has been enacted to provide for the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities with a view to augment the resources of the Central and State Boards. The Cess is calculated on the basis of water consumed by such persons or local authorities and is assessed by the State board. If such persons or local authorities install any plant for the treatment of sewage or trade effluent, it is entitled to a rebate of 70 percent of cess payable by it.

The Rajasthan Water Prevention and Control of Pollution Board was constituted by the governor for the prevention and control of water pollution in Rajasthan





RAJASTHAN: INCREASING PROBLEMS DUE TO INTER-STATE WATER DISPUTES

The Indus Water Treaty, 1960, entitled India to use the water of the rivers Ravi, Beas and Sutlej. The Sutlej waters were distributed between Punjab and Rajasthan as per the Bhakra Nangal Agreement, 1959, with Rajasthan's entitlement at 15.22 percent. In the case of the Ravi and Beas waters, an agreement was reached on January 29, 1955, between the concerned states of Punjab and Rajasthan for the allocation of surplus water. In 1966, the reorganization of Punjab took place and the State of Haryana came into being. On December 31, 1981, the Chief Ministers of Punjab, Haryana and Rajasthan entered into a tripartite

agreement in the presence of the then Prime Minister. Under this agreement, an important provision was made that until such time as Rajasthan is in a position to utilize its full share, Punjab shall be free to use the water surplus to Rajasthan's requirement; but now Rajasthan is capable of utilizing its share of water.

Recently Punjab, instead of settling any disputes legally, has unilaterally announced its disregard for the existing water sharing agreements, citing the shortage of water as the reason. The legality and validity of the 1989 agreement was challenged by the counsel for Punjab on diverse grounds. It was stated that the said agreement was not pursuant to section 78 (i) of the Punjab Reorganization Act.

Recently Punjab, instead of settling any disputes legally, has unilaterally announced its disregard for the existing water sharing agreements, citing the shortage of water as the reason





Rajasthan will be the biggest sufferer in this battle, and the billions of rupees spent to quench the thirst of this water-scarce state will become useless. Do Haryana and Rajasthan, which are not a part of the Indus – Sutlej basin, have a right to claim the waters of the rivers of Punjab? What happens if other states in India follow Punjab's example? All these are serious issues which the government of India needs to address at the earliest.

WATER POLICIES: A PERSPECTIVE

National as well as state water policies are the backbone of water management systems. The role of these policies becomes even more crucial and significant in a water-scarce state like Rajasthan. There has always been a need for relevant and well thought out water policies that can address the existing problems but, till date, the policies lack a definite vision and even where there is some partial vision, the envisioned goal has not been achieved.



The National Water Policy, 2002, intends to bring about reform in the water sector by decentralization. For instance, in the irrigation sector, Water Users Associations (WUAs) will be formed and canals will be transferred to them. Their involvement will be particularly in water distribution and collection of water charges. Also, assistance of voluntary agencies would be undertaken to educate the farmers in the efficient use of water.

The then Prime Minister's speech at the fifth meeting of the National Water Resources Council explicitly states the importance of the role of community in water management:

"The policy should also recognize that the community is the rightful custodian of water. Exclusive control by the government machinery, and the resultant mindset among the people that water management is the exclusive responsibility of the government, cannot help us to make the

Both the Centre and the State governments should, therefore, actively seek the involvement of the community at all levels — from decision-making to monitoring the implementation of decisions





After independence, irrigation policy became synonymous for water policy. In a famine-stricken nation, providing adequate water and food to the people became the top priority of both the new Central and the State governments

paradigm shift that to participative, essentially local management of water resources. Both the Centre and the State governments should, therefore, actively seek the involvement of the community at all levels — from decision-making to monitoring the implementation of decisions. Wherever feasible, public-private partnerships should be encouraged in such a manner that we can attract private investment in the development and management of water resources. Nowhere is community control more needed than in the augmentation, management, and equitable use of groundwater resources. I would like the State Governments to actively encourage community action, wherever necessary with appropriate group incentives, to harvest rainwater in order to recharge groundwater resources.”

However, in the last section on legislation and regulations, a strong intention is shown of centralization and direct control of the State on all kinds of water resources and management systems. The last paragraph of this policy talks about complete State control:

“The entire body of water related laws and regulations will eventually be amalgamated into a State Water Law, which would, in addition to the above mentioned subjects, establish the State ownership of all the water resources within the State... and the

requirement for any public or private entity or individual to obtain from the Government a permit to abstract surface water or groundwater, or utilize it, to sell or distribute it, or to dispose off after use.”

The policy therefore does give the stakeholders primacy in planning and allocation, but views them only as sub-contractors for implementation of a policy already decided elsewhere.

HISTORY OF POLICIES RELATED TO WATER IN RAJASTHAN

After independence, irrigation policy became synonymous for water policy. In a famine-stricken nation, providing adequate water and food to the people became the top priority of both the new Central and the State governments. The irrigation sector was given special importance, in order to safeguard the agricultural output from climatic risk.



Thus, the water policies of the State became a mere reflection of the actions of the Irrigation Department. Till 1987, there was no State Water Policy in Rajasthan. The strategies employed by the State were aimed at maximizing water supply for drinking and agricultural purposes.

The State infrastructure in the water resources sector was negligible; there were very few major or large water resource development projects. There was only 1 major, 43 medium and 2272 minor projects in the State with an irrigation potential of only 4 lakh hectares.

Hence, the major thrust of policy makers in the post-independence era was towards construction of large water projects and facilities. The consolidation of the facilities already created, proper maintenance and management, and traditional water harvesting structures got neglected since the emphasis was on creating more and more major irrigation structures; the Water Resources Development Department's main job centered on the construction of new projects.



Besides extensive use of water for irrigation purposes, water-intensive economic activities were also encouraged. Several industries were set up in the state, and the water pollution caused by them permanently damaged many surface and groundwater systems. This shows a very blinkered approach on the part of the State, as it failed to keep in mind the sustenance of traditional water resources in an area that was already suffering from scarcity of water. The demand for water has only increased, as the demands from an increasing population and the industries increased. Moreover, 70 percent of the rural population relies on agriculture for its sustenance and are thus completely dependent on water for their livelihood. In such a scenario, the shortsightedness of the State, with respect to the protection and conservation of traditional water resources, has had grave consequences.

During the 1960s, groundwater was propagated as a low cost source of water and its use was encouraged. As a result, many individuals switched to groundwater to meet their water needs





During the 1960s, groundwater was propagated as a low cost source of water and its use was encouraged. As a result, many individuals switched to groundwater to meet their water needs. This encouragement of the use of groundwater has led to its over-exploitation. Many areas in Rajasthan have already reached an 'over-development' stage, and are utilizing 70–100 percent of their potential. If not checked, such over-exploitation could lead to 'groundwater-drought', and could cause a serious water crisis in the state.

In the 1980s, the gap between the potential created and that utilized widened. The

deteriorating condition of the facilities created got noticed and drew the attention of the planners. The focus of planning shifted to modernization and rehabilitation of projects, but again neglected the basic concept of management and involvement of users. Following the National Water Policy of 1987, Rajasthan's first State Water Policy was drafted. In reality, it was merely a copy of the National Water Policy, and the specific requirements of the state were not taken into consideration. Water governance in the state has lacked a long-term vision and consistent approach. Different departments have been created by the State for

Water governance in the state has lacked a long-term vision and a consistent approach





dealing with various aspects related to water. Of these, the Irrigation Department is in charge of surface water, the State Ground Water Board is responsible for groundwater and the PHED is in charge of providing drinking water to both the urban and rural populations. There is generally no mechanism to interrelate the tasks being done by the various departments. As a result, there is hardly any coordination between them and therefore little is achieved.

The need of the hour is a water policy that integrates the different methods of water management and clearly states the roles of the various stakeholders. Integrating the functions of the various departments and organizations would lead to faster results, as the onus would shift from different priorities to one common goal.

An integrated approach, which has a long-term vision and where the State and the community both play an extensive role, is thus the only viable solution. The importance of the community as an agent in water management needs to be recognized and encouraged. At the same time there is an urgent need for the State to take up its responsibility of governance seriously and introduce regulatory frameworks to prevent the disastrous water crises looming over the populace of the state.

Water resources in Rajasthan are reaching an alarming state of depletion and immediate steps need to be taken to rectify the damage already done. The implementation of a new water policy, which assigns top priority to the effective management of water, is therefore critical.

There is an urgent need for the State to take up its responsibility of governance seriously and introduce regulatory frameworks





A cooperative and multipronged approach is the need of the hour

Looking Into The Future

4



After looking into the past and present scenario of water rights in Rajasthan, it is time to move ahead. The road towards ensuring equitable and efficient use of water is full of challenges and needs elaborate analysis and a coherent strategy. In this context, a few issues and questions are raised for further discussions and debates.

WATER POLICIES

The National Water Policy (NWP) of 1987 was a good beginning but did not go far enough. A number of issues and challenges have emerged in the development and management of water resources. Therefore, the NWP 1987 was reviewed and updated in the NWP 2002. The state governments have been asked to formulate their State Water Policies in the light of the new National Water Policy. In spite of the expression of good intentions, there are many lacunae in the NWP 2002. The policy document needs to be

thoroughly discussed and, if necessary, revised. This, therefore, is an opportune time to build a people-centered and pro-poor water policy to ensure that the rights of the communities, particularly those of women, over water resources are integrated into the policy perspective. The revised water policies would need to show a much greater awareness of the current opinions, with regard to matters such as environmental and ecological issues, 'sustainable development', human rights, questions of displacement of people and their resettlement and rehabilitation, the impact of development activities on disadvantaged sections of society and on tribal communities, and so on. In addition, a comprehensive water code could be thought upon to integrate all laws relating to water to enable better cooperation and coordination among the various agencies. There is also a need for a comprehensive review of the entire body of laws and their application to water

This is an opportune time to build a people-centered and pro-poor water policy





litigation, with the objective of providing cheap and speedy justice.

The management of this scarce resource is not integrated and therefore various priorities tend to be at war with each other. The policy makers have to find a way in which all the policy and legal issues can be addressed judiciously and wisely. How this will be done and what the course of action will be is left open for discussion.

GOVERNANCE ISSUES IN THE WATER SECTOR

There are diverse opinions on whether water should be viewed as a need, a right, or a commodity. How water is perceived in a particular context – as a common pool resource or an economic good – has ramifications on its ‘governance’.

The issue of governance and a regulatory framework to secure the rights and access of water to all is a very important issue. For far too

long, water has been considered a free good, which has contributed to the present state of water scarcity and pollution. Thus, for proper and sustainable management of water, it is imperative that the issue of ‘ownership of water’ is resolved. Water is a precious commodity for life itself and it thus has a value. There are various mechanisms through which a value (monetary or otherwise) may be assigned to water:

- Through ownership – people value what they own and they are more than willing to conserve it and use it sustainably.
- Through regulation – the issue here is whether a private operator is being regulated or the public good is being protected.
- Proper pricing of water.

Finally, managing water is a complex enterprise because it depends on the synergetic functioning of local communities, local governments and organizations. The importance of local governance in ensuring that this challenge is met suggests that community participation and community involvement in water management is essential. In addition, for proper delivery of water to everyone, there must be an effective relationship between local governments and the communities they serve.

There are various interest groups in the management and use of water: community, government and the private sector. A long-term and sustainable solution to the water crisis is not possible until and unless the roles of different stakeholders in the management and control of water are clearly defined.



How water is perceived in a particular context – as a common pool resource or an economic good – has ramifications on its ‘governance’





OWNERSHIP AND CONTROL TO WHOM?

The most widely debated issue regarding water in the present times is whether its ownership and control should be transferred to the community. We have already seen the importance of a sense of ownership for the proper maintenance of the resources. But the first question that arises here is that what exactly do we mean by a community and thus, to whom should the ownership be transferred?

One way of addressing this issue is by decentralizing the existing system to the *panchayats* – but it must be emphasized here that the *panchayats* also have many hurdles in proper functioning, such as vote politics, corruption, personal gains, etc. This is not to deny the role of the *Panchayati Raj*, but to feel the need of decentralization minus the pre-existing evils. Secondly, community management is most effective when the community is homogeneous. In the case of a very heterogeneous community,

there is a risk of the rich and powerful dominating the poor and weak for their personal gains.

Moreover, in cases of conflict, when local communities fail to mutually decide on the allocation and use of water, a higher authority will have to step in. There is no better agency than the government to play this role. Thus, in this respect, it is difficult to totally deny the role of the State.

Lastly, where community interests conflict with national interests, the latter will have to prevail. Since water has many natural and ecological functions, neither individuals nor the State can have ownership rights and control over it. Adopting a participatory approach can help perpetuate effective and long-term water management practices for diverse uses. This approach would give primary responsibility and decisive control to the users and the beneficiary community in various aspects of planning, design, development and management of the water

In the case of a very heterogeneous community, there is a risk of the rich and powerful dominating the poor and weak for their personal gains





sophisticated urban water supply and sewage systems in the world. The ancient ways of harvesting rainwater were quite efficient. Water was everyone's responsibility, unlike in the present age when in towns it is taken for granted: water is simply expected to

resources and schemes. For this scheme to work, appropriate legal and institutional changes will have to be made at various levels to ensure an appropriate role for local population, including women, the Water Users' Associations and the local bodies, such as municipalities and *gram panchayats* in the operation, maintenance and management of water structures and infrastructures.

REDISCOVERY AND RESTORATION OF TRADITIONAL WATER MANAGEMENT SYSTEMS

India has a long tradition of water management, which was developed on the values of rainwater harvesting, conservation and effective utilization. These traditional methods of water management still survive in some parts of Rajasthan, Gujarat, Tamil Nadu, Andhra Pradesh, Karnataka, Kerala and the Northeast. The Indus Valley Civilization, that flourished along the banks of the Indus river about 5000 years ago, had one of the most

flow from the taps and, when it doesn't, the city corporations run by the government are blamed. Our entire heritage, culture and technology are in total disarray. We have taken for granted the very resource we depend on for our sustenance, and may soon have to pay the price for it.

Acknowledging the relevance of traditional systems of water harvesting and initiating a movement for restoring the role of the community in the management of common resources are affirmative steps towards identifying the appropriate solution to the deteriorating water situation. These steps in themselves, however, are not sufficient.

One of the questions that can be raised in this context is that when the community is uncertain of the status of its work due to the whimsical policies of the government, how can it and why would it spend its resources to manage water and also take responsibility for the same?

The success story of a community-based rainwater harvesting initiative is well known in

A clear definition of the roles and responsibilities of all stakeholders is imperative. The government must make it clear how much authority and power it is willing to release at the local level





the Alwar district of Rajasthan. Here Tarun Bharat Sangh (TBS) has helped local communities to rehabilitate centuries old tanks (known locally as *johad* or *paal*). This had a dramatic impact on groundwater recharge and resulted in the revival of dried-up springs and rivulets in a 6,500 square km area. When the community initiatives resulted in water appearing in rivers and streams that had been dry for years, the State claimed the right of control over these waters, for the purpose of allocation and licensing of fisheries, etc. Why would the community spend its resources to construct something which, if successful, would be claimed by the State? A clear definition of the roles and responsibilities of all stakeholders is imperative. The government must make it clear how much authority and power it is willing to release at the local level.

PUBLIC-PRIVATE-COMMUNITY PARTNERSHIP

The State has had the sole responsibility of managing water resources up till now, but it hasn't been able to harness these resources efficiently and equitably. The role of the government needs to shift from that of a service provider to that of a



facilitator. The government, in this capacity, would be able to provide financial and policy support to the communities, which would then be able to fulfill the desired levels of services on a sustainable and equitable basis. The government will also be required to act as a referee among different interest groups – local as well as external. The potential for increased private participation is considerable, particularly for the management of service delivery in the urban areas. On the rural side, local government-led and community-based models of delivery of rural public services can provide sustainable services. Thus, both the government's and the private sector's efforts to augment water supply need to be supplemented by a people's movement to conserve water, based on the principles of equity, efficiency and sustainability. It means a role for everyone, with respect to the provision of water and in the protection of water sources.

The role of the government needs to shift from that of a service provider to that of a facilitator





GROUNDWATER: PRESENT AND FUTURE ISSUES

Groundwater is the primary water source for drinking, domestic use and irrigation in Rajasthan. Over 80 percent of the drinking water needs in Rajasthan are met from groundwater. The share of groundwater in the total irrigated area has increased from 57.9 percent in 1960–61 to 66.9 percent in 1995–96. Groundwater is also the primary buffer against drought in the state. In the arid and hard rock regions of the state, groundwater extraction has exceeded sustainable limits. Falling water tables, deteriorating water quality and increasing water pollution are evident in such areas. The consequence has been that in western Rajasthan, there has been an increase in water salinity and in southern Rajasthan, there has been an increase in the fluoride contamination of groundwater. This water affects the health of the rural population and acts as a serious constraint in the regional economic growth of the state.

We must now lay more stress on groundwater 'management', in which the costs of groundwater overuse have to be minimized

OWNERSHIP RIGHTS: AN ASYMMETRY

There is an asymmetry in Indian law between flowing surface water and groundwater. In respect to the former, the law does not recognize ownership rights, there are only rights of use. However, in terms of the Indian Easements Act, the ownership of land carries with it the ownership of the groundwater under it and unrestricted right to exploit it, subject to regulation and control by the State. This leads to inequities: a rich farmer can install power-driven tube wells or bore wells in his land and their operation can make dug wells in the neighborhood run dry; he can sell water so extracted to his poorer neighbors even though the water may come from a common aquifer; and he can deplete the aquifer through excessive exploitation. Thus, the consequence of the existing legal framework is that only landowners can own groundwater in India. It leaves out the landless and tribals who may have group (community) rights over land, but not private ownership. The easement right makes regulation difficult and this problem needs to be dealt with.

FROM DEVELOPMENT TO MANAGEMENT OF GROUNDWATER

We must now lay more stress on groundwater 'management', in which the costs of groundwater overuse have to be minimized. This will entail both Demand Side Management and Supply Side Management.

There are various complementary ways to deal with Rajasthan's alarming groundwater situation. These include management of groundwater:





- As an economic good
- With legal and regulatory provisions
- As a community resource

URBAN WATER SUPPLY IN RAJASTHAN

Demand for water in Rajasthan can be grouped under three major sectors, namely, residential, irrigation and industrial. The demand for water in Rajasthan in the irrigation sector is 88–94 percent, 5 percent for the residential sector and 1–6 percent for the industrial sector.

In the case of urban water supply, all towns have been covered under water supply schemes, though the supply of water is inadequate in most of them. Rajasthan has an urban population of 13.20 million (2001). All the urban water supply schemes are operated and maintained by the PHED.

Slum dwellers and low-income groups rely more on hand pumps, where the supply levels are low, unreliable and of poor quality. They also bear high indirect costs of walking long distances and spending time in fetching water.

Declining water level is emerging as a critical issue for the urban areas as people bore deeper in the search of water. The urban groundwater scenario is reaching alarming proportions: cities like Jaipur, Jodhpur and Udaipur support thriving private groundwater businesses that draw water from tube wells in the neighboring hinterlands for supply to high income residential areas because groundwater levels in the city are falling at the rate of 2-4 meter per year.

According to the latest report prepared by the Central Ground Water Board and the State's Ground Water Department, there will be no water in the city of Jaipur after 2006. The report is based on the annual study conducted by the department to assess the level of groundwater after the monsoon. According to the report, the current rate of exploitation of groundwater in the city and its adjoining areas is almost twice the amount available for a year. As a result, the city is tapping into the reserves, implying a serious threat for the future. The net amount of groundwater available for Jaipur is around 684 million cubic meters, while the amount of water being withdrawn is 1,015 million cubic meters, thus putting a severe drain on the resources. According to the survey, out of 13 blocks of Jaipur, only two are safe for further exploitation of drinking water. Out of the remaining 11 blocks, 10 have been over-exploited. Among the worst affected areas are Amer, Bassi, Chaksu and Govindgarh. According to the State Groundwater Department, in the last 17 years, the city's

According to the latest report prepared by the Central Ground Water Board and the State's Ground Water Department, there will be no water in the city of Jaipur after 2006





groundwater has been depleted by 7 meters. According to the survey conducted by the PHED in November 2002, there are 14,590 private tube wells in the city. These are drawing nearly 400 lakh liters of water per day. In addition, there are 1,067 tube wells owned by the PHED, supplying 2,850 lakh liters daily. According to the survey, the highest number of tube wells (11,682) was found in the domestic category while the number of industrial tube wells (872) was the lowest. Tube wells in the non-domestic category (2,036) were mostly accounted for by hotels. It was observed that the maximum number of tube wells were located in areas where there was no water supply from the PHED. There are chances that the number of privately owned tube wells could be higher if areas like Amer and Sanganer are included, as they are out of the city's jurisdiction

circle. The most startling revelation was that the maximum number of tube wells in Jaipur are located in Jhotwara area, notified as the dark zone by the Central Ground Water Board.

ACCESS TO WATER: RURAL VS. URBAN

The rural areas are at a disadvantage, not only in terms of accessibility to safe drinking water but also in terms of assured supply. The stress in urban areas is on providing safe and adequate water. In the case of rural areas, the objective is in terms of maximizing the coverage of villages with drinking water facilities.

Only 48 percent of the rural population is covered by the public water distribution system, as against 81 percent of the urban population; 80 percent of the urban areas avail of tap facilities, compared to

The rural areas are at a disadvantage, not only in terms of accessibility to safe drinking water but also in terms of assured supply





only 24 percent of rural areas. In rural areas, 16 percent of the villages are identified as problem villages, i.e. those receiving less than 40 liters per capita per day of water.

Most urban water supply systems, including those in Rajasthan, are characterized by a low and biased tariff rate structure for domestic households. This is supported by cross subsidization from industrial and commercial sectors. Moreover, the recovery rates for water charges are often low and erratic.

Only 40 percent of the total expenditure on the operation and maintenance of urban water supply schemes is recovered as revenue realization from sale on water. Thus, there is a direct element of 60 percent subsidy and the subsidy is the highest for small (domestic) consumers. This indicates that the benefits of subsidized water are not distributed equally, since urban areas are given priority in providing basic amenities, like water, while rural areas are neglected.

In order to overcome the existing water crisis in Jaipur, previous State Governments had formulated a Rs. 690 crore (or 69 million) project to provide water from the Bisalpur dam. The project would start supplying water to the city by 2005. According to the plan, Jaipur would initially get 3,000 lakh liters of water daily. The amount is expected to increase to 5,400 lakh liters by 2012. The project claims that by 2018, Jaipur would not



face any water crisis. The Asian Development Bank (ADB) has given Rs. 480 crore for this project. Apart from this, Rs. 30 crore would be given by the Jaipur Nagar Nigam and the Jaipur Development Authority.

URBAN WATER MANAGEMENT AND POLICY IMPLICATIONS

Urban water management needs to focus upon the following aspects:

- **Supply side:** Efficient distribution by reducing leakage, proper maintenance, effective distribution of raw and potable water, recycling of wastewater, and introduction of new technologies.
- **Demand side:** Conservation of water and economy through water conserving or recycling technologies or demand regulation by using pricing of water and control by way of legislations and regulations.

A grave manifestation of the water problem are the political and social conflicts over water use and ownership





WATER FROM WHERE?

Due to changing environmental conditions, a change in the rainfall pattern can be observed, rainfall is becoming increasingly unpredictable. Moreover, the population pressure is also constantly increasing. These factors are making water an even scarcer commodity. So, the important question that arises now is, how are we going to manage water if there is no water to manage in the state? What if even after adequate management of the existing resources, the water is not enough for meeting the needs of the people?

A grave manifestation of the water problem are the political and social conflicts over water use and ownership, like the inter-sectoral and inter-regional river conflicts, which sometimes trigger the so-called water wars. As water scarcity increases, such disputes are also likely to increase in the region. It is here that issues like inter-state

water sharing, inter-basin transfer of water and interlinking of rivers comes into prominence. These issues are the most debated and controversial ones in the current water scenario.

WATER AND ENVIRONMENT

An adequate supply of fresh and clean drinking water is a basic need for all human beings on earth, yet millions of people are deprived of it. Freshwater resources are being threatened by over-exploitation, poor management and ecological degradation.

Groundwater in Rajasthan is being contaminated through various sources, such as excessive extraction resulting in salinity and increased fluoride content of water, pesticides and nitrates from run-off farms, domestic wastewater, municipal sewage and industrial effluents. Dumping of marble slurry has led to serious environmental pollution and has contaminated the groundwater reserves.

The health of the people in this region has been severely affected by the harmful effects of groundwater pollution





The health of the people in this region has been severely affected by the harmful effects of groundwater pollution. Excess fluoride levels of waters of southern Rajasthan has caused yellowing of the teeth, damage to the spinal cord and other crippling diseases.

THE NATIONAL ENVIRONMENT POLICY (DRAFT), 2004

On 21 August 2004, the Ministry of Environment and Forests (MoEF), released the Draft National Environment Policy (NEP) 2004 and invited comments on it. The Draft NEP is an important document because there is a felt need for a new environmental policy that addresses India's conservation movement and understands its unique biodiversity and ecology. The Draft articulates the government's view on the relationship between environment and development. Concerns have been expressed by enlightened citizens and organizations on the issues highlighted below:

- Polluter to pay principle: this provides for a scenario where affluent industrialists would find it easier to pay fines and continue unhindered in their polluting activities. The polluter to pay principle should not be one-sided and the policy should reward those industries that don't pollute the environment, thereby setting up an incentive-based system.
- The NEP also shifts environmental offenses from the present category of criminal offenses to the milder category of civil offenses. Making pollution a civil offense would further encourage pollution.

- The policy has not mentioned the desert ecosystem as a critical ecosystem. The desert ecosystem, with its low water reserves and endangered species, is fragile and needs to be protected.

A comprehensive approach to water pollution control needs to be undertaken, such that we can prevent pollution at source; encourage, develop and apply the best available practicable technical solutions; involve the public in decision-making and effectively enforce legislation to control water pollution.

CONCLUSION

Finally, in the present times, no single agency or approach seems capable of solving the complicated mesh of water-related issues on its own. A comparative and multi-pronged approach is the need of the hour. Victor Hugo, the eminent poet and novelist, has rightly said, "*There is one thing mightier than all the armies of the world. It is an idea whose time has come*".

Finally, in the present times, no single agency or approach seems capable of solving the complicated mesh of water-related issues on its own. A comparative and multi-pronged approach is the need of the hour



OUR MANDATE

To work towards creating a congenial atmosphere that promotes sustainable levels of human interaction with natural resources by reviving traditional water management practices

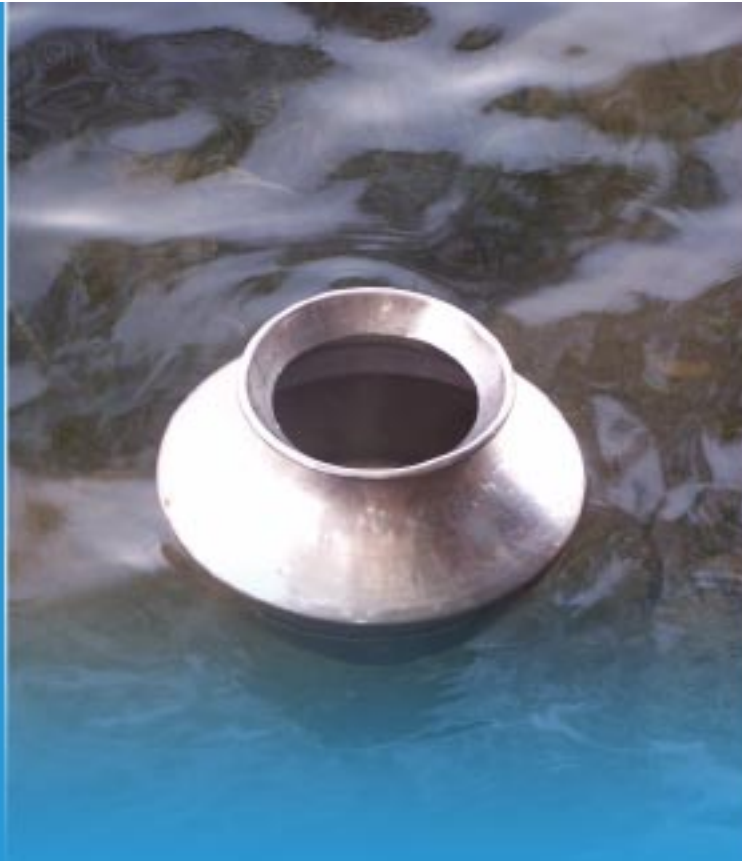
To facilitate women's access to and control over natural resources as primary stakeholders and enhance their inclusion in the development processes by ensuring access to economic resources and alternative livelihood options

To create an integrated model for micro-level development by addressing issues concerning literacy, health and hygiene

To build local capacities for mobilizing communities to address their own needs, thereby strengthening the decentralized social governance process. Alongside, creating an environment to foster and nurture local leadership for promoting sustainable development and social justice in the region

To effectively contribute towards policy interventions and recommendations at national, state and local levels for attaining an equitable, just and sustainable paradigm of natural resource management and rural development





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