Looking to The Future

Water conflicts

Community Management

Fresh Water Crisis

Water security

Groundwater Exploitation

Policy and Legislations

Water Rights

Water Pricing

Water privatisation

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UNDP- Jal Bhagirathi Foundation Italian Development Cooperation

A strategic partnership in 2004 between Jal Bhagirathi Foundation (JBF), the Italian Development Cooperation and UNDP initiates a cherished collaboration, to revitalize traditional water management practices and to provide long lasting economic and social benefits to people in the most densely populated arid zone in the world - the Marwar Region of Rajasthan.

The JBF-UNDP project, "Vulnerability Reduction through Community Management and Control of Water in the drought-prone areas of the Marwar Region", supported by the Italian Development Cooperation, with an outlay of over Euro 3 million, forms part of the Government of India's 'Natural Disaster Risk Management Programme'. The mandate: to create an enabling environment for water and natural resource management in the water distressed areas of the Thar Desert.

This multi dimensional Programme intends to make a significant impact on poverty alleviation, drought proofing, and women's empowerment, to ensure sustainable livelihoods and finally to impact policy approaches both at the State and National level.

The project involves construction of traditional water harvesting structures through community participation and social mobilization, construction of a *'Jal Ashram'* (Water Resource Centre) for training and capacity building for rural communities, an increased role of women in natural resources management through Self Help Groups and advocacy of rights' issues through strengthening of networks of community based organizations.

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FRESH WATER CRISIS ■ WATER CONFLICTS ■ COMMUNITY MANAGEMENT ■ WATER PRICING ■ WATER RIGHTS
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1

Groundwater Management in Rajasthan

[Issues, Perspectives and Policy]

An integrated approach to water resources management is critical to the survival of the state of Rajasthan

JAL BHAGIRATHI
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The Water Management Crisis

India has had a long-standing tradition of water management, which was built on rainwater harvesting and still survives in some parts of Rajasthan, Tamil Nadu, Andhra Pradesh, Karnataka and the North-East. Indians built a civilization on raindrops - the Indus Valley Civilization flourished along the banks of the Indus River about 5,000 years back. It had one of the most sophisticated urban water supply and sewage systems in the world and a range of techniques to harvest every possible form of water - from rainwater to groundwater, stream to river water and floodwater. The ancient ways of harvesting rain were quite efficient. Water was everyone's business, unlike the present age, when water is taken for granted in towns, and its lack is the fault of city corporations run by the government. This was because options were scarce and people learnt to rely on rainwater for survival. Today, unfortunately this entire heritage, cultural and technological, lies in tatters.

Presently, a major fresh water crisis is gradually unfolding in India. The crisis is due to the gap between the demand and supply of water increasing rapidly to unmanageable proportions. In 1951, the per capita availability of fresh water in India was 3450 m per year. In 1999, it stood at approximately 1250 m per capita per year and is predicted to reduce further to 760 m in the year 2050 (GoI 1999). There are several other manifestations of the prevalent water crisis in India. These include falling water tables, wastage in the use of water, particularly for irrigation, water logging and salinity. Competition over limited supplies of water for alternative uses in agriculture, industry, recreation, wildlife, human consumption and maintenance of environmental quality is becoming more intense. Migration to urban or semi-urban areas is symptomatic of the deepening crisis in the rural sector and the environmental degradation, which is fast becoming a characteristic of the times we live in.

Many fresh water eco-systems are degrading and this is not the result of natural factors but of human actions. During the early 1980s, India developed indigenous capabilities for water well drilling in hard rock areas, which provide drinking water for millions of people. But at the same time, the number of energized wells drilled for the irrigation of cash crops rapidly increased, encouraged by easy credit and subsidized diesel and electricity. India's rapidly rising population and changing lifestyles also increased the need for fresh water.

The groundwater-based agricultural economy in India has continued to be the single largest user of water. The increased use of and access to groundwater is often considered as instrumental behind the spread of the agricultural green revolution

Competition over limited supplies of water for alternative uses in agriculture, industry, recreation, wildlife, human consumption and maintenance of environmental quality is becoming intense

technology. Groundwater occupies an important position not only in Indian agriculture, but also from the point of view of the economy as a whole. As per estimates, at present groundwater irrigation accounts for as much as 70-80% of the value of irrigated production in India. Since agriculture contributes roughly 29% of India's Gross Domestic Product and production from irrigated lands heavily dominates that from these rain-fed, a large proportion of India's GDP could actually be seen to depend on groundwater. Over exploitation is a major concern in certain parts of the country. States like Rajasthan have seen a steep decline in water tables, often implying that water is being mined or extracted at unsustainable rates. Competitive deepening of wells for irrigation makes the distribution of access to groundwater increasingly skewed in favour of large, resource-rich farmers, leaving the small farmers at an increasing disadvantage in sharing the benefits of well irrigation.

The provision of safe drinking water has important equity and development implications. On the one hand, unavailability of potable water in the desired quantities has implications for the quality of life in terms of the time spent in collecting water; on the other hand, the consumption of contaminated water has adverse impacts on human health and productivity. Nearly one million children in India die of diarrhoeal diseases each year directly as a result of drinking unsafe water and living in unhygienic conditions. Some 45 million people are affected by water quality problems caused by pollution, and excess fluoride, arsenic and iron or by the ingress of salt water.

In rural areas, women still have to traverse long distances each day to provide the household with water. With increasing opportunities for women to engage in productive employment, the opportunity cost of their time increasingly carries monetary value. If opportunity costs are taken into account, it would be clear that in most rural areas, households are paying far more for water supply than the often nominal rates charged in urban areas.

Another manifestation of the water problem is the political and social conflict over water use and ownership, like the inter-sectoral and inter-regional river conflicts, triggering the so-called water wars. The allocation of water between states and upper and lower riparian holders is being negotiated through Water Disputers Tribunal for adjudication of inter-state water disputes. But the reality is that there is only a delay in the resolution of disputes and often implementation of the award is not enforced. In fact, in case of the Cauvery water dispute, the procedure has given way to direct negotiation between the state governments mediated by the Government. As water scarcity increases, such disputes are also likely to increase.

The growing scarcity and ineffective institutional arrangements for capture, allocation and distribution compounds the

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growing water crisis and shortages. The current water management falls far short of the above expectations. Governance in water sector is not able to achieve either preservation or conservation of water bodies and resources. Nor is there equity and social justice in the allocation of water to competing users and claimants.

Multiple Roles Of Groundwater

Groundwater offers unique advantages and opportunities for human development since it is accessible to a large number of users; it can provide cheap, convenient, individual supplies and it is generally less capital-intensive to develop. When it is not degraded by human intervention, the major advantage of groundwater is its high microbiological quality, arising from its situation below the ground. Compared to surface water, groundwater offers better insurance against drought because of the long lag between changes in recharge and responses in groundwater levels and well yields. Irrigation with groundwater is also generally more productive compared to surface water irrigation. Groundwater is produced at the point of use, needing little transport and thus offers individual farmer irrigation "on demand"; because its use entails significant incremental cost of lift, farmers tend to economize on its use and maximize application efficiency. Evidence in India suggests that crop yield/m^3 on groundwater-irrigated farms tends to be 1.2-3 times higher than on surface-water-irrigated farms.

In Rajasthan, groundwater is a primary water source for drinking and domestic use and a buffer against drought. But 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.

Water Policy

The importance of water resources, the federal structure of India and the nature of the allocation of responsibilities in respect of water in the Constitution contributed to the need for a national consensus on a policy framework, and this led to the formulation of the National Water Policy (NWP) 1987. The aim was to get all the states to subscribe in broad terms to a minimal set of propositions of a general nature, which could then form a consensual basis for more detailed policy-making and action plans. The NWP 1987 was a good beginning but had to be reviewed and updated in the NWP 2002 after a number of issues and challenges were encountered. State Governments have been asked to formulate their State Water Policies in the light of the new National Water Policy. In spite of certain promising initiatives, there are many lacunae in the NWP 2002. This is therefore an opportune time to build a perspective for a people-centred and pro-poor water policy to ensure the rights of the communities.

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Governance Issues In Water Sector

The United Nations Development Programme defines governance as ***"the exercise of economic, political and administrative authority to manage the countries' affairs at all levels. It comprises of the mechanisms, processes and institutions, through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences"*** (UNDP 1997).

There is an ongoing debate about water being a right, a need or a commodity. How water is viewed in a particular context - as an economic good, social good or common good - has ramifications on 'governance'.

The real issue is that of governance and a regulatory framework to secure the rights and access of all to clean water. Water scarcity and pollution are the outcome of the fact that water has for too long been considered a free good. Thus, in the water management framework, the issue of 'ownership' needs resolution. Under existing law, the state has full jurisdiction and control over water.

Water is a precious commodity for life itself and it thus has a value. There are various mechanisms to attribute a value to water:

- Through ownership - what people own, they are more willing to conserve and use better
- Through regulation - whether a private operator is being regulated or the public good is being protected
- Through proper pricing of water

All these instruments jointly must be at the core of a process which catalyses a mind shift in people about how water sources, services and systems must be owned, operated and managed for ultimate sustainability. Existing institutions have to be restructured and strengthened for better service delivery and resource sustainability.

Managing water cannot be seen as a sector in isolation. It is embedded in the functioning of local governments, communities and organizations. If sustainability of water as a service and a resource is to be achieved, then accountability of local governments as a responsible body has to be ensured. In an era of multi-tiered governments, water must be seen in the context of the finances, institutions and processes that link the different tiers of government together. The importance of local governments in ensuring that the water challenge is met, suggests that community participation in water management is essential. Service delivery is a function of an effective relationship between local governments and the communities they represent. Hence the focus needs to be shifted from water resources development to water resources management.

How water is viewed in a particular context - as an economic good, social good or common good - has ramifications on governance

Community Management Of Water Resources

There is a view that water is a common pool resource. Human beings alone cannot own it, as water has many other natural and ecological functions. Thus, neither individuals nor the state can have ownership rights over it. Management of the water resources for diverse uses can be done by adopting a participatory approach; by involving not only the various governmental agencies but also the users and the beneficiary community in various aspects of planning, design, development and management of the water resources schemes.

A success story of a community based rainwater harvesting initiative is found in the Alwar district of western Rajasthan, where Tarun Bharat Sangh (TBS), has helped local communities to rehabilitate centuries old tanks (known locally as *johads* or *paals*) with a dramatic impact on groundwater recharge and the revival of dried-up springs and rivulets in a 6,500 km^2 area.

Private Sector Participation In Water Management

There is a critical role for the private sector in water management, whether it is represented by community organizations, small water vendors, or by operators of water companies. Private sector participation may range from introducing innovative ideas, generating financial resources, introducing corporate management and improving service efficiency and accountability to users.

In this context it is essential to understand the different models of privatisation. In the first model, a company builds and operates the water treatment facility. For instance, the French multinational, Degremont has been awarded a contract by the Delhi Jal Board, a state-owned water authority, to treat raw water for supply to Delhi's residents. This water will come from the river Ganga, for which the pipelines will be laid over long distances and the cost of building the pipelines and transporting water will be borne by the state. In this scheme, the state sets tariffs, collects revenues and manages overall water services.

In the second model, the responsibility shifts to the private entity and the state plays a regulatory role. In the third model, 'ownership' shifts to private enterprise. This is the river-leasing model. For instance, the Chhattisgarh government had entered into a contract with a private company to invest in a barrage on the Sheonath River and provide water to the local industrial estate on a build-own-operate basis. The fourth model is more unregulated since the water resource is free for all. An example is the use of groundwater by bottled water or beverage companies. Under the existing legal framework, companies can simply bore a hole in the ground, extract water and make profits.

There are proponents who argue that water need to be treated as economic good thus giving primacy to market. This implies that water can be commodified. The greatest criticism of the concept of 'water as an economic good' is that this will foster a trend toward private control for profit over water.

There are diverging ideologies on the water management and rights issues. There are views that consider water as a purely public good, to be managed by the government, as an economic good to be managed by the private sector and as a common pool resource to be managed by the community

Public-Private-Community Partnership

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Economics says that scarcity has value, so should water, which has been regarded as essentially free and boundless for ages, now be bought and sold like any other good? Water supply is limited, so should it be treated as a commodity and priced to reflect its value so that it will not be wasted? Both the World Bank and the UN state that water is a human need and not a human right. The difference lies in the fact that there are several ways to supply a human need but a human right cannot be sold or traded. The polar opposite viewpoint states that water belongs to the Earth and its entire species and is a fundamental human right; therefore it should not be appropriated for profit. According to this stance, water should be declared a public trust and governments must enact legislations to protect fresh water resources in their territories. Should every person be guaranteed the fundamental right to clean and healthy supply since water resource is so essential for life? Who owns water? Is it the property of governments, companies, private individuals or no one at all? The solution to the growing water crisis lies on the twin foundations of equity and conservation.

The state has had the sole responsibility of managing water resources up till now, but it has not been able to harness water efficiently and equitably on its own. The role of governments needs to shift from that of a service provider to that of a facilitator of financial and policy support to the communities and their institutions for providing the desired levels of services on a sustainable and equitable basis. The government will also be required to act as a referee among interest groups - local as well as external. The

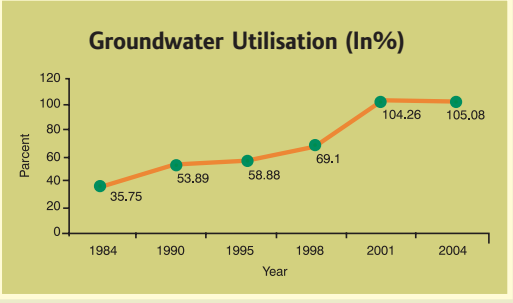
potential for increased private participation is considerable, particularly for the management of service delivery in urban areas. Suitably designed contracts and service delivery arrangements can ensure better focus for the urban poor too. On the rural side, local government-led and community-based models of delivery of rural public services can provide sustainable solutions.

No single action whether community based, legislation, traditional water harvesting systems or reliance on market forces will in itself alleviate the crisis in India. We should understand the close linkages between household water security, food security and environmental restoration. Water use and water regeneration has to be integrated effectively, as was done in many traditional technologies. Renovation of forest tanks in drought-prone regions will have a significant impact on wildlife and forest cover. Similarly, in some urban cities there is a need to regenerate groundwater aquifers because of the high degree of dependence on them for drinking water. The effective answer to the fresh water crisis is to integrate conservation and development activities at the local level - moving from water extraction to water management. A sustainable solution is possible only if the local community is encouraged to share part of the capital cost and also take on the responsibility of operation and maintenance of infrastructure. Making communities aware and involving them fully is critical for success.

The effective answer to the fresh water crisis is to integrate conservation and development activities at the local level - moving from water extraction to water management

Status Of Groundwater Resources In Rajasthan

Rajasthan is a water deficient state, as shown by statistics; Rajasthan has 1% of India's water-resources, 5% of the country's population and one tenth of India's geographical area. There are significant variations in rainfall, the highest being in the southern region and the lowest in the western part of the state. Nearly 90% of the total rainfall in Rajasthan is received during the southwest monsoon.



Rajasthan has been divided into 594 groundwater potential zones. The situation as it stands today is as follows:

Groundwater Development	Nomenclature	Number
Below 65%	White	322
65 to 85%	Grey	71
Above 85%	Dark	201

Out of the 201 'dark' zones, 173 zones are '***overexploited***', having a stage of development that is more than 100%.

An assessment of the groundwater resources in Rajasthan (1995) reveals the following:

Total groundwater resources	13,157.16 mcm
Utilization for domestic and industrial use	696.58 mcm
Utilizable groundwater for irrigation	11,028.22 mcm
Utilized for irrigation	6,493.71 mcm
Groundwater balance	4,534.51 mcm
Stage of groundwater development	58.88%

Source: Groundwater atlas of Rajasthan

Groundwater Balance

Water balance is the difference between availability of utilizable groundwater and net withdrawal during the year. Estimates show that an alarming situation is emerging. A massive decrease of about 49 % in the groundwater balance was recorded from 1984 to 1995 for the state as a whole.

Groundwater development is significantly high in the eastern part of Rajasthan as compared to the western region but the annual groundwater recharge is relatively less in western Rajasthan due to low and erratic rainfall, absence of surface water resources and high evapo-transpiration. The depth of water varies between 10-25

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metres in eastern Rajasthan while in the western part it ranges between 20-80 metres. In desert regions, the potential aquifer system lies adjacent to the saline aquifer and receives insignificant replenishment due to water deficit climatic conditions whereas in some other parts of the state the rate of withdrawal is so high that the effect of good rainfall is negated and as a result, the water level has been continuously showing a declining trend. 67% of the area of Rajasthan has experienced depletion in the groundwater level. The north-eastern and western parts of the state including Jaipur, Dausa, Jhunjhunu, Sikar, Churu, Nagaur, Jodhpur, Chittorgarh and Jalore have shown a steep decline in water levels between 3-10 metres.

Extent Of Irrigation

Groundwater contributes significantly to the irrigated area of the state. The share of groundwater in the total irrigated area has increased from 57.9% in 1960-61 to 66.9% in 1995-96. Over 80 per cent of the drinking water needs are also met from groundwater. There has been a phenomenal growth in the number of wells, tube wells, diesel and electric pump sets. The agricultural input subsidy policy of the government, particularly the subsidized electricity supply has led to a faster increase in the number of tube wells and electrified wells.

Shift In Water Intensive Crops And Cropping Intensity

Cropping pattern and intensity are indicators of groundwater development. During the decade1984-1995, the cropping intensity has largely come down. This is because farmers have shifted from *kharif* to *rabi* crops and have kept their land as fallow during the *kharif* season. In larger part of the state the soil is not very fertile due to which the farmers cannot grow crops during both seasons. This is the reason why they grow only those crops that help them earn substantial profits.

Groundwater Quality

Besides the alarming problem of groundwater depletion in the state, the other important problem is the quality of groundwater. High concentration of fluorides, nitrates and salinity are common

	All India	Rajasthan	Percentage
Salinity affected habitation	33210	16344	49.2%
Fluoride affected habitation	33211	18609	56.0%

(Figures depict numbers)

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occurrences. Groundwater in eastern Rajasthan is of medium to high salinity. In western Rajasthan, the groundwater is medium to highly saline with a high concentration of chlorides and sulphates of sodium. This water affects the health of the rural population and act as a serious constraint in the regional economic growth in the state.

Legal Status Of Groundwater

Groundwater Rights

Groundwater rights belong to the landowner, since it forms a part of the dominant heritage, and land ownership is governed by the tenancy laws of the state. The Transfer of Property Act stipulates that this right (to groundwater) can be given to anyone else only if the dominant heritage (land) is transferred. Conversely, the Land Acquisition Act asserts that if someone is interested in getting rights over the easement (over groundwater in this case) he would have to be interested in land. The groundwater belongs to the landowner as an easement connected to the land and he enjoys unrestricted right to exploit the groundwater underlying his piece of land, subject only to the sovereign powers of the state. There is, therefore, no control over groundwater extraction and this has resulted in excessive extraction in some areas. The consequence of such a legal framework is that only landowners can own groundwater in India and it leaves out all the landless and tribals who may have group (community) rights over land but not private ownership.

Groundwater Legislation

As per the constitution of India, groundwater is a state subject and only the state governments are empowered to enact the law to control and regulate groundwater exploitation.

The Ministry of Water Resources for the Government of India mooted the Groundwater (control and regulation) bill in 1970 and revalidated it in 1992 to regulate and control the development of groundwater. This was circulated in all the states with an advice to enact it with necessary modifications since water is a state issue. The bill enables the state governments to establish a groundwater authority.

Presently, there are no groundwater regulations in Rajasthan, but a draft groundwater bill was made in 1997 and is still pending. It lays down rules related to the registration of existing wells in any notified area that is an area which can be notified by the competent authority in such a manner as may be prescribed from time to time. Existing wells and all new wells in both the rural and urban areas will have to be registered with the competent authority. The competent authority is entitled to cancel any registration if he feels that the registration granted is not based on facts.

Any person desiring to sink a well in the notified area, that is an overexploited area, for any purpose shall have to apply to the competent authority for grant of permit and shall not proceed further without that. The factors that will be considered before the grant of permit are:

- The purpose for which water is used
- Existence of other competitive user
- Availability of water
- Quality of groundwater
- Long-term groundwater behaviour
- Any other relevant factor

The proposed bill entitles the state with powers such as declaring protective measures in scarcity areas, entering into an enquiry and survey, decisions regarding the closure of the well and seizure of equipment and requisitioning of wells. This bill does not deal with the issue of groundwater exploitation in a comprehensive manner since it does not address the issues of rights and control over groundwater resources.

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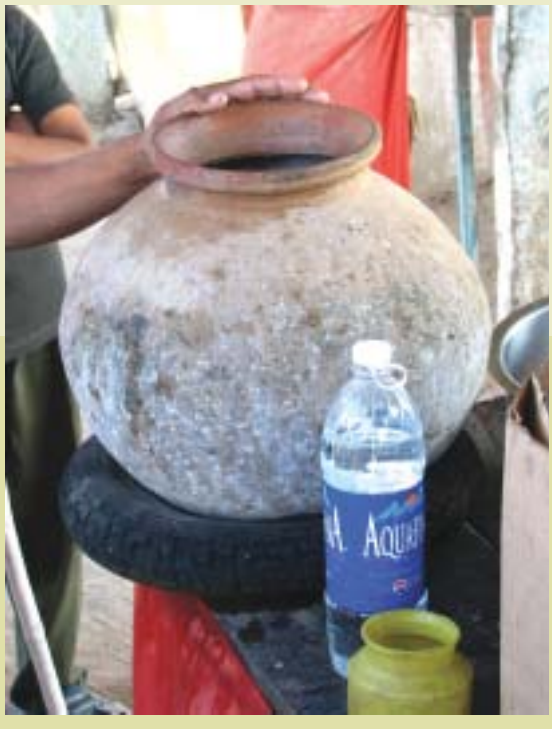
Rural-Urban Water Management

Status Of Urban Water

The population that has access to safe drinking water is not uniformly spread across the states as this percentage varies from 90% of the urban population to 75% of the rural population (GoI, 1999).

Population provided with water supply (%) in urban areas (1997)	
High: more than 85%	Andhra Pradesh, Arunachal Pradesh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Rajasthan, Uttar Pradesh, West Bengal
Medium: Between 75% and 85%	Bihar, Goa, Manipur, Punjab, Tamil Nadu, Tripura
Low: Less than 75%	Assam, Kerala, Mizoram, Orrisa, Sikkim

Source: GoI, 1999



Urban Water Pricing

With urban expansion, population and lifestyle changes, urban water demand often exceeds availability. Most urban water supply authorities prefer to respond to this demand deficit problem by augmenting the existing supply via tapping new and often costlier water resources. But there are obvious limits to this approach.

The policy of supply augmentation overlooks the role of pricing in regulating demand for water. Water pricing is a complex issue because water is a merit good. Water pricing policy is intended to serve many objectives such as equity, efficiency and financial sustainability. The need to fix an appropriate charge of price for urban water has been strongly advocated in recent years. Several reasons have been put forward in support of appropriate price policy:

- Urban water is under-priced in relation to the cost incurred on the provision of water resulting in serious concerns about the financial viability and sustainability of urban water utilities
- Under pricing has resulted in poor and unreliable water services.
- Water is provided at a subsidized rate so that the poor can afford it. In practice, however, it is the rich, not the poor, who always benefit disproportionately from subsidized water services
- High level of water loss in conveyance, distribution and use at the user end, low and biased tariff rate structure with cross subsidization between domestic households and industrial and commercial sectors and low water charge recovery

The National Water Policy 2002 proposed the need for physical and financial sustainability of existing facilities. There is, therefore, a need to ensure that the water charges for various uses should be fixed in such a way that they cover the operation and maintenance charges of providing the service initially and a part of the capital costs subsequently. These rates should be linked directly to the quality of the service provided. The subsidy on water rates to the disadvantaged and poorer sections of the society should be well targeted and transparent. Apart from

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laying the emphasis on the financial aspects the Policy also underlined the importance of universal coverage of population by water supply, privatization and participation of the community in the management of water supply systems.

Demand For Water In Rajasthan

Demand for water can be grouped under three major sectors, namely, residential, irrigation and industrial. The demand for water in Rajasthan can be categorized as: for irrigation use 88-94%; for residential use 5% and for industrial use it is 1%-6% of the total demand for water. There are wide variations in the sectoral shares across the districts. These relative shares may change in the future with the process of development. It is likely that the shares of industry and residential sectors may grow at a faster rate than the share of the agricultural sector.

According to the norms specified by WHO, the per capita municipal water requirements vary from 40 to 200 litres per capita per day (lpcd). In the 11 desert districts in Rajasthan, the per capita water requirements are fixed at 70 lpcd for all the villages due to high concentration of cattle population. This is 30 lpcd more as compared to the norms fixed for the rural areas in other districts. The effective demand for water in Rajasthan is 29,604.95 mcm. Of the total municipal water demand, rural areas account for 55.65%. Though only 23% of the state's population reside in urban areas, they consume about 44% of the total municipal water demand.

Urban Water Supply In Rajasthan

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 132 lakhs (2001), which comprises; of 23.4% of the total population of the state. There are 221 urban towns in the state of which 14 are class I cities i.e. each having a population of more than 1 lakh. All the urban water supply schemes are operated and maintained by the Public Health Engineering Department (PHED). As per Government of India norms, the per capita supply level required for cities with different populations are:

- For cities having a population upto 20,000 :70-100 lpcd
- For cities having a population 20,000-1,00,000 : 100-150 lpcd
- For cities having a population above 1,00,000 : 150 -200 lpcd

The only perennial river in Rajasthan is the Chambal in the southern part of the state. Himalayan water through the Indira Gandhi Nahar has been brought to the western part of Rajasthan. Due to an increase in population, urbanization, changing living standards and migration of rural populations to urban towns, the water demand is increasing. On the other hand, due to recurrent droughts and the consequent depletion of groundwater, the service levels have reduced to a great extent.

Urban Rajasthan has a shortage of residential water to the extent of 57.95% as compared to the norms of WHO. At the district level, all the districts are facing water shortages ranging from 25% in Dungarpur to 83% in Sawai Madhopur. These shortages are not entirely due to the current supply position. In 23 districts, the extent of capacity utilization; i.e., the ratio of actual production to existing capacity, of the water supply system is below 100. At the state level, the capacity utilization is 82.7%. This deliberate supply regulation can be understood in the context of the limited possibility for future expansions and also due to a lack of distribution systems.

In the urban areas water gets contaminated in many different ways; sometimes the water gets polluted at source mainly due to inflow of sewage into the source.

The declining groundwater level is emerging as a critical issue for the urban areas as people bore deeper in search of the water. At the heart of the urban groundwater problem is population density; cities just do not have a large enough recharge area to support the needs of their inhabitants on a sustainable basis. The urban groundwater scenario is reaching a melting point; large cities like Jodhpur support thriving private

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groundwater businesses that draw water from tube wells in the neighboring hinterlands for supplies to high income residential areas because groundwater tables in the cities are falling at a rate of 7-10 feet per year.

Rural Water Supply In Rajasthan

Traditionally rural Rajasthan has been dependent on indigenous water harvesting systems for drinking water purposes. These are known as *nadis, kunds, bawris* and *khadins.* Due to rainfall being scanty in the desert, native residents harvest the available rainwater in these structures which require local material and skills to build. State intervention through provision of drinking water to rural areas has reduced these traditional systems to disuse and made people dependent on the state.

Only 45% of the rural population avails of safe drinking water whereas 81% of the towns are covered partially with safe drinking water facilities and need extension of the distribution network. On the rural front, 16% of the villages are identified as problem villages, i.e. those receiving less than 40 lpcd of water; 80% of the urban households avail of tap facilities against 24% of rural households.

The rural population is faced with the problem of limited and seasonal supplies of water, poor water quality and a high degree of effort involved in fetching water. The situation warrants immediate concern towards rural drinking water supply schemes; 33,630 villages in Rajasthan have been covered by drinking water supply (1991), which includes 57% of the rural population. However, a large number of rural people are not covered by these schemes as they reside mostly in settlements outside the villages. In Rajasthan, 6027 out of 37,324 villages receive less than the required norm of water supply, i.e. 40 lpcd and out of these, 400 villages receive less than 10 lpcd; Very few villages are covered with piped water supplies and those villages which do get an occasional supply of water have to put up with a poor quality of water. In these villages, water shortages have led to the development of water markets and the villagers pay much higher rate for water as compared to their urban counterparts. An average family in a village in western Rajasthan spends approximately Rs. 300-400 per month on water through tankers. In the case of irrigation, the coverage is limited, with 23% of the cultivable area having access to protective irrigation.

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 while in case of rural areas, the objective is maximizing the coverage of villages with drinking water facilities.

An analysis of the status of revenue and expenditure positions in most districts reveals that revenues don't cover even the working expenses.

This is mainly due to the underpricing of water for urban residential water supplies. Only 40% of the total expenditure on the operation and maintenance of urban water supply schemes is recovered as revenue realization from the sale on water.

Thus, there is a direct element of 60% 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 for basic amenities like water to the neglect of rural areas.

Another important aspect of rural urban disparities concerns the question of who is providing water. The state is the major agency providing basic amenities. Other organizations are charitable trusts and private households.

Only 48% of the rural population is covered by the public distribution system as against 81% of urban areas. The public distribution of residential water is highly skewed in favour of urban areas and the rich. The distribution pattern is more equitable in rural areas as compared to the urban.

Traditionally rural Rajasthan has been dependent on indigenous water harvesting systems for drinking water purposes. These are known as *nadis, kunds, bawris* and *khadins*

Groundwater Management

Demand-Side Management

The focus needs to be on putting in place an effective system for regulating the withdrawals to sustainable levels. Such a system may include:

- Registering of users through a permit or license system
- Creating appropriate laws and regulatory mechanisms
- A system of pricing that aligns the incentives for groundwater use with the goal of sustainability
- Promoting conjunctive use
- Promoting "precision" irrigation and water-saving crop production technologies and approaches

Supply-Side Management

The other aspect of managing groundwater is augmenting groundwater recharge through:

- Mass-based rainwater-harvesting and groundwater-recharge programmes and activities
- Maximizing surface water use for recharge
- Improving incentives for water conservation and artificial recharge

The various options to deal with Rajasthan's alarming groundwater situation are described below:

Economic Measures

The use of a resource can be regulated in the desired manner by appropriate market interventions. In the case of surface irrigation, water is priced according to its use. The existing tariffs are ineffective in encouraging an efficient use or conservation of water. When groundwater is privately managed through tube wells using animal, diesel or electric power, no direct price control is possible except through electricity rates and diesel prices, which influence the cost of irrigation for the farmer. Power rates charged to the agricultural sector are highly subsidized and presently, a flat rate is being charged in Rajasthan, depending upon the capacity of the machine.

Different pricing systems of water are followed for domestic and commercial consumption purposes.

The domestic supply pricing of water comprises metred and unmetred supplies. In case of metred supplies, a three stage progressive pricing is followed, i.e. Rs 1.25 per 1000 litres up to first 15,000 litres, Rs 1.50 for 15,000 upto 1,00,000 litres and Rs 2 for the consumption of above 1,00,000 litres. In case of unmetred supplies, which is known as the flat rate system, water is charged according to the volume of the pipe, i.e. Rs 19.25 per month for 15 mm pipe per family with a limit of two taps per family and Rs 5.50 for each additional tap.

In case of water supply for commercial purposes, only metred water supply is followed. Commercial water supply is charged in four slabs; for the first 15,000 litres the rate is Rs 2.50 per 1000 litres, between 15,000 and 50,000 litres the rate is Rs 3 per 1000 litres, between 50,000 litres to 1 lakh litres the charges are Rs 3.75 per 1000 litres and for the consumption of above 1 lakh litres the charges are Rs 4.50 per 1000 litres.

In Rajasthan, subsidy was used as an economic instrument to promote water saving technology, particularly in sprinklers for irrigation. As intended, it emerged as a powerful instrument for boosting the adoption of sprinklers in the early eighties. The main objective was to save the groundwater, but the results have been quite the opposite. The water table has continuously gone down, because of an increase in the area under cultivation and also due to the tremendous increase in the number of pumps installed. Hence, there is a need for alternative policy options whereby farmers could be induced to reduce extraction of groundwater.

Legal and Regulatory Provisions

Groundwater is a "common pool" resource but under the absolute ownership rule, the common supply is exploited by independent individuals. The absolute owners do not suffer the scarcity cost of their

When groundwater is privately managed through tube wells using animal, diesel or electric power, no direct price control is possible except through electricity rates and diesel prices, which influence the cost of irrigation for the farmer

own pumping, since future scarcity will be shared by all users of the common pool. The absolute ownership gives the landowner, firstly, a claim on all income that can be created by the use of the water beneath his or her land, so long as there is water beneath the land. Also under absolute ownership, a landowner has complete discretion about when to irrigate, what lands to irrigate, and how intensively to irrigate.

In summary, the basic issue involved in the water law is that of rights, i.e. what kind of rights the people have, and what are the rights of the State. The question of the State's accountability to the people, and the people's accountability to each other and to the State cannot be worked out unless we are clear about the legal framework of right in water. Likewise, in the case of Rajasthan, the groundwater rights should be clearly defined before enacting any additional laws to regulate groundwater use.

Under the directions of the Supreme Court, the Central Groundwater Authority has been established, but it is not yet clear how it will evolve and operate, and what kind of regulation it will attempt.

Community Participation

In the case of groundwater, the concept of the "tragedy of the commons" applies since the well owners "free ride" and collectively contribute to the continuous depletion of water resources. The problem arises from the fact that individual wells tap water from what is physically a common pool. Unless groundwater is perceived in this way, i.e. as a "public good", problems with its management cannot be resolved. So, another alternative to groundwater management is through community participation.

Groundwater depletion has also revived popular interest in traditional rainwater harvesting techniques. Cultural beliefs ensured judicious use of scarce water and traditional water systems; rainwater harvesting has been adapted to meet the water requirements in the desert region of Rajasthan because it is best suited for this environment. Rajasthan's annals are full of stories about different types of water harvesting structures such as *talab* (village ponds), *tankas* (water storage tanks), *johads* (village ponds) and *nadis* (smaller village ponds), stepwells and *kundis*. These traditional systems of rainwater harvesting are more resilient and responsive to crises than the "modern" methods of deep tube-wells based on intensive exploitation of groundwater.

The National Water Policy directs that both surface and groundwater should be viewed as an integrated resource and should be developed conjunctively in a coordinated manner with their use being envisaged right from the project planning stage. Thus, there is positive need to translate the conjunctive use concept into action for better planning and management of our scarce water resources.

Hence, to conclude, focus on the following key issues is essential for sustainability:

- Mobilising resources, particularly for drinking water schemes
- Sustainability of groundwater-demand side management and regulation
  - Cropping pattern
  - Groundwater Legislation
- Tariff rationalisation and cost recovery
- Funding of O & M requirements
- Participation of civil society/community/user groups

An integrated approach to water resources management is critical to the survival of the state of Rajasthan. Unsustainable extraction of groundwater is leading to serious degradation of water quality, particularly with greater concentrations of fluoride and salinity, and causing irreparable damage to the groundwater aquifers. Since 90% of drinking water and 60% of irrigation water come from groundwater sources, sustainable management of the groundwater resources therefore needs to be a key priority for the state.

The groundwater rights should be clearly defined before enacting any additional laws to regulate groundwater use

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[A National Consultation]

The national consultation "Looking to The Future" organized in Jaipur on the 25th and 26th of February, 2005 was a significant landmark in inter-agency cooperation as it saw the first (in a series of many) collaboration between the Jal Bhagirathi Foundation, UNDP and The Italian Development Corporation. The initiation and execution of sustainable, long lasting and wide reaching measures to create economic and social security is the mission which lies at the heart of these organizations, and this common vision facilitated their joint effort in the field of water advocacy.

The belief that a fair and well planned water policy is integral to creating a secure and equitable water future is shared by these agencies, and was reflected in the decision to organize a conference which brought together the government, stakeholders and donor agencies amongst others to discuss and deliberate upon a water policy suitable for the state of Rajasthan.

The need for water is a truth universally acknowledged, however, the steps taken to fulfill this need vary from region to region, community to community, and government to government. A comprehensive and detailed water policy is seen as a means to provide a framework for developmental work in the field of water sector, as it would be the synthesis of the best practices and experiences of different regions, practitioners and policy makers. The conference facilitated the sharing of different viewpoints, experiences and ideas to enable this very synthesis, which is so important in the process of water policy formulation.

FRESH WATER CRISIS ■ WATER CONFLICTS ■ COMMUNITY MANAGEMENT ■ WATER PRICING ■ WATER RIGHTS ■ POLICY AND LEGISLATIONS ■ WATER SECURITY ■ GROUNDWATER EXPLOITATION ■ WATER PRIVATISATION

A fair and well planned water policy is integral to creating a secure and equitable water future

JAL BHAGIRATHI FOUNDATION

The Initiative

Inaugural Address

■ **HH Maharaja Gaj Singhji**
Chairman, Jal Bhagirathi Foundation

Honourable Chief Minister of Rajasthan, Maharani Vasundhara Raje, Dr Maxine Olson, Resident Representative, UNDP, India, Mr Leonardo Gestaldi, Scientific Attaché, Italian Embassy, Dr A. J. James, Consultant, Environmental Congress, Trustees, Jal Bhagirathi Foundation, speakers and chairmen of the sessions, officials of the UNDP, Unicef, Italian Embassy, European Union, officers of the Government of Rajasthan, members of NGOs and all else present here. We have gathered here today to discuss an issue which concerns us all – the invaluable and life giving resource of water. The management and conservation of this resource is key to securing the future – not only the future of water, but also the future of humanity.

Rajasthan is a state with meagre water resources and a harsh climate. For centuries, the various communities of Rajasthan have been living in harmony in this environment and have learnt how to preserve these valuable resources judiciously while evolving a social conscience that has enabled them to keep competing pressures on natural resources within manageable limits.

In the past decade, Rajasthan has been the victim of failed monsoon many times over – and with changing land use patterns, galloping development, changing lifestyles, growth in population, industrialization, irrigation and fertilizer farming, the green revolution, easy availability of electricity, uncontrolled digging of bore wells – the exploitation and misuse of water resources here is indeed shocking. Poor and marginal communities have been dislocated, have scattered, and in many cases, the women and the children have been left to fend for themselves. People in the worst hit regions have to trudge for miles to fill a pitcher with water, and that too with difficulty. It is imperative that something be done to improve this situation.

We at Jal Bhagirathi linked up with Rajendra Singhji, the waterman, who showed us the way by the work he has done in Alwar district. Of course each district varies, but the approach that we have adopted is a people-centric one and considering that all people are involved in the management and utilization of their own resources, we hope to replicate some of Rajendra Singhji's successes. We have been able to do some valuable work, with the help of the UNDP and

The approach that we have adopted is people-centric considering that all people are involved in the management and utilization of their own resources

the information provided to us by Rajendra Singhji.

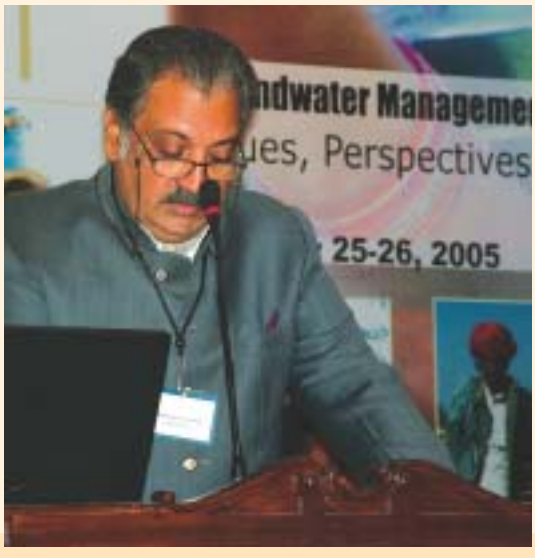
Our commitment is to build the capacities of the end users in villages so as to be able to help them create a sustainable existence, and to adopt the best practices possible using traditional methods, and at the same time modifying them with modern technologies and practices that have proved to be successful in other places. Working in over a 100 villages in the Marwar region we feel that in Rajasthan the shortage situation is far worse than what we had really anticipated – particularly where we find our groundwater. The quality of water in most places is very unsatisfactory – water may be there but it is saline, and if not saline it is full of fluoride and other impurities, making it absolutely unfit for human consumption.

We need to come to some kind of understanding, discover a common ground, a platform where we can all work together. The success of water management is contingent upon the involvement of stakeholders in the handling of their own resources. It is important to introduce water conservation measures and decentralized methods which will ensure equity, quality control and effective and conscious utilization of this resource. I admit that circumstances have changed, pressures have changed, and of course, requirements have changed, but we can certainly put the traditional and modern together in harmony to create a knowledgeable, well thought out governance of water.

In the next two days I hope we will be enriched by the experience of all those who speak before us and will be able to evolve the best management practices of water governance. It is heartening that the Government of Rajasthan has formed a high power committee to look into these aspects. The government's involvement of NGOs to such a large extent is, we hope, a step towards finding a solution which is acceptable to all the segments of society. The chief minister wants to address these issues openly and transparently, and I expect that this will lead to more effective results.

I hope that this consultation will not only give rise to solutions for Rajasthan's water policy problems, but also equip the participants with some knowledge or experience which will be of benefit to them in their respective fields and regions of work.

Thank you.



Our commitment is to build the capacities of the end users in villages so as to be able to help them create a sustainable existence, and to adopt the best practices possible using traditional methods, at the same time modifying them with modern technologies and practices

Keynote Address

■ **Smt Vasundhara Raje**
Chief Minister, Rajasthan

Maharaja Gaj Singh, Chairman of the Jal Bhagirathi Foundation, Dr Maxine Olson, Resident Representative of the UNDP, Mr Leonardo Gestaldi of the Italian Embassy, Dr A.J. James, Director of the Pragmatics Research Centre and distinguished participants.

Water is the elixir of life, it is the fluid that forms the most part of our body, it is the most abundant substance on the planet; but for us in Rajasthan it is a complete rarity. Although the land mass is largest in Rajasthan–it is the biggest state in the country- the water availability is negligible, at 1.1% it is next to nothing. Everything we have depends on it. People in Rajasthan are battered by droughts year after year and all of us, whether in government or otherwise, are faced with this problem. We in the government feel that if we can get more groundwater or more surface water available, we will be able to tide over it, while the people in those areas feel that it is the government's job to get them water, all they have to do is to make a little more noise, dig a well or two, get some water and see what happens after an year or two.

Salt, fluoride and nitrate contents of groundwater are increasing drastically, and if this trend continues more, we in Rajasthan are going to run out of drinking water very soon

The American conservationist William Ashworth had said that we are the children born in a water rich environment, we have never really learnt how important water is to us, we understand it but we don't respect it. I have visited many places abroad where I have seen signs over water taps saying water is scarce- use it sparingly, but here in Rajasthan I don't see any such thing. Guests in hotels are rarely warned about it, so we continue to indulge in the uncontrolled tapping of huge amounts of groundwater and indulge in flood irrigation. At this rate we are headed for disaster.

In most districts of Rajasthan, groundwater exploitation has crossed to over a 100% or even 165%. In Jhunjunu it is 165%, in Jodhpur 153%, in Dholpur 135%; these are very alarming figures. The way we are going is very frightening because not only is there a depletion of water but the chemical quality of groundwater is also suffering. I don't know what the connection between these is, but the salt, fluoride and nitrate contents of groundwater are increasing drastically, and if this trend continues more, we in Rajasthan are going to run out of drinking water very soon.

The problem of unsustainable utilization, I believe, cannot be tackled in isolation. Now that these movements are growing and people are becoming

aware and conscious of the situation, in the discussions, I find that the government has been made into a bugbear. There is a feeling that if the government had taken up the issue or taken proper decisions, the situation would have been different. I believe that water is not just a resource of the government, it is important for all of us. The government is as concerned about the life of the people in the state as any one else would be. Where I am concerned it is my stakeholder that I am worried abour, if my stakeholder is unhappy, if my stakeholder is not getting the reason or getting the "why" of it, I am concerned about that. How is it that the communities when dealing with the NGOs, pay for their water without a demur? This kind of an attitude, a mindset that the government is there and that they'll just have to provide it. The government realises that it is very important to take everyone on board. We have to also try and understand what is it that we are missing out. Obviously, we have to create things together – for the first time we have put together a committee, a task force of which Rajendra Singhji and others are also a part. It is the first tentative step towards trying to understand this relationship and giving it shape in the government's mind. The gap between the user and the government needs to be filled by sympathetic NGOs to understand what the community wants, and therefore to help change the mindset of the people.

I agree completely with His Highness and with Dr Olson and Dr James, when they say to me that there have to be changes in the mindset, in the way we put water to use. We need to look at it as a scarce resource and to handle it with care.

It is absolutely important to remain in close touch with people, to keep informing them that this is what the government has done, this is what it is going to do and to have patience with it. But the government alone cannot do it, it is very important for this to become a people's movement. Water does not just belong to the higher caste or the lower caste, to a Hindu or a Muslim; there are no castes, no creeds, no rich and no poor. When there is no water, the rich may be able to buy it for a little longer but in the end everyone has to succumb. So the issue is that it is important to you and me, to the urban and the rural populations and it is vital that everybody looks at it as their resource, as their wealth, and starts to take care of it in the fashion that we have talked about today.

This movement has to be a people's movement, people have to own it. The government has to sit with them in a Panchayat and make them aware about the government's policies and take their consent, because until the stakeholder stands shoulder to shoulder with us, we're not going to go very far. Therefore, changing the mindset, and a sustained mass awareness campaign are very important. Another very important thing that I want to say is that water belongs to all of us; it is not the concern of this NGO or that, this government or that. This is a movement where there is no place for politics, caste, creed, religion; it is a movement for the life of the people of Rajasthan, so it is very important for all of us to forget everything else and immerse ourselves whole heartedly in it.

I am sure that in the next two days you are going to have very meaningful discussions and come up with some excellent action points which will be incorporated in the papers coming out in June.

I wish this consultation every success.

The gap between the user and the government needs to be filled by sympathetic NGOs to understand what the community wants, and therefore to help change the mindset of the people

Address By

■ **Dr Maxine Olson**
Resident Representative, UNDP, India

Maharaja Gaj Singhji, Honourable Chief Minister and all distinguished participants and guests,

We must acknowledge that water is a very big issue, important to all of us. Those of us who are here today recognize that the most serious challenge of the twenty first century is probably not war, hunger or disease, but the declining availability of fresh water. Population growth, increasing urbanization, pollution and climate change are likely to result in a drastic decline in water supply in the coming decades. Fresh supply is already a problem for a third of the world population – at present 1.1 million people lack access to clean water, 2.4 million lack access to proper sanitation, and nearly all of these people are in what we call developing countries. As water becomes scarce, groundwater is increasingly drawn upon, without being recharged. We know how the problem is growing, and now is the time to understand the issue in depth – the water resource itself, how much there is, and what can be done for sustainable use.

Population growth, increasing urbanization, pollution and climate change are likely to result in a drastic decline in water supply in the coming decades

Over the past years, UNDP has been supporting civil society led, community based water management initiatives in different parts of India, including Rajasthan. Our association with the Jal Bhagirathi foundation began in 2001 when we started exploring the possibility of replicating the experience of our partners, particularly Tarun Bharat Sangh, in other parts of the state. In 2002, Jal Bhagirathi Foundation developed a project for initiating community based natural resource management initiatives in 400 villages of the Marwar region through a process of social mobilization and community empowerment. Today, we are formally launching the true expansion of this programme, which is possible due to the support of the Italian government.

In addition to the village based work on natural resource management, the other important part of this project is to foster partnerships between networks like organizing this consultation on water. Discussions with the state government have brought to the fore a

need to organize these consultations on groundwater, especially with the background of the critical context here in Rajasthan. In this state, 90% of the drinking water needs and about 60% of the irrigation needs are met from groundwater. Within this room, there is substantial experience and knowledge about the groundwater in Rajasthan. Over the course of this consultation, we will have the opportunity to share this experience, to enhance our knowledge, and to benefit from the experience of other states.

The Chief Minister had also suggested to the UNDP that we facilitate a platform for donor agencies to work in the state so that we can work collectively in our support to government, civil society organizations and communities. The donors have welcomed this and over the past few months we have had meetings between ourselves as well as with the state government – the donor associations and the agencies associated with this are Unicef, the European Union, the Asian Development Bank, German KFW, USAID environmental programme, SIDA, The World Bank, Embassy of Italy and the UNDP. Many of those organizations have representatives present in the room here today so as to learn of the conditions from the perspectives of the others who are present in this room today.

We at the UNDP are pleased to be playing a role in providing this space for you to be able to discuss this issue and move it forward. It is important that a sustainable method of using water is put in place here in Rajasthan. My best wishes to you as we deliberate on this extremely relevant and important topic.

Thank you.

Discussions with the state government have brought to the fore a need to organize these consultations on groundwater, especially with the background of the critical context in Rajasthan

Experiences From Other States

Tamil Nadu

■ **Dr S Janakarajan**
Professor, Madras Institute of Development Studies

The Tamil Nadu Groundwater[Development and Management] Act 2003 received Presidential consent on 4th March 2003 and was published in the Tamil Nadu Government Gazette on the same day. The Act provides for the government to develop, control, regulate and administer the groundwater in the state through a body–Tamil Nadu Groundwater Authority, constituted in accordance with the provisions of this Act. This Authority shall have the power to regulate the development and management of groundwater resources in the state consistent with conserving and ensuring their optimal and efficient utilization.

The Act also provides for laying down or adopting standards for quality of water depending on the kind of water use. It also enjoins conjunctive use of surface and groundwater whenever possible

Although the Act has been passed, it is to be seen when the government will constitute the Authority and when the Authority will notify the problem areas and on what data or information it will base its notification upon, whenever it comes.

However, a study of the provisions of this Act shows that it does not define the property rights in groundwater. Unless this is clearly defined it will be difficult to regulate the governance of groundwater. This in turn leads to the issue of equity in distribution which is also left unaddressed, nor is the issue of groundwater pollution taken note of. The Act would be applicable only in notified areas which would leave the non-notified areas without any regulation. Also the issue of reversal of the damage which has taken place is left untouched.

The Madras Metropolitan Area Groundwater [Regulation] Act,1987 creates a contradictory situation. This Act provides for the government to extract groundwater in 229 notified revenue villages where private extraction without a license has been prohibited. However, the heavy state extraction in these villages has led to severe livelihood problems and continuous extraction has led to sea water intrusion. Further, water intensive industries extract groundwater in an unregulated manner.

This Act is a beginning and it is to be seen how it is implemented, how much political will is there in enforcing the provisions and how the government strikes a balance between the demand and exploitation of groundwater.

This Act is a beginning and it is to be seen how it is implemented, how much political will is there in enforcing the provisions and how the government strikes a balance between the demand and exploitation of groundwater

Maharashtra

S P Bagde
Additional Director, Directorate of Groundwater Services and Development Agency, Pune

Maharashtra is the first state in the country to bring about a groundwater legislation. This realization came about due to the depletion in groundwater because of the increasing pressure of population, improving living standards, water intensive agriculture and hi-tech means of groundwater exploitation. The result was the Maharashtra Groundwater Act of 1993. This Act provides for-

- protection of drinking water sources up to a distance of 500 mts
- restriction of pumping from wells up to one kilometre from groundwater source
- control of groundwater in over exploited watershed

An evaluation of the effectiveness of the Act shows that success or failure has varied from place to place depending on

- the level of stakeholder participation
- understanding that groundwater is a limited resource and the resulting awareness and desire for water conservation and protection
- realization of the consequences of overexploitation
- effectiveness of communication between the users and the government
- level of stakeholder role in resource management

For effective implementation of the Act, it is necessary that the groundwater rights be reviewed, the shortcomings of the Act be removed, and the database of one-kilometre area from the drinking water supply well be procured. Besides this, a proper regulatory framework, based upon a comprehensive resource assessment, with active regulation and enforcement by a dedicated agency with more emphasis on people's awareness about water users participation, is required.

The demand side of the water chain also needs to be addressed so as to reduce the demand and restrict overexploitation.

Finally, a political will to promote and obtain sustainable groundwater management and enforce regulation is required.

For effective implementation of the Act, it is necessary that the groundwater rights be reviewed and the shortcomings of the Act be removed

Gujarat

■ **Mr Vivek Kapadia**
Under Secretary, Narmada and Water Resources Department, Government of Gujarat

The state of Gujarat does not have a legislation to regulate the development of groundwater resources. However, a mechanism to check uncontrolled exploitation exists in the form of a state level Water Regulatory Authority. This Authority is headed by the chief secretary of the state with three secretaries to the state government as members. There are executive councils at the district level.

In Gujarat no new tube wells are permitted in the overexploited areas, and no electricity connections are given in such areas for wells. There is also a 50% reduction in electricity subsidy in villages.

Water conservation has been taken up in a big way and the results, especially in Saurashtra, are very encouraging. Since this is a mountainous region, check dams are very suitable here. 4300 check dams have been constructed in Gujarat with people's participation and 100 check dams on major rivers with the participation of industries. This has resulted in doubling of the Kharif production and tremendous increase in the groundwater table.

However, to really control groundwater exploitation, it needs to be made a people's issue whereby participatory project planning should be taken up to provide work avenues to people in their own region- the government should function as a facilitator and not as a service provider. Equity, efficiency and sustainability should be the basic pillars for such projects.

In Gujarat no new tube wells are permitted in the overexploited areas, and no electricity connections are given in such areas for wells. There is also a 50% reduction in electricity subsidy in villages

Andhra Pradesh

Dr V Ratna Reddy
Senior Fellow, Centre for Economic and Social Studies, Hyderabad

The constant lowering of the groundwater table because of over exploitation has made it imperative to bring in a legislation to prevent further deterioration of the condition. The Land, Water and Trees Act was thus promulgated.

This Act constituted an Authority which is headed by a minister, three MLAs, the Chief Secretary, Secretaries of the Departments of Irrigation, Agriculture, Municipal Administration, RWS, PR, RD, Environment and Forests, Science and Technology, Vice Chancellor of the Agriculture University etc. [13 in all] as ex-officio members, and experts from the fields of life sciences, earth sciences and engineering, and those dealing with soil and water, are also nominated as members.

The purpose of the Authority is to promote water conservation and enhance tree cover, regulate the exploitation of ground and surface water, chalk out regulation for the functioning of authorities at district and mandal levels and advise the government on issues relating to the conservation of natural resources.

According to the Act, all private wells and water bodies should be registered. In case of degradation, a ban on the extraction of groundwater by pumping is to be imposed, identification and notification of over exploited zones where sinking of wells is banned up to six months with a provision to extend the ban if required, any well can be taken over for drinking water purpose, no well is to be allowed within 250 mts of public drinking water well, compensation to be given for wells closed for irrigation, distance and depth regulations are to be made as per the local conditions. It also envisages protection of lakes, ponds and tanks, prevention of pollution, restriction of sandmining etc.

An assessment of the effectiveness of the Act shows that the Authority constituted under it is a fairly powerful body with its own budget and in house expert opinion which makes it take a scientific and holistic approach towards groundwater conservation. However, the implementation lacks people's participation, and the district and mandal level authorities have not been constituted as yet. The Act has no provision to ensure equity in access to groundwater. Further the implementation has been tardy as the administrative mechanism is not in place and there is an inordinately high emphasis on licensing and regulation

To make the Act more effective, it is necessary to address the issue of equity in access to ground water. Also there is a need for clarity on rights over groundwater whereby institutional arrangements are required to make groundwater a common pool resource. The delinking of land rights from groundwater rights would help in this direction. Further administrative mechanisms to implement the Act at the local level needs to be built up: this can be done by involving the people and giving water users associations a role in the management of resources, involving the panchayats and creating awareness about ecological and livelihood potentials and constraints at the watershed level.

To make the Act more effective, it is necessary to address the issue of equity in access to ground water. Also there is a need for clarity on rights over groundwater whereby institutional arrangements are required to make groundwater a common pool resource

Lessons For Rajasthan

The conference – Looking To the Future – Groundwater Management In Rajasthan, Issues, Perspective and Policy, held at the SMS Convention centre on 25 and 26 February, heralded a landmark in a combined government, stakeholder and NGO consultancy. During the proceedings, it was accepted by all participants that serious water problems are present in the state and there has been a rapid and alarming deterioration in the quality and quantity of water resources. The over exploitation of groundwater was acknowledged, as was the inequity in water distribution. Concern was also expressed over the growing population pressures and the consequent strain on water resources.

The need for legislation to regulate water was felt by all, yet opinions on the necessity, viability and effectiveness of a Groundwater Act were varied. There were many issues to be considered, brought to the fore from the experiences of other states and regions, and these included the choice which has to be made between centralized and decentralized regulation, aquifer basis management or watershed basis management and the extent to which the PRIs and villagers should be involved at the local level. The participants also deliberated the possibility of having a comprehensive Water Bill instead of a Groundwater Act. It was agreed that a major effort was needed soon, as was the willingness to review and revise the legislation after its implementation.

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A considerable amount of apprehension was there, especially from within the government, over negative reactions from the electorate in case of the enactment of the Bill. This led to all parties agreeing that it was necessary to reassure both the electorate and the government, and in the case of the electorate, to educate them about the different aspects of the bill including law and punishment, regulation and stoppage etc. The creation of awareness and people's participation were considered key to the success of the legislation– awareness about the finite nature of groundwater, the ill effects of over exploitation, and the benefits of a participatory process in terms of more just decision making.

The participants all agreed that there could be no alternative to a water regulating legislation, and the need for prompt action was apparent. Views were expressed that there is a need to co-ordinate government policy across all water using-sectors and sectors with indirect influences on water such as electricity, agricultural MSPs and credit policies.

It was felt that a Groundwater Act was the need of the hour - it would require a wide scale consultation process to take into account all views before enactment. Also the government should lead by creating a mass awareness campaign involving all stakeholders; reform would be needed at all levels to define clear roles and responsibilities - within and across the government, the NGOs and the community.

Rajasthan, while enacting a legislation or formulating a policy on water should take into account both surface and groundwater management as both complement and supplement each other and cannot be looked upon in isolation. In Rajasthan, the water policy has to be formulated keeping in mind the water resources and the hydrological zones and should emphasize sustainability

and preservation of water resources and the eco-system.

Water has a multiplicity of uses and government policy should prioritize and distinguish between them according to their necessity to the society. Drinking water, obviously has to be on the top priority and a certain minimum amount of water should be reserved for it. Drinking water should be a right for everyone and equity in access and distribution should be ensured both in rural and urban areas. The pricing policy of drinking water should bear in mind that it is the state's responsibility to ensure availability of drinking water to each and every individual. However, in cases where it is treated as a commodity instead of a right, the principle of full cost recovery must be adopted as in industrial or recreational use. While considering public-private partnership in water care should be taken to ensure that fair water prices are maintained for marginal and small farmers and poor rural/urban consumers.

The rural/urban transfer of water should merit serious concern and issues of compensation by the urban consumers to the rural areas, the reuse of water, and the strengthening of the traditional systems of water conservation and distribution in the rural areas need to be an important part of the policy.

Water is a finite resource and just augmenting its supply is going to aggravate the problem instead of solving it. Thus, adequate attention needs to be paid to the management of demand through reduction in waste, optimum utilization through advanced technology, systems of reuse and a set of incentives and disincentives like differential pricing.

Both national and international experience shows that to be successful water management has to be conceptualized and implemented taking the entire river basin as the basic unit. In this, the role of river basin level WUAs should be encouraged and intensive awareness and education campaign catered for. Provision for compensatory packages for those who stand to lose in the implementation of such schemes ought to be made.

In Rajasthan where both the groundwater and surface water are scarce, there is a need for large projects for collection, storage and distribution based on the principle of minimum environmental impact and least displacement.

In Rajasthan, since groundwater is the major source, the strategy to recharge it should be based on hydro-geological conditions, e.g. the low porosity and permeability limits the recharge and retention of water in the aquifers in most parts of the state, hence suitable strategies have to be thought of. The endeavour should be to limit the annual consumption to the annual recharge and to conserve the 'principal' water. A system of obligations to recharge with incentives and disincentives needs to be worked out.

Though drinking water takes priority the focus on the use of water in irrigation should not be lost. It is irrigation, which accounts for 90% of groundwater withdrawls thus stress on water conserving modes of irrigation and a shift away from water intensive crops should be factored in.

Also, the impact of mining and industry on water resources and the compensatory measures through recharging, restoration of the eco-system treatment of effluents etc. should form a part of the policy.

The role of the community in water management should be specified and stakeholder participation and the role of WUAs emphasized. Similarly, the role of women, who bear the brunt of water scarcity, should be defined and they should be given a voice.

Water has a multiplicity of uses and government policy should prioritize and distinguish between them according to their necessity to the society

Concluding Remarks Of The Honourable Chief Minister, Rajasthan

The Honourable Chief Minister observed that the two days discussions on water had thrown up issues of importance requiring urgent action and attention. Concerns about the lowering of the groundwater table and the deteriorating quality of groundwater could not be more relevant to Rajasthan. The government definitely had no other recourse but to look at viable options and appropriate approaches to face the crises and turn it around.

Issues such as the method of irrigation adopted for agriculture were of immense relevance and water efficient irrigation practices needed to be introduced to replace the wasteful practices like flood irrigation. Similarly, the possibilities of waste water reuse needed to be explored and put into practice wherever viable.

She also emphasized the need to make the people aware of the gravity of the crisis and to spread the message of water conservation to all those places and sections from where the groundwater problem could be effectively confronted and addressed. The endeavour should be to generate a discussion, a movement, at the grassroots level which should throw up strategies and measures to arrest the depletion of groundwater. It would be fitting if a self-imposed regulatory framework emerged from the people themselves as a result of this effort rather than forceful regulations to be imposed through a bill.

This workshop has initiated a process which needs to move forward and cover a long distance. The crisis with which the state is faced now is one that cuts across all political parties and has no specific affinity to any particular caste or creed; hence a concerted effort by all is required to deal with it. To make a beginning, the state, the donor agencies and the task force should sit together and begin moving forward. The issue is of existence and no cost would be too high to deal with groundwater depletion and the deterioration of its quality.

The crisis with which the state is faced now is one that cuts across all political parties and has no specific affinity to any particular caste or creed; hence a concerted effort by all is required to deal with it

3

[PROPOSED LEGISLATION]

Draft Legislation For Discussion

RAJASTHAN GROUND WATER (RATIONAL USE AND MANAGEMENT) ACT, 2005

An Act to promote conservation, augmentation, equitable distribution and sustainable use of ground water Resources in the State

Prepared by an expert committee constituted by the Rajasthan High Court Bar Association

FRESH WATER CRISIS ■ WATER CONFLICTS ■ COMMUNITY MANAGEMENT ■ WATER PRICING ■ WATER RIGHTS ■ POLICY AND LEGISLATIONS ■ WATER SECURITY ■ GROUNDWATER EXPLOITATION ■ WATER PRIVATISATION

JAL BHAGIRATHI FOUNDATION

Water has a multiplicity of uses and the policy should prioritize and distinguish between them according to their necessity to the society

CHAPTER 1

Preliminary

1.Title, Applicability And Commencement

1. This Act shall be "Rajasthan Ground Water (Rational Use and Management) Act, 2005
2. It shall apply to whole of State of Rajasthan
3. It shall come into force on such date as may be notified by State Government by notification in official Gazette
4. The government shall for the purpose of enabling the authority to efficiently perform its function or to exercise its power under this Act, appoint such numbers of technical or other employees, as they may consider necessary

2. Definitions

In this Act, unless the context otherwise requires

1. "Ground Water" means the water existing in an aquifer below the surface of the ground at any particular location regardless of the geological structure, in which it is stationary or moving and includes all ground water reservoirs
2. "Well" means a well sunk for the search for, or extraction of groundwater and includes a dug well, bore well, dug–cum–bore well, tube well and filter point
3. "Domestic Consumption" in relation to use of water means consumption of the same by human beings for drinking, bathing, washing cleansing and other day to day activities including gardening and use thereof for similar purposes for the upkeep of domestic animals
4. "Commercial Consumption" includes use of water by any Industrial Undertaking, factory, hotel, commercial building activity, but does not include consumption of water by any self employed person, artisan or any other commercial activity carried on without use of electric power
5. " Agricultural Consumption" includes use of water for growing any agriculture produce including flori-culture and horti-culture
6. "Prescribed" means prescribed under the Rules for notification
7. " Block" means a Panchayat Samiti or a Municipal Corporation/Council/Board
8. " Person" includes any individual, H.U.F.,Firm or Company
9. "Drinking water"
10. "Aquifer"

CHAPTER 2

Groundwater Authorities And Their Composition

3. Constitution Of Rajasthan Groundwater Authorities

1. There shall be constituted a Rajasthan Ground Water Authority for the whole of the State of Rajasthan
2. For each District there shall be constituted a District Ground Water Authority
3. For each Panchayat Samiti and Municipal Corporation/Council/Board there shall be constituted a Block Ground Water Authority

4. Composition Of Rajasthan Ground Water Authority

Rajasthan Ground Water Authority shall consist of following

1.	Chief Secretary	Chairman
2.	Chief Ground Water Officer	Executive Chairman
3.	Two Members of Parliament and Four M.L.As of the State to be nominated by State Government, out of which two will be women	Members
4.	Four Non-official experts to be nominated by the State Government, out of which one shall be women, if possible	Members
5.	Secretary, Public Health Engineering Department	Member
6.	Secretary, Agriculture	Member
7.	Secretary, Industries	Member
8.	Secretary, Irrigation	Member
9.	Secretary, Power	Member
10.	Secretary, Forest	Member
11.	Chairman, State Pollution Control Board	Member
12.	Chief Engineer, Rajasthan Ground Water Authority	Member
13.	One representative of Human Rights Commission	Member
14.	One Representative of Women's Commission	Member

5. Composition Of District Ground Water Authority

District Ground Water Authority shall consist of following

1.	Collector and District Magistrate	Chairman
2.	District Ground Water Officer	Executive Chairman
3.	Two MLAs of the District to be Nominated by State Government	Members
4.	One Non official expert to be nominated By Rajasthan Ground Water Authority	Member
5.	Senior-most officer of Public Health Engineering Department in the District	Member
6.	Senior-most officer of Agriculture Department in the District	Member
7.	Senior-most officer of Industries Department in the District	Member
8.	Senior-most officer of Irrigation Department in the District	Member
9.	Senior-most officer of Power Department in the District	Member
10.	Zila Pramukh of the District	Member
11.	Chairman of Municipal Corporation/Council/Board in the District	Member

6. Composition Of Block Ground Water Authority

Block Ground Water Authority shall consist of following

1. Sub Divisional Officer	Chairman
2. Block Ground Water Officer	Executive Chairman
3. M.L.A. in the Panchayat Samiti	Member
4. Pradhan of the Panchayat Samiti, or Chairman of the Municipal Corporation/ Council/Board, as the case may be	Member
5. Senior-most officer of Public Health Engineering Department in the Block	Member
6. Senior-most officer of Agriculture Department in the Block	Member
7. Senior-most officer of Irrigation Department in the Block	Member
8. Senior-most officer of Industries Department in the Block	Member
9. Senior-most officer of Power Department in the Block	Member

CHAPTER 3

Duties, Functions And Powers Of Rajasthan Ground Water Authority & Appointment Of Officers And Their Duties, Functions And Powers

7. Duties, Functions And Powers Of Rajasthan Ground Water Authority And Meetings

The following shall be the duties, functions and Powers of the Authority

1. To review complete records and status of the groundwater potential in the State and data about the nature and number of wells
2. To prepare, execute and implement the plans for the groundwater, augmentation, conservation and management for sustainable use
3. The authority shall have power to direct, regulate and control the conservation, augmentation, extraction and utilization of groundwater in the State in such a manner, as it deems fit
4. To take steps and measures for recharging of ground water and for increase of ground water level
5. To take steps for the conservation of water
6. To encourage public and private participation for the rational use and management of ground water
7. To suggest and implement ways and means for multiple use of water
8. To lay down user charges for the consumption of ground water
9. To check modification of groundwater regime due to mining activities of any kind in the State
10. In the manner prescribed lay down or adopt standards for quality of groundwater for domestic use
11. To grant of permit for transportation of groundwater from one aquifer to another aquifer
12. To supervise and control of District Ground Water Authority
13. To take such other steps as may be necessary to give effect to the provisions of the Act and Rules made thereunder
14. To utilize and disburse the funds that may be made available by the State Government as well as the Central Government or other agencies to generate resources for the purpose of water conservation and recharging
15. To introduce technologies to conserve water in the field of domestic consumption, agriculture & commerce
16. To manage the aquifers
17. To prohibit carrying on the business of drilling or bring well, tubewell, bore well without license
18. To encourage the use of treated sewerage water for recharging
19. To prescribe, notify and publish parameters for deepening and or sinking digging of wells in each Block to be notified on 30th September of each year by issuing notification
20. To ensure that the rainwater, sewerage water and other surface water which is available or which becomes available in the State is tapped for the purpose of recharging of groundwater
21. To ensure sinking of wells by duly specifying the number of wells to be sunk, depth of the well, distance between two adjoining wells and other conditions as deemed fit after satisfying that such sinking shall not adversely affect the drinking water source
22. To regulate the construction of new and deepening of old wells, tube-wells, bore-wells and artesian wells
23. To check ground water contamination by any person, institution, organization, industry or commercial unit due to unscientific use and disposal of water
24. To notify areas in Blocks for drawing of water for commercial purposes which have adequate water and means of recharging of water
25. To prescribe rates for user charges, which may be different for different blocks and different commercial activities
26 To promote and preserve the traditional sources of groundwater like Bawaris etc

27. To spread knowledge and awareness regarding water issues
28. To prescribe standard and monitor quality of water and take measures for improvement of quality of water

The State Ground Water Authority shall meet at least once in three months.

8. Duties, Functions And Powers Of District Ground Water Authority And Meetings

The following shall be the duties, functions and Powers of the Authority

1. To register Rig-owners and Well Digging Agencies
2. To register private water supply agencies meant for supply of water to commercial establishments
3. No person, institution, organisation and commercial firm shall transport groundwater by means of lorry, trailer or any other motor vehicle, or pipe from any notified area for other than drinking purpose without obtaining a permit from Authority
4. To follow and comply with the directions of the Rajasthan Ground Water Authority
5. To provide feed back to the Rajasthan Ground Water Authority from time to time regarding qualitative and quantitative status of availability of water in the District
6. To utilize funds that may be made available by the State Government as well as the Central Government or other agencies for the purpose of water conservation and recharging
7. To spread knowledge and awareness regarding water issues

The District Ground Water Authority shall meet at least once in two months.

9. Duties, Functions And Powers Of Block Ground Water Authority And Meetings

The following shall be the duties, functions and Powers of the Authority

1. To grant permission for digging of new wells in accordance with parameters laid down by the Rajasthan Ground Water Authority
2. To help Electricity Companies in recovering the user charges
3. To advise the Gram Panchayats to properly utilize funds which are made available to them for the purpose of water conservation
4. To carry out the directions of the District Ground Water Authority
5. To provide feed back to the District Ground Water Authority regarding the status of the Ground Water in the Block
6. To inform District Ground Water Authority regarding any anticipated shortfall in the water resources and to suggest remedial measures
7. To spread knowledge and awareness regarding water issues
8. To certify the quality of water from the well

The Block Ground Water Authority shall meet at least once a month

10. Appointment Of Chief Ground Water Officer

1. The Chief Ground Water Officer shall be appointed by a Committee consisting of Chief Minister, Leader of Opposition and Chief Secretary. He shall hold the rank of Additional Chief Secretary and shall be appointed for a fixed term of 5 years
2. The Committee shall be free to select any person throughout the country who is an expert in the field of groundwater management
3. The appointment may be renewed for a further period of 5 years
4. The Executive Chairman shall be the Chief Executive Officer of the Rajasthan Ground Water Authority and shall be responsible to give effect to the provisions of this Act and the directions of the Rajasthan Ground Water Authority

11. Appointment Of District Ground Water Officer

1. The District Ground Water Officer shall be selected and posted by the Rajasthan Ground Water Authority from amongst the Hydrologist/Engineers not below the rank of Executive Engineer
2. His posting shall ordinarily be for a fixed term of 5 years in a District. He shall not be re-posted in same District
3. He shall be the Chief Executive Officer of the District Water Ground Authority
4. He shall be responsible to give effect to the provisions of this Act and carry out the directions of the Rajasthan Ground Water Authority & District Ground Water Authority

12. Appointment Of Block Ground Water Officer

1. The Block Ground Water Officer shall be selected and posted by the District Ground Water Authority from amongst the Engineers not below the rank of Junior Engineer
2. His posting shall ordinarily be for a fixed term of 5 years in a Block. He shall not be re-posted in same Block
3. The Block Ground Water Officer will be the Chief Executive Officer of the Block Ground Water Authority and shall be responsible to give effect to the provisions of this Act as well as the directions of the District Ground Water Authority

13. Nomination Of Other Ex-Officio Members

The Ex-officio Members from various Engineering Departments in the District Ground Water Authority shall be nominated by the Secretary concerned and the Ex-officio Members in the Block Ground Water Authority shall be nominated by the Chief Engineer of the concerned department

14. Other Staff

The Rajasthan Ground Water Board shall be merged in Rajasthan Ground Water Authority and Rajasthan Ground Water Board shall stand abolished. Rules will be framed for the staffing pattern. However, salary of no employee will be reduced and there shall be no retrenchment of any staff

CHAPTER 4

Registration Of Existing Wells And New Wells, Rig Owners & Well Digging Agencies & Private Water Supply Agencies

15. Registration Of Existing Wells

1. Every person including State Government or Local Authorities who is owner of any existing well shall within 90 days of the coming into force of this Act shall get the well registered
2. The owner shall submit an application in prescribed form 'A' within 90 days of the coming into force of this Act to the Block Ground Water Authority
3. On submission of such application the Block Ground Water Officer shall verify the existence of such well and on being satisfied about the existence of the well register the well
4. The Block Ground Water Authority shall issue a Registration Certificate to the owner of the well in the prescribed form 'B'
5. If the owner does not submit application within the stipulated period of 90 days and the existence of such well comes to the notice of the Block Ground Water Authority he shall issue a public notice regarding proposed taking over of the well for the State Government
6. If no person comes forward for registration, or if the claim, if any, made is found to be incorrect, he will pass order vesting the well in the State Government
7. If any person claiming to be the owner is able to satisfy about his ownership, the well will be registered on payment of penalty as provided
8. The person owning the well shall inform the Block Ground Water Authority immediately on his well becoming defunct

16. Permission For Digging Of New Wells

1. Any person intending to dig a well shall submit application in the prescribed form 'C' for digging of the well containing the particulars mentioned in the prescribed form
2. The Block Ground Water Officer shall scrutinize and verify the contents of the Application within 30 days of the receipt of the application and on being satisfied about prescribed parameters fixed for digging of well in the block, shall issue permission letter within a period of 45 days from the date of submission of the application in prescribed form 'D'
3. In case there is any defect in the application he will give notice to the person concerned to complete the formality or rectify the defect within the aforesaid period and on doing so dispose of the application
4. In case he refuses to grant permission he will communicate the reasons, in writing, for refusing permission within the aforesaid period of 45 days
5. In case the application is not disposed within the aforesaid mandatory period of 45 days, it will be deemed that the permission has been granted and the fact of non disposal of application shall be recorded in the personal service record of the Block Ground Water Officer

17. Procedure For Registration Of Rig Owners And Well Digging Agencies

1. No person shall carry on the business of digging well without getting himself registered with the District Ground Water Authority
2. Any person or agency who is carrying on the business or who intends to carry on the business of digging wells shall submit application in the prescribed form 'E' for getting himself registered as such
3. On submission of the application the District Ground Water Authority shall verify the contents of the same within 30 days. In case there is any formal defect or the same is incomplete the Agency shall be required to rectify the same within a period of 15 days of the notice
4. On the application being found correct or if the defects are removed, the same shall be disposed of within a period of 45 days from the date of submission of the Application
5. If the Agency is registered, the District Ground Water Authority shall issue Registration Certificate in prescribed form 'F' and thereafter the Agency

shall be entitled to carry on the business of digging of wells

6. In case the application is refused the agency will be communicated the reasons in writing within a period of 45 days from the date of submission of the application

7. In case the application is not disposed of within a period of 45 days by the District Ground Water Authority such non performance of duty will be recorded in the service record of the District Ground Water Officer. He shall be bound to issue Registration Certificate

18. Procedure For Digging Wells

1. Any person who has obtained permission in prescribed form 'D' for digging of well shall provide a copy of the permission to the Rig Owner or Well Digging Agency for digging the well

2. The Well Digging Agency shall dig the well in accordance with the terms and conditions as contained in the permission form 'D'

3. On completion of the digging of well the Digging Agency shall submit completion report to the Block Ground Water Authority

4. The Block Ground Water Authority shall on receipt of the completion report test the quality of the water

After necessary test it will certify the quality of water. It shall also certify if the water is fit for drinking purposes or not in the certificate in form 'G'. This certificate shall be issued within 15 days of submission of completion report

5. The Electricity Company shall grant electric connection as per their rules only on issuance of completion certificate in Form 'G'

19. Private Water Supply Agencies For Commercial Establishments

1. Any person intending to carry on the business of water supply to commercial establishments shall be required to get himself registered with the District Ground Water Authority and for license for supply of water. He shall submit application in prescribed form 'H'

2. Such Water Supply Agency shall be permitted to dig well only in areas which have been notified to have adequate water and means of recharging of water. Such permission will be granted in prescribed form 'I'

3. There shall be levied user charges on the water supplier supplying water for commercial purposes on such rates as may be prescribed by Rajasthan Ground Water Authority

CHAPTER 5
Levy Of User Charges

20. Levy Of User Charges

1. If the user charges are not prescribed under this Act the Rajasthan Ground Water Authority shall lay down rates of user charges for drawing of ground water by any person. Different user charges may be prescribed for different District or Blocks

Provided that no tariff shall be notified without the approval of the State Government

21. Levy Of User Charges In Municipal Blocks For Domestic Use And Utilization Of Funds

1. Any person drawing water from his own well for his own domestic use within the municipal limits shall be exempt from payment of user charges if the electricity bill consumption of the well does not exceed Rs. _____ per month

2. If the electricity consumption bill in respect of the well exceeds the aforesaid limit, there shall be levied user charges to the same extent as the electricity consumption charges excluding the exemption limit

3. The user charges collected by Block Ground Water Authority in the municipal limits shall be entirely used for augmentation of water resources in the Block

4. The user charges will be included in the electricity bill by the Electricity Company and on the recovery of the same, the user charges will be transferred by the Electricity Company to the account of Block Ground Water Authority

22. Levy Of User Charges In Rural Areas For Agricultural Purposes And Funds Utilization

1. Any person drawing water from his own well for domestic and agricultural purposes shall be exempt from payment of user charges if the electricity consumption bill does not exceed Rs. _____per month

2. If the electricity consumption bill exceeds the aforesaid limit the user charges will be levied to the same extent as the electricity charges excluding the exemption limit

3. The user charges so collected shall be wholly transferred by the Block Ground Water Authority to the Gram Panchayat to the extent of the user charges which have been collected from respective Gram

Panchayat area. The Gram Panchayat shall utilize this fund for augmenting ground water resources in consultation with the Block Ground Water Authority
4. The user charges will be included in the electricity bill by the Electricity Company and on the recovery of the same, the user charges will be transferred by the Electricity Company to the account of Block Ground Water Authority

23. Levy Of User Charges For Commercial Purposes

1. The State Ground Water Authority may prescribe different rates of user charges in respect of different classes of industries. Different rates may be prescribed for different Distlricts/Blocks
2. The scale of levy of user charges will be higher for both surface and groundwater consuming industries as well as polluting industries and will be less or for less water consuming and less polluting industries

24. Levy Of User Charges From State Government And Local Bodies

There shall be levy of user charges in respect of wells owned by any department of the State Government as well as Local Authorities including Public Sector Undertakings to the same extent as the electricity consumption charges

25. Recovery Of User Charges

1. In case the user charges are not deposited within the stipulated time, the agricultural consumer shall be liable to pay simple interest @ 6% per annum, the domestic consumer shall be liable to pay simple interest @ 12% per annum and the commercial consumer shall be liable to pay simple interest @ 18% per annum
2. In case the arrears along with interest are not paid within the period of one year from the date when the user charges became due the Electricity Company on the request of the Block Ground Water Authority shall disconnect the power connection
Provided that no action under this Section shall be taken without serving a notice of demand
3. The arrears of user charges and penalties will be recoverable as arrears of land revenue and the Block Ground Water Authority/Officer shall exercise powers of Collector under the provisions of Rajasthan Land Revenue Act, 1956

26. Exemptions

There shall be levied no user charges in respect of water drawn manually or by hand pump or by use of animal power and by petrol/diesel engine but shall not include water extracted using electricity from generator set run on petrol/diesel for domestic consumption

27. Prohibition From Using Water From Rural Block To Urban Block

It shall not be permissible to use ground water from Rural Block to Urban Block without the consent of the Rural Block Authority and without adequately compensating the Rural Block Authority

CHAPTER 6
Emergency Provisions

28. Emergency Provisions

If the District Ground Water Authority is satisfied that there is water crisis in a particular area it may take over any well temporarily for a period not exceeding 6 months for supply of drinking water in the area

CHAPTER 7
Penalties & Appeals

29. Penalties

1. If an existing well owner fails to submit application for registration within the stipulated time he shall be liable to pay late registration charges @ Rs.1,000/- per month for delay of each month in registration
2. Any Rig-Owner or Well Digging Agency who digs a well for any owner or any person without obtaining copy of permission letter from him shall be liable to pay a fine of Rs. 10,000/-.. His rig machines and well digging equipments shall also be liable to be seized and confiscated
3. Any Electricity Company that grants electric

connection without obtaining a copy of the completion certificate in Form 'G' shall be liable to pay penalty of Rs. 10,000/- for issuing such an illegal electric connection and shall also immediately disconnect the electric connection

4. If any well owner is held guilty of violating the provisions of The Water (Prevention & Control of Pollution) Act, 1974, his well and water pump shall be seized and confiscated by Block Ground Water Authority and shall vest in State Government

30. Appeals

1. Appeal shall lie to the District Ground Water Officer against any order passed by the Block Ground Water Authority/Officer
2. Appeal shall lie to the Chief Ground Water Officer against the order passed by District Ground Water Authority/Officer
3. An appeal may be preferred within 60 days of the service of the order
4. No further appeal shall lie from an appellate order

CHAPTER 8
Miscellaneous

31. Power To Frame Rules And Prescribe Forms And Lay Down Scale And Rate Of User Charges And Issue Notifications

Rajasthan Ground Water Authority with the prior approval of the State Government frame Rules, prescribe other forms, issue notifications and lay down scale of user charges as may be required under the Act

32. Power To Remove Difficulties

The State Government may issue directions from time to time to remove difficulties, that may arise in implementing this legislation up to a period of two years of the coming into force of this legislation

33. Repeal

The provisions of law contained in any other State enactment relating to ground water shall stand repealed

34. Duration Of This Law

This legislation shall cease to be effective at the expiry of 10 years from the date of its coming into force unless it is revalidated for a further period

35. Date On Website

All information include Rule, Notification, parameters, water quality standard, particulars of registered licensed rig owners and well diggers user charges defaulter shall be put on website and will be continuously updated

Form 'A'

(See Section 15(2)

APPLICATION FOR REGISTRATION OF WELL

To,

Block Ground Water Authority,

_____

District _____

1. Name of the owner of the Well _____
2. Father's/Husband's Name _____
3. Complete Address where the well is located _____

_____

_____

4. Depth of the well/Boring _____
5. Diameter of the well/boring _____
6. Horse Power Motor used/or Manual/or Petroleum operated _____

_____

_____

7. Year of digging of well _____

Signature of owner

Form 'B'

(See Section 15(4)

REGISTRATION CERTIFICATE

To _____

Shri _____

Son of Shri _____

Resident of _____

Your well situated at the address given above has been registered with the Block Ground Water Authority

_____and the Well Registration Number is Electric Motor Well No._____

Petroleum Operated Well No._____/Manual Well No._____.

You shall intimate to the Authority immediately if the well becomes defunct.

Block Ground Water Officer

Block Ground Water Authority_____

District _____

Place _____

Date _____

FORM 'C'

(See Section 16(1)
APPLICATION FOR PERMISSION TO DIG NEW WELL

To,

The Block Ground Authority _____

1. Name of Applicant _____

2. Father's Name _____

3. Place where new well will be dug _____

4 The Applicant has gone through the prescribed Parameters and the location of the proposed. Well satisfies the following parameters.

i)

ii)

iii)

iv)

v)

vi)

5 Well will be got dug by registered Well Digging Agency.

It is requested that necessary permission may be issued for Digging of well.

Signature of Applicant

FORM 'D'

(See Section 16(2)

PERMISSION/REFUSAL LETTER FOR DIGGING WELL

To,

Shri _____ son of Shri _____

Resident of _____

Dear Sir,

Your application in prescribed form 'C' has been scrutinized by the Block Ground Water Authority.

The Application fulfills/does not fulfill the prescribed parameters as given below:-

i)

ii)

iii)

iv)

v)

vi)

Accordingly permission is granted/refused for digging of new well.

In case you are aggrieved with this order, you may file appeal before District Ground Water Authority within a period of 60 days from the date of receipt of this letter without payment of any charges.

Yours faithfully,

4

Model Bill To Regulate And Control The Development And Management Of Ground Water

Ministry of Water Resources

Government of India
New Delhi – 110 001

The (1)* Bill to regulate and Control the Development and Management of Ground Water

Purposes

A bill to regulate and control the Development and Management of Ground Water and matters connected therewith or incidental thereto

Be it enacted by the (1)* State /U.T. Legislature in the fifty-fourth year of the Republic of India as follows

Ever increasing population, and other development activities have led to a fall in the groundwater table, drying up of wells, reduced sustainability of tube wells, environmental degradation etc in many parts of the state

JAL BHAGIRATHI FOUNDATION

CHAPTER 1
Preliminary

1. Short Title Extent And Commencement

(1) This Act may be called the (1)* Ground Water Regulation and Control of Development and Management) Act, 2004
(2) It extends to the whole of the State/U.T. of (1)*
(3) It shall come into force on such date as the State/U.T. Government may, by notification in Official Gazette, appoint and different dates may be appointed for different areas of the State/U.T

2. Definitions

In this Act unless the context otherwise requires
(1) "**Act"** means the (1)* Ground Water (Regulation and Control of Development and Management) Act, 2004
(2) "**Artificial Recharge to Ground Water"** means the process by which ground water reservoir is augmented at a rate exceeding that under natural condition of replenishment
(3) "**Authority"** means State/U.T. Ground Water Authority established in accordance with the provisions of this Act
(4) "**Drinking Water"** means water for consumption or use by human population for drinking and for other domestic purposes, which shall include consumption or use of water for cooking, bathing, washing, cleansing and other day-to-day activities. It shall also include water meant for consumption by the livestock
(5) "**Government"** means the State/U.T. or Union Government
(6) "**Ground Water"** means the water which exists below the ground surface in the zone of saturation and can be extracted through wells or any other means or emerges as springs and base flows in streams and rivers
(7) "Prescribed" means prescribed by rules made under this Act
(8) "Rain Water Harvesting" is the technique of collection and storage of rain water at surface or in sub-surface aquifer
(9) "Sink" means with all its grammatical variations and cognate expressions in relation to a well includes digging, drilling or boring of new well or in existing well, deepening and modification (of radials and galleries) of the existing wells
(10)"User of Ground Water" means the person or persons or an institution including a company or an establishment, whether Government or non-governmental who or which extract or use or sell ground water for any purpose including domestic use made either on a personal or community basis
(11)"Well" means a structure sunk for the search or extraction of ground water by a person or persons except by the authorized officials of the State or Central Governments for carrying out scientific investigations, exploration, development, augmentation, conservation, protection or management of ground water and shall include open well, dug well, bore well, dug-cum-bore well, tubewell, filter point, collector well, infiltration gallery, recharge well, disposal well or any of their combinations or variations

CHAPTER 2

3. Establishment Of A Groundwater Authority

(1) The State Government/Union Territory shall, by notification in the official Gazette, establish with effect from such date as may be specified in the notification, an Authority to be known as Ground Water Authority
(2) The Ground Water Authority shall consist of
(a) A chairman to be appointed by the State Government/Union Territory
(b) A representative of the Central Ground Water Board (CGWB) to be nominated by the Chairman, CGWB
(c)...(Number).... Representatives of the Departments, which are concerned with, survey, exploration, development and management of ground water to be appointed by the State/U.T. Government.These representatives will serve as Members
(d) Such number of other members who, in the opinion of the Government have special knowledge or 'practical experience in matters relating to ground water, to be appointed by that Government
(3) The term of office and the manner of filling the vacancies and other conditions of service of the Chairman and other Members shall be in such a manner as may be prescribed
(4) The Members will advise the Chairman who will be the Chief Executive of the Authority

4. Staff Of The Authority

(1) In order to enable Ground Water Authority to properly function or exercise the powers under the Act, State/ Union Territory Government may appoint such number of technical personnel and other staff as it may consider necessary through Official Gazette
(2) The functions and the terms and conditions of service of such employees shall be such as may be prescribed

5. Powers To Notify Areas To Regulate And Control The Development And Management Of Ground Water

(1) The Authority shall function under the overall control and supervision of the State/Union Territory Government

(2) If the Authority, after consultations with various expert bodies, including Central Ground Water Authority (CGWA) is of the opinion that it is necessary or expedient in the public interest to control and /or regulate the extraction or the use or both of ground water in any form in any area, it will advise the State/ Union Territory Government to declare any such area to be a notified area for the purposes of this Act with effect from such date as may be specified therein. This declaration will be notified in the official Gazette

Provided that the date so specified in the notification shall not be earlier than three months from the date of publication of the said notification

(3) Every such notification shall, in addition to its publication in the Official Gazette, be published in not less than one daily regional language newspaper having wide circulation the State / Union Territory, and also be served in such manner as the State / Union Territory Government may think fit and all or any of the following modes may be followed in effecting such service, namely:

(a) by affixing a copy of the notification to some conspicuous part of the offices of the village Panchayats located in the said area

(b) by proclaiming by the beat of drum or by means of loudspeakers the contents of the notification in the said area

(c) in such other manner as may be prescribed

(4) If in the opinion of the Authority, the availability of the groundwater has improved in a notified area, it may, in consultation with various expert bodies including CGWA, advise State / U.T. Government to de-notify such area and the State / U.T. Government may do so according to the procedure prescribed under Section 5(3) of the Act

(5) The Authority will also take steps to ensure that exploitation of groundwater resources does not exceed the natural replenishment to the aquifers. wherever, there is mismatch, steps will be taken to ensure augmentation of ground water resources in addition to regulatory measures

(6) The Authority shall maintain and upkeep the data-base on groundwater related information

6. Grant Of Permit To Extract And Use Groundwater In The Notified Area

(1) Any user of groundwater [as defined under sub-section 2(10)] desiring to sink a well in the notified area for any purpose eiher on personal or community basis, shall apply to the Authority for grant of a permit for this purpose, and shall not proceed with any activity connected with such sinking unless a permit has been granted by the Authority

Provided that the person or persons will not have to obtain a permit if well is proposed to be fitted with a hand operated manual pump or water is proposed to be withdrawn by manual devices

(2) Every application under sub-section (1) shall be made in such form, shall contain such particulars and in such manner as may be prescribed

(3) On receipt of an application under sub-section (1), if the Authority is satisfied that it shall not be against public interest to do so, it may grant, subject to such conditions and restrictions as may be specified, a permit authorizing the extraction and use of groundwater. The conditions will include mandatory provision of artificial recharge structures of appropriate size to be constructed by the applicant within a period as specified by the Authority

Provided that no person shall be refused a permit unless he has been given an opportunity of being heard

(4) The decision regarding the grant or refusal of the permit shall be intimated by the Authority to the applicant within a period of 60 days from the receipt of the application

(5) In granting or refusing a permit under sub-section(3), the Authority shall have regard to:

(a) the purpose or purposes for which ground water is to be used

(b) the existence of the competitive users

(c) the availability of groundwater

(d) quantity of ground water to be drawn

(e) quality of groundwater with reference to use

(f) spacing of groundwater structures keeping in consideration the purpose for which groundwater is to be used

(g) long-term groundwater level behavior

(h) its likelihood of adversely affecting water availability of any drinking water source in its vicinity

(i) any other factor relevant thereto

(6) The permit shall be in such form as may be prescribed

7. Registration Of Existing Users In Notified Areas

(1) Every existing user of ground water in the State or Union Territory shall within a period of one hundred twenty days from the date of establishment of the Authority by State / Union Territory Government will apply to the Authority for grant of a certificate of Registration recognizing its existing use in such form and in such manner as may be prescribed

Provided that the Authority may entertain any such application after the expiry of the said period of one hundred twenty days, if it is satisfied that the user was

prevented by sufficient cause from filing application in time
(2) The details to be furnished in an application under sub-section (1) shall include the following, namely

(i) The description of the source of ground water, such as type of well, its exact location
(ii) the lifting device used
(iii) the quantity of groundwater withdrawal and hours of operation per day
(iv) the total period of use in each year
(v) the purpose or purposes for which ground water is being extracted
(vi) in case the requirement of ground water is for purpose of drinking water, the approximate population to be served
(vii) in case of irrigation well, the location and extent of area irrigated; and
(viii) in the case of State, Municipal or Community run water supply schemes, the details of the services involved in addition to the quantities of groundwater extracted, the diversion or the pumping points and their locations

(3) On receipt of an application under sub-section (1), if the Authority is satisfied that it shall not be against the public interest to do so, it may grant, subject to such conditions and restrictions as may be specified, a certificate of Registration authorizing the continued use of groundwater

Provided that no person shall be refused a certificate of Registration unless he has been given an opportunity of being heard

(4) The decision regarding the grant or refusal of the certificate of Registration shall be intimated by the Authority to the applicant within a period of sixty days from the receipt of the application
(5) In granting or refusing a permit under sub-section (3), the Authority shall have regard to

(a) the purpose or purposes for which ground water is to be used
(b) the existence of other competitive users
(c) the availability of groundwater
(d) quality of groundwater with reference to use
(e) spacing of groundwater abstraction structures keeping in consideration the purpose for which groundwater is to be used
(f) long-term groundwater level behaviour; and
(g) any other factor relevant thereto

6.The certificate of Registration shall be in such form as may be prescribed
7. Pending the communication by the Authority of the decision on an application under sub-section (1), every existing user of groundwater in the notified area shall be entitled to the continued use of the groundwater in the same manner and to the same quantity as he was entitled prior to the date of his application
8. If a registered well becomes defunct, this fact should be immediately brought to the notice of the Authority by the user of groundwater

8. Registration Of User Of New Wells In Non-notified Area

(1) All wells sunk in the State / Union territory shall have to be registered including the areas not notified under Section 5 of the Act, except those excluding under sub-section 2(11) of the Act
(2) The clause under sub-section (8) of section 7 will also be applicable

9. Registration Of Drilling Agencies

(1)Every rig owner shall register his machinery with the Authority in such manner and or on payment of such fee as may be prescribed
(2)Every rig owner or operator shall follow the instructions issued by the Authority from time to time

10. Power To Alter, Amend Or Vary The Terms Of The Permit / Certificate Of Registration

At any time after a Permit / Certificate of Registration, as the case may be, has been granted, the Authority may, for technical reasons, alter, amend or vary the terms of the Permit / Certificate of Registration, as the case may be, provided the user of ground water has been given an opportunity of being heard

Provided further that before taking such action, the Authority shall ensure that the standing crop(s) are not damaged

11. Cancellation Of Permit / Certificate Of Registration

If the Authority is satisfied either on a reference made to it in this behalf or otherwise, that
(a) the Permit or Certificate of Registration granted, under sub-section (3) of Section 6, or sub-section (3) of Section 7, as the case may be, is not based on facts
(b) the holder of Permit / Certificate of Registration has without reasonable cause failed to comply with the conditions subject to which the Permit / Certificate of Registration has been granted or has contravened any of the provisions of this Act or the rules made thereunder

or

(c) a situation has arisen which warrants limiting of the use or extraction of groundwater;
then without prejudice to any other penalty to which the holder of the Permit / Certificate of Registration may be

liable under this Act, the Authority may after giving the holder of the Permit / Certificate of Registration an opportunity of being heard, cancel the Permit / Certificate of Registration as the case may be

12. Powers Of The Authority

(1) The Authority or any person authorized by it in writing in this behalf, shall have power

(a) to enter any property (private or government owned) with the right to investigate and make any measurements concerning the land or the water located on the surface or the underground

(b) to inspect the well which has been or is being sunk and the soils and other materials excavated therefrom

(c) to take specimens of such soils or other materials or of water extracted from such wells

(d) to order in writing the persons sinking a well to keep and preserve in the prescribed manner specimens of soils or any material excavated there from for such period not exceeding three months from the date of completion or abandonment of the work as may be specified by the Authority and such person shall comply with such requisition

(e) to inspect and to take copies of the relevant records or documents and ask any question necessary for obtaining any information (including diameter or depth of the well which is being or has been sunk; the level at which the water is or was struck and subsequently restored / rested, the types of strata encountered in the sinking of the well and the quality of the groundwater struck etc.) required for carrying out the purposes of this act

(f) to direct the user of groundwater to install water measuring devices on any groundwater abstraction structures

Provided that where the user of groundwater does not comply with the directions issued to him within a period of sixty days, the Authority itself may install such water-measuring device and recover the cost from the defaulting user of groundwater

(g) to seize any equipment / device utilized for illegal sinking and demolish the work executed fully or partly

(h)to direct any user of groundwater who does not comply with the provisions of this Act and rules framed thereunder to close-down the extraction of groundwater, disconnect its power supply and demolish any hydraulic work found to be illegal according to the provisions of this Act and the rules framed thereunder

(i) to enter and search with such assistance, if any, as it considers necessary, any place in which it had reason to believe that offence under this act has been or is being committed and order in writing the person who has been or is committing the offence not to extract or use the groundwater for a specified period not exceeding thirty days

(j) to exercise such other powers as may be necessary for carrying out the purposes of this act or any rules made thereunder

(2) The power conferred by section (1) includes the power to break open the door of any premise where sinking, extraction and use of groundwater may be going on

Provided that the power to break open the door shall be exercised only after the owner or any other person in occupation of the premises, if he is present therein, refuse to open the door on being called to do so

(3) The provisions of the Code of Criminal Procedure, 1973 (2 of 1974) shall so far as may apply to any search or seizure under this section as they apply to any search or seizure made under the authority of a warrant issued under section 93 of the said Code.

(4) Where the Authority seizes any mechanical equipment / device under clause (g) of sub-section (1) it shall as soon as may be, report to Magistrate and take his orders as to the custody thereof

13. Service Of Orders, Etc

(1)Every order under clause (d) of sub-section (1) of section 12 shall be served

(a) by giving or tendering the order of notice or by sending it by post to the user for whom it is intended, or

(b) If such user cannot be found, by affixing the order of notice on some conspicuous part of his last known abode or place of business or by giving or tendering the order of notice to some adult member/servant of his family or by affixing on some conspicuous part of the land or building in which the well is being sunk

(2) Where the person on whom an order or a notice is to be served is a minor, service upon his guardian in the manner provided in sub-section (1) shall be deemed to be served upon the minor

14. Bar To Claim Compensation

No person shall be entitled to claim any damages or compensation from the government for any loss sustained by him by virtue of any action taken under this Act

15. Delegation Of Powers And Duties

The Authority may, by general or special order in writing, direct that all or any of the powers or duties which may be exercised or discharged by it shall, in such circumstances and under such conditions, if any, as may be specified in its

order, be exercised or discharged also by any employee of the Authority specified in this behalf in the order

16. Members And Employees Of The Ground Water Authority To Be Public Servants

All members and employees of the Authority shall, when acting or purporting to act in pursuance of the provisions of this Act or of any rules made thereunder, be deemed to be public servants within the meaning of Section 21 of the Indian Penal Code

17. Protection Against Action Taken In Good Faith

No prosecution, suit or other legal proceeding shall be instituted against the Government, the Authority or any other officer of the Government or any member or other employees of the Authority for anything done or intended to be done in good faith under this Act, or the rules made thereunder

18. Cognizance And Trial Of Offences

(1)No prosecution for an offence under this Act shall be instituted except or by or with the written consent of the Authority or a person authorised in this behalf by the Authority

(2)No court inferior to that of a Metropolitan Magistrate or a Magistrate of the first class shall try any offence under this Act

CHAPTER 3

19. Rainwater Harvesting For Groundwater Recharge

The over-exploitation of groundwater due to ever increasing population, and other development activities have led to fall in groundwater table, drying up of wells, reduced sustainability of tube wells, environmental degradation etc. In many parts of the State. In order to improve the groundwater situation in critical areas, it is therefore, essential to adopt rainwater harvesting for groundwater recharge. In urban areas, rainwater available from roof top buildings and other open areas can be utilised gainfully for groundwater recharge. Rainwater harvesting structures feasible in urban areas include recharge pits, trench, existing tube wells or open wells etc. In rural areas, groundwater recharge be taken up considering watershed as a unit. The feasible recharge structures in rural areas include construction of gully plugs, contour bunding, Gabion structure, check dam/weir, percolation tank, recharge shaft etc

(1) To improve the groundwater situation, the Authority may identify the recharge worthy areas in the State and issue necessary guidelines for adoption of rainwater harvesting for ground water recharge in these areas. In rural areas, watershed management to facilitate groundwater recharge may be encouraged through community participation. The Authority may give appropriate directions to the concerned departments of the State/UT Government to include rainwater Harvesting in all developmental schemes falling under notified areas. In urban areas, falling in notified areas, the Authority may issue directives for constructing appropriate rainwater harvesting structures in all residential, commercial and other premises having an area of 100 sq.mt or more in manner prescribed within the stipulated period, failing which the Authority may get such rainwater harvesting structure constructed and recover the cost incurred along with a penalty as may be prescribed

(2) Notwithstanding anything contained in the relevant laws, the Municipal Corporation or any other local Authority as the case may be, may impose stipulated conditions for providing roof top rainwater harvesting structures in the building plan in an area of 100 sq.mt. or more, while according approval for construction, and permanent water and electricity connections shall be extended only after compliance of the directions given in this regard

(3) The Authority shall take steps for promotion of Mass Awareness and Training Programmes on Rainwater Harvesting and Artificial Recharge to Ground Water through Government Agencies/Non Government Organisations (NGOs)/Volunteer Organisations (Vos)/Educational Institutions/Industries/ Individuals

CHAPTER 4
Miscellaneous

20 Power To Remove Difficulties

If any difficulty arises in giving effect to the provisions of this Act, the Government may, as occasion arises, by order, do anything, which appears to it, to be necessary or expedient to remove the difficulty

Provided that no such order shall be made after the expiry of the period of two years from the date of commencement of this Act

21 Offences And Penalties

If any user of groundwater

(a) Contravenes or fails to comply with any of the provisions of this Act or any rule made thereunder

(b) Obstructs the Authority or any other person authorized by it to exercise any of the powers under this Act

He shall be punishable

(i) For the first offence with fine which may extend to Rupees Five Thousand; and

(ii) For the subsequent offence, with imprisonment for a term which may extend to six months, or with fine which may extend to Rupees Ten Thousand or both

22. Compounding Of Offences

Any offence under this Act may be compounded by the Authority as prescribed, either before or after the institution of the proceedings subject to such conditions as may be prescribed

23. Offences By Companies

(1) Whenever an offence under this Act has been committed by a company, every person who at the time of the commission of offence was in charge of, or was responsible to the company for the conduct of the business of the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly

(2)Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed with the consent or connivance of, or is attributable to any neglect on the part of any Director, Manager, Secretary or other Officer of the Company, such Director, Manager, Secretary or other Officer shall also be deemed to be guilty of that Offence and shall be liable to be proceeded against and punished accordingly

Provided that nothing contained in this sub-section shall render any such person liable to any punishment under this Act if he proves that offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence

Explanation: For the purpose of this section
(1) "Company" means any body corporate and includes a firm or other association or individuals, and
(2) "Director", in relation to a firm, means a partner in the firm

24. Appeals

(1) Any person aggrieved by a decision or action of the Authority under this Act may, within a period of sixty days from the date on which the action is taken or the decision is communicated to him and on payment of such fees as may be prescribed, prefer such an appeal to such authority as may be specified by the State/Union Territory Government in this behalf

Provided that Appellate Authority may entertain an appeal after the expiry of the said period of sixty days, if it is satisfied that the applicant was prevented by sufficient cause from filing the appeal in time

(2) On receipt of an appeal under sub-section (1) , the Appellate Authority shall, after giving the applicant an opportunity of being heard, dispose off the appeal as expeditiously as possible

25. Power To Make Rules

(1) The State/U.T. Government may, by notification in the Official Gazette, make rules to carry out the purposes of this Act
(2) In particular and without prejudice to the generality of the foregoing power, such rules may provide for

(a) The term of office and manner of filling vacancies and other conditions of service among the Members and Chairman of the Authority
(b) The functions and the terms and conditions of service of the employees of the Authority
(c) Any other manner of affecting service of the notification under clause (c) of sub-section (3) of Section 5 of Chapter-II
(d) The form of application under sub-section (2) of Section 6 of Chapter-II and the particulars that may be furnished with these applications
(e) The form of application under Section 7 of sub-section (1) of Chapter-II
(f) The form of the Permit and Certificate of Registration under sub-section (6) of Section 6 and sub-section (6) of Section 7 of Chapter-II
(g) The manner in which the specimens of soils or other material shall be kept and preserved under clause (d) of sub-section (1) of Section 12 of Chapter-II
(h) Specifying the Appellate Authority under sub-section (1) of Section 24 of Chapter –IV and the fees to accompany the Application for appeals

(i) Any other matter which is to be or may be prescribed
(3) Every rule made under this section shall be laid, as soon as may be after it is made, before the Legislative Assembly while it is in session for a total period of fifteen days which may be comprised in one Session or in two successive Sessions, and if before the expiry of the Session in which it is so laid or the Session immediately following, Assembly agrees in making any modification in the rules or Assembly agrees that the rule should not be made, the rule thereafter shall have effect only in such modified form or be of no effect, as the case may be; so however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule

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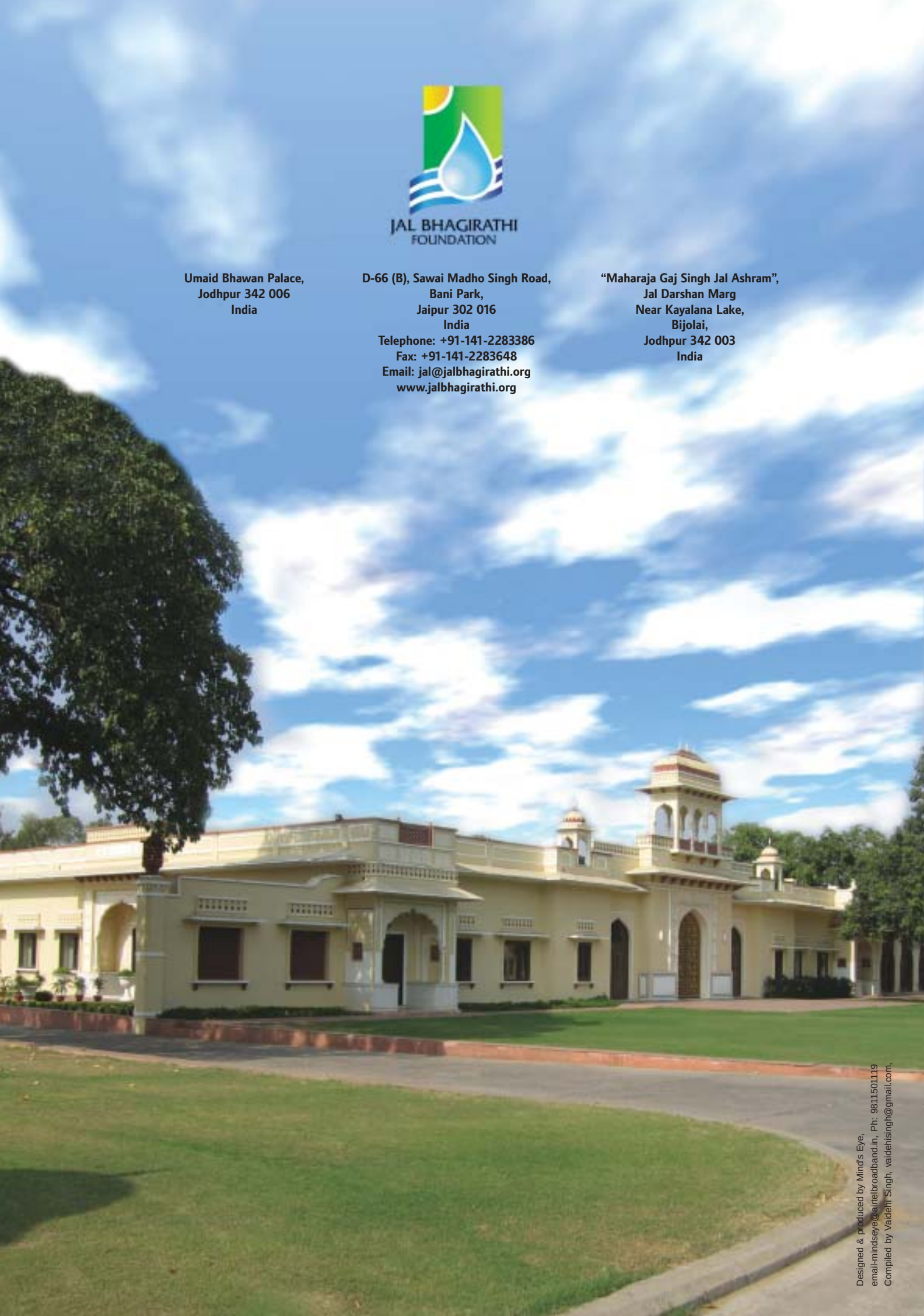

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