



Environment

Water & Environmental Sanitation Network (WES-Net India)



Solution Exchange for WES-Net India Consolidated Reply

For Comments: Rajasthan Draft Water Policy, from UNDP, New Delhi.

Compiled by [Pankaj Kumar S.](#), Resource Person and [Ramya Gopalan](#), Research Associate
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Original Request: Prema Gera, UNDP, New Delhi

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Given the critical situation of the water sector in Rajasthan and the need for its integrated and coordinated planning, the State Government of Rajasthan set up an expert committee on 'Integrated Development and Management of Water Resources' under the chairmanship of Dr. V.S. Vyas on the 29th June 2004. The Committee gave its recommendations in June 2005.

Among other recommendations, the Committee suggested a revision of the state water policy adopted by the government in 1999. Consequently, the state government has prepared the **Government of Rajasthan- State Water Policy (Draft)** and has placed it in the public domain for feedback. This document is available at the following link: <http://www.rajirrigation.gov.in/docs/DraftStateWaterPolicy.pdf> (Size: 38 KB)

The Rajasthan draft water policy covers several necessary aspects such as the need for the water policy to reflect overall development goals of the state such as poverty reduction, economic growth, environmental well being, progress of weaker sections, promotion of livelihoods; the importance for water resources development projects to be prioritized on economic, social and financial criteria; the need for a well developed and comprehensive information system for water management, etc.

While the Rajasthan government wants the state's water policy to reflect the problems, views and aspirations of all water users in the state, it is also keen to learn from experiences in other states of India and from the larger community of practitioners, policy makers and researchers. With this in mind, the policy is being placed on Solution Exchange to benefit from the rich and diverse experience of the community.

Members may also like to refer to the following documents as background reading:

1. Salient points of the Report of the Vyas Committee (Summary in PDF)
<http://www.solutionexchange-un.net.in/environment/cr/res31070601.pdf> (Size: 33 KB)

2. Report of the Expert Committee on Integrated Development and Management of Water Resources headed by Dr. Vyas (Full Text Link)
<http://www.rajirrigation.gov.in/docs/report.htm>
3. National Water Policy of India (Full Text in PDF)
<http://wrmin.nic.in/policy/nwp2002.pdf> (Size: 60 KB)

Looking forward to your responses.

Responses received with thanks from:

1. Viren Lobo, Society for Promotion of Wastelands Development (SPWD), Udaipur ([Response 1](#); [Response 2](#); [Response 3](#))
2. [Rahul Banerjee](#), Aarohini Trust, Indore
3. V. Kurian Baby, Socio-Economic Unit Foundation (SEUF), Thrissur ([Response 1](#); [Response 2](#))
4. Jasveen Jairath, Capnet SA, Hyderabad ([Response 1](#); [Response 2](#))
5. [Ramesha Chandrappa](#), Bangalore
6. [T R Raghunandan](#), Ministry of Panchayati Raj, New Delhi
7. [Rai Sukanya](#), Peoples' All-Round Welfare and Development Assistance Council (PAWDAC), Bhopal
8. Ajay Bhan Singh, Society for Promotion of Wastelands Development (SPWD), Udaipur ([Response 1](#); [Response 2](#))
9. [M. S. Rathore](#), Institute of Development Studies, Jaipur
10. [Krishna Kumar](#), Center for Community Economics and Development Consultants Society (CECOEDECON), Rajasthan
11. [Indira Chakravarty](#), All India Institute of Hygiene and Public Health, Kolkata
12. [B. M. Kandpal](#), SIMAR, Uttaranchal
13. [Subodh Kumar](#), Udyog Bharati, Ghaziabad
14. [Tushar Shah](#), IWMI, Anand

Further contributions are welcome!

Summary of Responses

The query placed the Rajasthan State Water Policy (Draft), 2005 before members, who responded with detailed analyses on almost every aspect of the policy. Members analysed the draft policy in context of the 1999 Draft Water Policy, National Water Policy, Rajasthan Groundwater Regulation Bill, 1997, Vyas Committee report and their own experiences.

Participants **congratulated the Rajasthan Government** for deciding to update the Rajasthan Water Policy 1999 through public discussions. The Government's resolve to repeal or amend outdated laws is forward looking, as is its stated commitment to provide potable drinking water to every citizen. Respondents also appreciated that the policy has incorporated Vyas Committee's recommendations to separate water resources planning from execution of projects, which will lead to better resource planning and management.

Respondents discussed the **basic principles** that the policy needs to consider when looking at water in Rajasthan. They classified water use according to its role, giving the highest priority to the function of water for sustaining human life. However, they stressed that the long-term

availability of water would ultimately depend on how humans conserve the **ecological systems** that generate and regulate fresh water. When water is an “economic good”, like in irrigation, it needs to be treated as such. At the same time, the State must also not allow the “commoditization of water” to affect adversely its role as a life sustaining, common and social good.

Exploring the possible **role of State**, participants quoted a [Supreme Court judgement](#), which directs the State to see itself only as a custodian of natural resources. They felt that the policy's emphasis on making water State property is contradictory to the policy's objective to ensure sustainable community-managed water resources. Respondents pointed out that since water has not been 'created' by the State, it cannot be State property. They also stressed that the water situation in Rajasthan could improve only through a constructive, cooperative relationship between the State and civil society. The **State should not assume ownership**, command and management of water – as these functions are best left to communities.

Encouraging efficient water utilization through a **system of incentives and disincentives** was an excellent approach, they felt, if designed in a democratic and consultative process. The policy's promotion of roof and storm water harvesting, water recycling and reuse was commendable. Additionally, empowering WUAs to execute and manage water infrastructure and to collect revenue for maintenance of the same is an important step. Members agreed that a judicious mix of technological, agronomical and economic measures were required to promote efficient water use. They also appreciated mechanisms suggested by the policy, on this, such as introduction of differential and volumetric water rates, and shifting to less water consuming crops and animal husbandry based livelihoods

Respondents noted that it is a key duty of the State to protect the fundamental right of every citizen to **adequate and safe drinking water**. To fulfil this duty, it may need to facilitate conflict resolution and intervene to correct inequity or injustice and to take a lead in regulating extraction of water, promoting economy in water use and in resource conservation.

Discussing the issue of **privatisation**, members cautioned that models for public-private partnerships in water supply have not had satisfying results in other countries, and that the State may need to craft these carefully for Rajasthan. Similarly, the State needs to establish water norms for various stakeholders, based on their capacities and consumption. It also needs to regulate the **ill effects of industrial activities**, such as mining, on water recharge and quality.

The group discussed the bleak **groundwater scenario** in the state in detail and presented an [analysis](#) of the Rajasthan Groundwater (Regulation) Bill, 1997. They supported efforts for recharging groundwater, and pointed to its limitation due to the low permeability of underlying rocks, restricting recharge potential. Other positive steps proposed by the policy are rejuvenating traditional water sources, incorporating drought prone areas in planning, and flood zoning and flood control measures. Respondents also emphasised that since water cannot be 'produced', **managing the demand** for water to match its supply is the only long-term solution. They also listed ways demand could be rationalised through laws, administrative and economic mechanisms and suggested myriad ways of ensuring conservation of water, including community surveillance and monitoring of groundwater.

Moreover, it is vital to increase the **efficiency of irrigation**, stressed members, since it consumes 90% of all water in the state. They suggested that the State could **strengthen institutions** for participatory, equitable and sustainable irrigation management; particularly including women in conserving and managing water.

Along with commenting on and **suggesting additions to the policy**, respondents pointed out some omissions in the policy. They noted that the policy is silent on the role of various crucial stakeholders such as women, small and marginal farmers, landless, nomads and people displaced by projects, such as dams. The policy must also address social exclusion of stakeholders based on caste, gender, access to land, etc. The current fractured institutional mechanism for governing water is not satisfactory; and a more holistic approach to water resource management is required. Additionally, members underlined the central and constitutional **role of panchayats** in water governance and urged that the policy to more effectively include Panchayat Raj Institutions (PRIs).

In addition, the policy urgently needs to address the spiralling rural-urban and ecosystem-agriculture related water conflicts. Respondents were also disappointed with the policy's "broad-brush" approach and felt that it needs to clearly delineate **different solutions** to the varied hydro-geological and socio-economic conditions of Rajasthan. In order to achieve this, the policy must be harmonised with other water sector and non-water sector policies.

Members looked forward to a redefinition of the role of the State in the water arena following the open public discussions on the Draft policy. There was ample scope to ensure sustainable management of water resources across different priorities and sectors. The key to achieve these objectives, they stressed, was to put in place appropriate institutional and motivational mechanisms to ensure participation of communities in managing water resources.



This section outlines the salient points discussed by members, classified according to the policy's chapters. It also includes suggestions to add in the draft policy.

Chapter 2: Information Systems

Members gave the following suggestions on the issue of Information Systems for water sector:

- Successful water resources planning can only follow from a well-developed meteorological information system, designed to cover the high rainfall variability in the state.
- Data users need to decide the design of the data systems. Having interactive (internet based) updates would bring transparency and increase ownership of all stakeholders.
- Relevant departments must collect data on water use and socio-economic parameters, in addition to technical data.

Chapter 3: Maximizing Water Availability

Respondents listed the following issues on enhancing water availability:

- The policy gives an elaborate list of actions for maximizing water availability, but does not delineate role of different stakeholders, this needs addressing.
- In rural areas, there is an urgent need for community-based rainwater harvesting, ground water (GW) recharging, reduction of water loss due to evaporation, recycling of "used" water, and conservation of water used for domestic and agricultural purposes.
- In urban areas, centralised water supply and sewage is extremely expensive to build and maintain. Tackle the issue of centralised sewage systems, by treating and using wastewater for GW recharge and home gardens.
- The State's focus on large, costly and centrally managed systems has led to a dependency on bureaucracy for water supply, and a decline of the rich traditional and decentralised systems of water conservation. It is important to rejuvenate these and remove encroachments from catchment and submergence of such structures.
- Given Rajasthan's precarious availability of water, the possibility of inter basin transfer cannot be negated. Before any transfers are considered detailed and transparent

environment and social impact studies and an examination of implications these type of "outside basin" transfers regions are necessary.

- Ensure that existing allotted quota of inter-state transfers through large irrigation projects are utilised completely.

Chapter 4: Project Planning

Respondents gave the following suggestions on project planning:

- River basins need to be the primary unit for water planning with empowered WUAs and River Basin Organisations (RBOs) playing an active role in the process. The focus must be on water management through decentralized and community-based institutions nested and integrated into a multi-tiered network.
- Expansion of urban development projects/industries needs to use degraded areas not "good" or treated agriculture lands.
- Large centralised projects and long-distance water transfers may be unavoidable but must be done only as a last resort, subject to principles of "least displacement or disturbance of communities" and "minimum environmental impact."
- The policy will benefit from listing clear goals, targets and indicators against a set period, independently monitored, to ensure greater effectiveness and transparency.
- Members also pointed out that the National Water Policy suggests re-prioritisation of funds in water sector to balance development needs with O & M needs and felt that the Rajasthan policy should also include this approach. They also suggested that (as in the National Policy), the state policy should carry additional sections on institutional reengineering for sustainable water management, River Basin Organisations, and institutions for harmonising competing uses of water.
- The state needs to conduct a stringent review of the projects under implementation- and based on the review, some projects will have to be accelerated, some re-phased or others terminated.

Chapter 5: Maintenance and Modernisation

Members' gave the following suggestions on maintenance and modernisation of water infrastructure:

- PRIs have a primary role of handling the O & M of small water bodies; however, the state government must give the funds and technical support for the panchayats to carry out their duties.
- To ensure sustainable water infrastructures, community contributions in the form of voluntary labour and money (regardless of amount) and public awareness campaigns are necessary.

Chapter 7: Groundwater Development

The major issues respondents discussed on the issue of groundwater were as follows:

- The foremost objective of the policy must be safeguarding the quantity and quality of GW.
- Rather than address all of Rajasthan as a monolith, the policy needs to give zone-wise suggestions to address the varied hydro-geological conditions, with requisite research support from the Central and State GW Boards.
- Water availability and flow in aquifers requires monitoring and deep drilling controlled through licensing of private drill operators.
- Suggested measures to govern groundwater
 - Legal ownership over GW is the central issue, and rights of the people and state need to be clearly defined to ensure that both use a sustainable management approach. GW must be understood and handled as "community resource."

- Dependable information on GW availability in aquifers and water balance studies to help guide communities toward sustainable water use is necessary, so they only use the annual recharge amount and not consume the “principle.”
- The policy needs to call for an immediate halt on all GW withdrawals. This can be done by integrating community based approaches for groundwater surveillance with enforcement of legal restrictions (e.g. by restricting digging of wells in “dark” and “potentially dark” zones). Later, the State may initiate activities for maximum recharge and retention, such as statewide watershed programmes.
- Establish GW regulatory bodies and aquifer management committees, and rationalise power tariffs.
- Design systems of obligations and incentives (e.g. mandatory recharge by extractors and free drinking water to rechargers, subsidies for rainwater harvesting and recharge, legal restrictions on water wastage or on higher water demanding crops and industries polluting GW) to promote individual and industrial water harvesting and recharging.
- Water campaigns alone may not be enough to achieve the objective of GW regulation and require fiscal, regulatory and legal provisions as well.
- Finally, recharge alone is unlikely to address all GW challenges of Rajasthan, as in most locations little unutilized surface water is available for recharge and agriculture largely is water, rather than land, limited. Consequently, demand management needs to be the core strategy and a system of multiple incentives and disincentives should form the backbone of water laws.
- Click here for a [Review of the Groundwater \(Regulation\) Bill, 1997](#)

Chapter 8: Water Allocation Priorities

Respondents discussed the following points related to assigning priorities in water allocation:

- The water allocation priorities mentioned in the policy are 1) drinking water, 2) irrigation, 3) power generation, 4) industry, 5) tourism and 6) other uses (in that order). However, the policy does not clarify how and by whom the competing needs will be managed. Therefore, the rationale for drawing up these priorities has to be explicit as well as mechanisms need to be put in place for managing competing demands in a transparent manner.
- The priorities apply only to bulk surface water storage, this does not take into consideration that in most parts of Rajasthan, GW meets the majority of domestic, irrigation and industrial demands, and is privately owned and controlled. The policy needs to clarify how these priorities will be enforced.
- Allocation of funds for water projects needs to focus first on maintenance and restoration of existing assets, next on completion of on-going projects and finally on new projects.
- The policy does not adequately cover the impact of mining on water resources. Members stressed that GW draft during mining and poor disposal of mining waste cause profound damage to GW. Mining also reduces GW recharge by destroying forest cover. Therefore, calculations of industrial requirement of water need to include GW drawn as part of mineral extraction, water for mineral processing and water prevented from infiltrating into aquifers. Also industries must take up compensatory recharge and treat effluents. Water audits in industries and other water abstractive units can ensure that industry does not jeopardize ecological systems or deprive anyone of their fundamental right to water.

Chapter 9: Drinking Water

Participants presented the following comments on the issue of drinking water:

- **Drinking water as a human right**

- View drinking water as a 'natural' good, making a minimum supply of safe water for drinking (and cooking and washing) available to every citizen, using modest per capita norms for water availability.
- Since sanitation is closely related to water quality, adequate facilities for sanitation need to also be assured, in addition to water.
- Implement administrative arrangements to ensure equitable access of minimum quantity of water to all sections of population, especially the poorest, socially excluded and most marginalized sections of society.
- **Privatisation of drinking water supply**
 - A minimum quantity of water must be reserved to meet the drinking water needs of the poorest and should not be available for sale- irrespective of money in the hands of buyers. Sale of water must be strictly regulated through a system of specific permissions and licences.
 - Considering the negative experience in public-private partnerships (PPP) in other countries, PPP models suitable for Rajasthan need to be evolved with caution. The government also needs to ensure that privatisation does not deprive marginal and small farmers or poor rural and urban consumers.
 - In rural drinking water supply schemes, PRIs or WUAs could fix, levy and collect user charges.
- **Water Norms**
 - The policy needs to clarify what it means by "universal access to safe drinking water covering all villages and habitation."
 - Differential supply norms for drinking water rural and urban areas are needed, as usage and technology in high-density urban populations are different from rural areas. In addition, water availability norms need to be established for drinking water, irrigation, industries, hotels, park, fountains, etc.
 - Instead of revising drinking water norms, which is less than 10% of total usage, norms for productive use of water in agriculture should be looked at, which form 90% of the state's usage.
 - There is a need to clarify whether planned revisions of the norms will result in a decline or increase, whether it will concern quantity and quality, and take into consideration rural and urban differences.
- **Importance of traditional systems**
 - Rejuvenate and develop traditional systems along with the modern systems for sustainable, equitable and community based drinking water supply in rural areas, since centralised systems are not always effective.

Chapter 10: Irrigation Water

Suggestions of members on improving productivity of irrigation were as follows:

- **Increasing Productivity**
 - Emphasise the use of surface water in proportion to ground water to reduce the pressure on GW through better utilisation of canal waters and increased water harvesting.
 - Get communities to calculate crop productivity per unit of water and change cropping patterns if crops are consuming excessive water.
 - Prioritise and develop irrigation sources and reduce conveyance losses in irrigation systems.
 - Reduce dependence on water intensive agricultural crops and practices and increase the contribution of animal husbandry in the livelihood portfolio.
 - Target subsidies on electricity and diesel towards the poor and ensure cost recovery from water users who can afford to pay for the same.

- Distribute water based on the requirements of various crops. The policy may also emphasise adoption of high efficiency water equipments, practices and conjunctive use of water, as in the 1999 draft.
- Increase utilisation of the irrigation potential created in surface water projects and efficiency of canal irrigation and non-completion of irrigation projects.
- Make farmers aware of measures for drainage and conjunctive use in waterlogged areas.
- Document and incorporate the rich traditional knowledge regarding water conservation in agriculture into future water management strategies.
- The area taken up under agriculture must be based on the water availability. In addition, water-conserving technologies (e.g. hydroponics, deficit irrigation, pressure and drip irrigation, and conserve surplus monsoon flow in small and large storage systems) need promotion.
- **Strengthening Institutions for Irrigation Management**
 - WUAs have had mixed results in managing irrigation in India, but still provide an alternative institution for Participatory Management. Accordingly, the government may review WUAs and strengthen them through better institutional design, improved implementation strategy and actual devolution of decision-making powers.
 - Rather than imposing WUAs, facilitate need-based evolution through capacity building and awareness programmes.
 - Clarify the role of WUAs vis-à-vis PRIs, as per constitutional mandate of PRIs to manage water resources.
 - Introduce Participatory Irrigation Management in all existing (major and medium) projects, and build it into new projects ab initio.
 - Strengthen local level institutions by assisting WUAs and PRIs to record water demand and supply at the panchayat level, then collating it at the basin and apex levels.
 - Ensure equity in distribution of water.
 - Sensitise farmers towards GW conservation by establishing relationship of village with basin, sub-basin and aquifer. Members referred to a project in AP to demonstrate how farmers can be involved in managing water for irrigation.

Chapter 11: Water Rates

Respondents raised the following issues on water pricing:

- Apply the principle of “full cost recovery” only when water is viewed as a commodity, not when it is “water for life.”
- Clearly, outline the principles for pricing of water (e.g. full economic pricing for some uses like irrigation) with penal pricing for over-use, reasonable pricing for commercial uses, subsidized pricing for the poor and free supplies to very poor to ensure access to water for the neediest households.
- While talking about changes in water rates, the policy needs to mention clearly the direction of such changes (the 1999 draft clearly mentioned that water rates should increase and collections need to improve).
- The policy needs to take into account the flourishing GW markets in the state. These perform useful functions, but the policy must ensure that they operate under watchful eyes of State and civil society for compliance with environmental and equity considerations.
- The policy mentions cost recovery in irrigation but also needs to ensure increased efficiency and accountability for such cost recovery to become a reality.
- Any increase in water prices would lead to enhanced agricultural output prices. Members felt that the policy should ensure that such an increase does not diminish the

competitiveness of Indian farmers in the global WTO dominated market. The policy also needs to maintain parity between agriculture and industry in this context.

Chapter 12: Participation of Water Users

Members raised the following issues on enhancing participation of water users:

- The policy must ensure that the civil society has a definitive role in management of water resources as well as in conservation of water resources; the current formulation implies that conservation is their role and management that of Government.
- Launch a massive campaign for spreading awareness on water as a scarce resource and the importance of better personal hygiene. Also, use supplementary instruments like tariff, subsidies, taxes, regulation etc.
- The substantial domestic water supply distribution losses in urban areas can be easily enhanced with little efforts. Thus, the policy needs to list mechanisms of sensitising urban populations to water conservation and taking up measures such as regulating water use, change groundwater laws, rational water pricing, rooftop water harvesting systems, etc.
- Role of Women
The policy needs to list mechanisms to increase availability of water near habitats to save time and energy for women. It also needs to outline clearly the representation of women in water-governance structures. This is because women play a key role in water resource management at household and farm level and studies show that water scarcity has a definitive impact on women's health. Fetching water being mainly women's responsibility, they economize use of water for themselves by not regularly bathing and washing clothes, drinking less water, not washing household utensils, and using less water during pregnancy and delivery. This leads to adverse health impacts such as constipation, urinary tract infections, skin infections, etc. Members cited a project in Rajasthan that had successfully trained women as hand pump caretakers, to illustrate how women can be empowered for sustainable management of water resources.

Chapter 13: Water Quality Monitoring

Members gave the following suggestions for improving water quality:

- Look for affordable technologies for drinking water quality problems (e.g. technologies by Central Salt and Marine Chemicals Research Institute, Bhavnagar, "root zone treatment," solar pasteurisation, solar ozone purification).
- Increase recharge rates of GW through artificial recharge methods to reduce concentration of impurities in GW.
- Communities and PRIs monitor water quality to help improve service delivery.
- Regulate, immediately mining, quarrying and other activities that negatively impact availability and quality of water.
- Ensure that Pollution Control Boards are held accountable for enforcing stringent measures to make polluters pay.
- Permit the digging of wells in canal irrigated areas, to encourage conjunctive use of water.
- Apply WHO drinking water standards for defining safe water quality.

Chapter 15: Water Conservation and Efficiency of Utilization

Respondents suggested the following measures for water conservation:

- **Measures for Achieving Water Conservation**
 - Repair dysfunctional water meters and charge consumers on basis of actual water use.
 - Make roof water harvesting compulsory in all government buildings.
 - Include water literacy material in curriculum of all government and non-government schools.

- Plan water storage tanks to take care of needs of parks in new colonies.
- Include harvesting of rainwater runoff from roads, roofs, etc. in the master plans of cities.
- **Sustainability of Water Resources**
 - Identify and promote technologies and institutional mechanisms for inland basin management and conservation of man made and natural wetlands.
 - Include traditional systems of water management in current land utilization, forest management and water management policies in an integrated way.
 - Regulate lift irrigation from ponds, community village ponds and rivers or water sources in grazing lands.
 - Permit lift-irrigation from rivers/nallas.
 - Design systems for storage of surplus monsoon flows into a mix of small and large structures.

Chapter 17: Drought Management

Respondents discussed the following issues on drought management:

- Water security must be the first objective of the state in drought prone areas and needs mentioning as the basic policy objective.
- Storing water in aquifers and using it as a buffer for drought years is the only long-term solution against drought and water scarcity, as against the current sectoral policies, which result in over-use of GW resources.
- All water management programmes must focus on drought proofing rather than spend large sums of money on combating drought. Also, strengthen local coping strategies to fight drought.

Chapter 18: Training and Education

Respondents made the following points with respect to training and education of water sector staff:

- Currently trainings are not linked to promotion or posting of staff of water-related departments, and are considered a punishment. The State needs to alter this mindset by linking trainings to promotion.
- Along with increasing capabilities of staff, also build the capacities of PRIs.

Additional Suggestions by Members

In addition to the specific feedback provided, members also suggested that the following points should be included in the policy.

- Specifically mention representation of women and of communities in Water Resource Authority, River Basin Organisations and other water management institutions.
- Underline the central role of PRIs, NGOs and people in conservation and management of water resources, and provide funds and technical support to PRIs.
- Form water panchayats at the village level and water committees at the ward level for settlement of crimes under water laws.
- Implement a coordinated approach in which all stakeholders are clear as to their role rather than using the current approach of dividing between water development (watershed, forests, GW, etc.) departments and water consuming (Public Health Engineering Department, water supply, irrigation, etc.) departments (as per the Vyas Committee).
- Institute a tribunal to address speedily conflicts on use and allocation of water both within the state and on interstate issues. Initiate local conflict resolution mechanisms like stakeholder forums.

Related Resources

Recommended Documentation

Gaps in Rajasthan State Water Policy (from [M. S. Rathore](#), Institute of Development Studies, Jaipur)

By M.S. Rathore; March 2003

<http://www.solutionexchange-un.net.in/environment/cr/res24070602.doc> (Size: 69 KB)

Provides comments on the gaps in the policy document when analysed in the context of the objectives and the existing water problems faced by society

India-Water Pollution (Supreme Court of India 1997) (from [Viren Lobo](#), SPWD, Udaipur)

By M.C. Mehta, *et al.*; UN Economic and Social Commission for Asia and the Pacific; October 2003

<http://www.unescap.org/drpad/vc/document/compendium/in1.htm>

For detailed information on this Supreme Court judgement by M.C. Mehta, that says that, the State is only a custodian of natural resources

Rajasthan Water Policy 2005: A Comparison (from [V. Kurian Baby](#), SEUF, Kerala)

By V. Kurian Baby and S. Narendra

<http://www.solutionexchange-un.net.in/environment/cr/res31070602.doc> (Size: 120KB)

Provides some observations and comparison of the draft Water Policy 2005 viz. a viz. the Government of Rajasthan Water Policy 1999

From [M. S. Rathore](#), Institute of Development Studies, Jaipur

Discussions of NGOs on the Rajasthan Water Policy 2005

By M.S. Rathore; March 2003 (in Hindi)

<http://www.solutionexchange-un.net.in/environment/cr/res31070605.pdf> (Size: 328KB)

Provides a summary of two discussions on the draft Water Policy 2005 by some NGOs from Rajasthan

Review of the Groundwater (Regulation) Bill, 1997

By M.S. Rathore

<http://www.solutionexchange-un.net.in/environment/cr/res31070603.doc> (Size: 24 KB)

Presents an analysis of the Rajasthan Groundwater Bill 1997

Recommended Website

Water Footprints (from [Subodh Kumar](#), Udyog Bharati, Ghaziabad)

UNESCO Water Portal Weekly Update No. 145; June 2006

<http://www.unesco.org/water/news/newsletter/145.shtml>

Provides various information incl. publications focusing on the context of water footprints

Responses in Full

Viren Lobo, Society for Promotion of Wastelands Development (SPWD), Udaipur
(response 1)

Following is the result of a consultation held on the Rajasthan State Water Policy at Astha Udaipur, on 1st June 2006. This note has already been sent to the concerned persons.

Main observations

1. The policy has not taken into account the peculiar conditions of Rajasthan. Even while mentioning the same in the need for a State Water policy, this does not reflect in the design of the policy (that state is water scarce on the one hand and predominantly rainfed on the other has not reflected in the drafting the policy, with minor modifications, the same policy could be applicable anywhere in India). The four Hydrological zones of Rajasthan need to be taken into account while designing the area specific strategies. This is dealt with in depth by the Vyas committee report, but the policy appears to have totally ignored its basic recommendations.
2. The Vyas committee report while considering that water is a basic human need also recommends providing for providing free water up to 40 liters per capita. This aspect has not been taken into account in the draft policy.
3. The combination of making water state property, encouraging private partnership even to the extent of making rules and regulations to facilitate their partnership and the focus on pricing of water as a means to control its usage seems to suggest that the state will use its powers to make investment in water and its subsequent commodification a profit making avenue. How this will ensure that basic needs are fulfilled remains a question.
4. The policy on the one hand talks of rational use of water, while on the other it talks of optimum use of water to maximize production in all user sectors. Are these two concepts compatible? Combined with point 3 above it appears that those who can pay for water have the license to exploit it.
5. The Supreme Court judgment by M.C. Mehta says that the State is only a custodian of natural resources. The concept of custodianship is totally missing from the policy, instead it talks of making the State owner of the resources.
6. The policy makes a provision to modify the water allocation priorities in the context of new developments. This leaves room open for exploitation of water by a few with the facilitation of the State. As an example the proposed International Airport at Udaipur will have an initial daily requirement of 3lakh liters per day. This water can only be made available by compromising the availability of the surrounding villages. The availability of water was not the consideration in the design of the project, or numerous other projects for that matter.
7. The stake holders in the rural areas have been identified as farmers. What about landless and other water users?
8. Small and marginal farmers are the most numerous in number but apart from one sentence with respect to water rates, their concerns have not been kept in mind.

Recommendations

1. The State policy should keep in mind the 4 hydrological zones of Rajasthan viz
 - The Irrigated region
 - Central Aravalis
 - Trans Aravalis
 - Western region
2. Vyas committee recommendations should be taken on board.
3. The water policy should integrate with other related policies like industrial policy, agriculture, forestry, mining, land use etc. Rational water usage must also be promoted in the other policies. As an example no industry should be allowed to set up if it is not compatible with the water availability of a region. The MS Swaminathan foundation has found Udaipur to be water deficit area. This aspect must be taken into account in planning and allocation of water among stake holders. Recharge of aquifers should be related to the abstraction from the aquifer.
4. The policy mentions that participation of farmers and users in the decision making process should be provided for in law. While this is a welcome step, it does not mention

- how this is to be effected, and its relationship with water being State property and decisions to be made by the State. In this connection the concept of State of custodian can be mooted on the one hand while empowering Gram Sabhas and Panchayats to have say in the determination of water allocation priorities.
5. In connection with 4 above, the basin level approach is an average concept. There are differences in the water availability in different locations of the basin. It would therefore be advisable in the rural context to make village as unit and establishing its relationship with basin, sub-basin, aquifer etc. Udaipur region for instance is in the upper catchment area of the basin.
 6. Water availability and flows in the aquifers need to be studied in order that recharge can be correlated to abstraction. In the context of allocation of water rights to industry recharge based on abstraction could be made mandatory. This would also help to determine impacts of pollution and facilitate a mechanism to ensure its control by the polluting industry.
 7. The policy should incorporate the decisions given by Supreme Court and High Court at various points in time which have a bearing on rational and sustainable use of water in the context of social justice.

The List of Participants at the consultation is as follows:

1. Bhanwar Singh Chadana – Astha
2. Dr. J. C. Dube – AFPRO
3. Dr. Tez Razdan - Jheel Sanrakshan Committee
4. Brijesh Tomar - AFPRO
5. Shailesh Nagar - Foundation for Ecological Security
6. Juned Khan - SPWD
7. Viren Lobo - SPWD
8. Prem Luthra - Astha
9. Ramesh - Astha
10. Mohan Dangi - Prayatana Samiti

Rahul Banerjee, Aarohini Trust, Indore

Here are my quick comments on the Rajasthan draft water policy

1. The biggest problem from the point of view of water conservation in most parts of India including Rajasthan is that the underlying rock structure has low porosity and permeability and so recharge and retention of water in underground aquifers is poor. While the policy mentions that most of the water should be retained in underground aquifers, it surprisingly remains totally silent about how this can be done given this natural obstacle to large amounts of water being retained. So there has to be provision in the policy for studying the central ground water board data about the characteristics of the underlying aquifers in different parts of the state and correlating them with the over ground topology to see what technologies are appropriate for different areas to achieve the stated goal of greater underground storage of water in aquifers. At present there is no such correlation and water conservation structures are built at random in an inefficient manner. Given that resources are limited there has to be proper planning to ensure that the kind of structure or strategy adopted in a particular area results in maximum recharge and retention.
2. There is a mention of inter basin transfers but without any provision for a complete environmental and social impact study to precede such transfers. Inter basin transfers are highly

controversial environmental and social actions and so if they are to be undertaken at all there should first be detailed environmental and social impact studies with large public participation.

3. There is no separate section in the policy for urban water management apart from mention of waste water recycling, economic water rates and recharging. Urban areas are severely in crisis as regards water supply and waste water disposal and treatment. The present technology of centralised supply from a far away river source and then centralised disposal of waste water through sewage systems and storm water through storm water drains is extremely expensive and so are not being implemented properly. They are expensive to both build and maintain. Thus options for decentralisation of water sourcing and disposal have to be explored. A deep study of the nearby catchments of cities or towns has to be done to see how the precipitation in these catchments can be totally recharged including in the cities themselves. In the cities it will involve exploring the possibility of recharge of all storm water within the city limits both by individual houses and by the municipal corporation. The waste water too should be treated in situ and recharged instead of being led away in sewers and then being disposed into nullahs and rivers without being treated.

These points could find specific mention in the policy.

V. Kurian Baby, Socio-Economic Unit Foundation (SEUF), Thrissur (*response 1*)

Outbreak of malaria in the desert regions of Rajasthan probably is a succinct narration of the story of profligacy in water usage. Conveyance loss of the irrigation systems and unaccounted flow of the drinking water supply schemes on an average comes to 35-40%. With a fast developing agricultural sector (largely flood irrigation), over exploited aquifers putting a premium on quantity and quality, driving the marginal farmers further into penury, subsidized power acts as an incentive for competing use and over extraction, the policy developments are of significant implication for the State's future. A state having very low/scanty annual average rainfall, particularly in western Marwar region as low as 100-200 mm is having a rapid growth of population well above 2.5% per annum. Undoubtedly, the growth of the State would be severely constrained by water, even in the near term. The new Water Policy of the Government is expected to usher in a new era in water management by significantly improving water governance.

However, the spirit of Vyas Committee report is somehow found missing from the Policy to a large extent. The whole emphasis is on development /production (supply side) and not on sustainable management (demand side). The much needed central role of PRIs on the basis of subsidiarity is missing. The GoR is the largest manager and investor in water and the policy is not clear as to how it addresses the critical issues of improving water use efficiency, appropriate designs and institutional reengineering. The policy is apparently very weak in addressing corrections at the Government level, institutions, resource management, regulation and equity. Though reposing much faith in awareness creation, supplementary roadmaps to use instruments like tariff, subsidies, taxes, regulation etc., to translate awareness into sustainable management and action are apparently absent. The policy has very little emphasis on the environmental and ecological requirement thresholds. The approach to the Ground Water legislation is selective and graduated, though warrants considerable urgency.

The policy reads "...the overwhelming interest of the State is to bring, by physical and managerial measures, as much of the potentially available resources into beneficial utilization as is physically and economically feasible." The word environmentally sustainable with considerations of intergenerational equity would have imparted great value addition and feasibility to the policy. In fact, the word "sustainability" is almost missing from the document.

Obviously, the policy initiatives are triggered by political wisdom and vision. The draft has already been put to wider stakeholder consultation, which would be followed by vetting by experts and is expected to pass through the scrutiny of the legislature/political executive, leading to a comprehensive, holistic and sustainable water policy for the State.

Jasveen Jairath, Capnet SA, Hyderabad (*response 1*)

A very important point underlying critique by [Viren](#) et al is that certain minimum water should simply NOT BE AVAILABLE for sale - irrespective of money in hands of the buyers. Sale of water should be contingent on specific permission/licence - it requires strict regulation as water is a fundamental necessity for life.

This can constitute a common demand by water advocacy groups all over the country.

Ramesha Chandrappa, Bangalore

After having gone through water policy I feel following points be touched in detail before making it final:

1. Policy need to be framed by allocating minimum (fixed/floating) budget.
 2. Legislation may be made by fixing more responsibility on government authority rather than end users as it may lead to corruption and misuse of water policy.
 3. Frequent stake holder feed back should become part of water policy.
 4. Policy does not speak about information dissemination. All information (updated daily/weekly) about water should be available on internet in tabular, graphical, textual and spatial format so that people from across the globe can be informed.
 5. Policy needs commitment to create infrastructure.
-

T. R. Raghunandan, Ministry of Panchayati Raj, New Delhi

I found the document written more from an engineering perspective rather than from a community perspective. The document is sketchy with respect to the mechanics of community participation, particularly the relationship between a WUA and the PRI. Areas such as how to actually manage the competing needs for water are not fully dealt. Essentially, the means of managing community resources depends on pricing, which is a complex issue and on which government will need to lay down the ground rules. I might also say that the Ministry of Panchayati Raj is in discussion with the Ministry of Water resources to revisit the 1998 document which suggested the creation of water user associations through separate state legislations. Even the Central Ministry is now re-examining the entire policy of WUAs because this doesn't seem to have worked. If required, one can give a detailed formulation on the how to design an institutional mechanism that aims at a harmonious linkage between special interest groups such as WUAs and PRIs.

Rai Sukanya, Peoples' All-round Welfare and Development Assistance Council (PAWDAC), Bhopal

It was heartening to read about the Rajasthan State Water policy and the fact that every water user has needs and aspirations related to it, which must be brought to the fore is absolutely true.

Since I had the good fortune of directing a Water Harvesting System project in Madhya Pradesh with PAWDAC(the organisation which I head)as NGO partner with the UNICEF, there are some responses which I would like to make;

- The state Governments provide handpumps which are primarily used by women to fill water for domestic use, thus making their role crucial. They could be appointed as the Handpump caretakers and report to a village handpump mechanic for repairs etc.
- The civil societies could be made use of in spreading awareness about water being a limited source and the urgent need to conserve it and recharge it including demonstrative solutions in every village area viz one house provided roof top harvesting and the structural details manifested to the villagers through detailed interactive sessions.
- It is high time the communities were made to wake up to the fact that a contribution however tiny it may be, will have to be made for maintenance of water sources done before it is too late and that some kind of a community contribution will have to be made with common consent in gram Sabhas.
- It would be very difficult to make this happen without public awareness since the minute it rains, the rural public forgets all the plans for water management.
- The WUAs would do well to invite public Kar seva contribution compulsorily at least one member from every family periodically for any manual labour to be done on the rural scene.
- It is vital to get all small water sources including even small nullahs falling into rivers invariably flowing near villages some time before the monsoon every year and this could be one vital area of employment generation during difficult times or for BPL adults.

There are a host of other things I would like to mention since water is an issue for which I feel deeply and have seen from very close quarters how it affects the day to day activities of the rural community. I will try and add more inputs in future and also try to learn more.

Ajay Bhan Singh Society for Promotion of Wastelands Development, Udaipur (*response 1*)

The water policy document of Rajasthan state is a carbon copy of national water policy. It is made out by just replacing the word state from the nation in most of its deliberations. On PRI part the operations and maintenance of small water bodies have been shifted to Panchayat at appropriate level. In practice this is not happening, with the result that the maintenance and repair of small water bodies is becoming a point of concern. In Sarada Panchayat Samiti of Udaipur district, the Panchayat Samiti have passed a resolution to deny drinking water to Udaipur town, which has not implemented. Also PRIs have not been technically equipped to maintain such structures. Although, some technical staff have been deputed for the purpose, they are not effective due to budgetary and other administrative constraints. Now the state policy is not giving any priority to PRI.

Which policy will dominate - will it be a resolution passed by PRI department or recommendations made by water resources department? The issue of bypassing PRI's role into formulation of water policy was strongly raised in a state workshop for water policy in Orrisa.

The state of Rajasthan is precarious in water resources, the issue of inter basin transfer can not completely be negated in Rajasthan's context. Also, there is a need to focus on to potential utilization of allotted quota from the inter state treaties. The ground water depletion rate is very high that has to be checked through promotion of strategies that reduce the withdrawal.

Jasveen Jairath, Capnet SA, Hyderabad (*response 2*)

It is a well documented fact that WUAs for irrigation have totally disintegrated even where they began with a 'Big Bang ' approach - such as Andhra Pradesh.

That however is not an argument for giving up the idea of institutional reforms - but it is certainly a very strong reason to re-look at designs/implementation strategy/beneficiary involvement/actual devolution of decision making powers/security of water availability from the main system etc .

The danger is however, that blindly going ahead with WUA formations in the name of institutional reforms may end up repeating the same costly blunders.

We need to begin with pilots, test out methods/strategies, identify weak spots and then take it on form there.

M. S. Rathore, Institute of Development Studies, Jaipur

Kindly find the comments I gave on the Rajasthan Water Policy 2002 at this link <http://www.solutionexchange-un.net.in/environment/cr/res24070602.doc>. I will revise these comments in the light of new developments in the water scenario in the state during the last four years. But comments will largely remain the same as they are still not addressed.

Krishna Kumar, Center for Community Economics and Development Consultants Society (CECOEDECON), Rajasthan

Besides, the Rajasthan Draft Water Policy 2005, a sector Policy for Rural Drinking Water and Sanitation (Draft) Policy-2005 is available for comments. I see no connect and coherence/convergence with the Water Policy 2005 released for public comments. Both the policies are critical in terms of shaping Rajasthan's plans and priorities to address water resource conservation and management and contribute to attaining UN MDGs, especially goal no. 7.

I have given below some of the concerns, I thought would be worthwhile for the WES community to reflect on.

State policies in the context of India's commitment at the national/regional and international level with reference to Rajasthan.

The state policies/vision statements need to be formulated keeping in mind India's commitment at various, national regional and international agreements, covenants and conventions so that state policies and programmes are in line and in conformity with India's commitments. This would make possible monitoring/assessment of Rajasthan's contribution to India's overall progress towards the stated commitments. To name a few, such commitments include the UN Charter, the Universal Declaration of Human Rights, 1948, International Covenant on Economic, Social and Cultural Rights, 1966, UN Commission on Human Rights, UN Millennium Development Goals (MDGs),

World Conference Against Racism at Durban , World Summit on Sustainable Development (Rio+10) at Johannesburg , Convention on Biological Diversity, Rio De Janeiro, 1992.

In particular reference to water, however, the draft state water policies of Rajasthan (1995 and 2005) continue to alienate communities' traditional rights on water use and management

including the traditional wisdom and knowledge. Rajasthan Government needs to spare a thought about UN MDGs to which Govt. of India is committed to attain by 2015. In the context of the MDGs, goal no 7 "Ensure environmental sustainability" aiming at integrating the principles of sustainable development, reducing by half the proportion of people without sustainable access to safe drinking water and achieving significant improvement in lives of at least 100 million slum dwellers by 2020 remains a far cry. The seventh MDGs target is to "integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources"

However, State Development Goals or 6 priorities as envisioned in Vision Document and the Budget speech of the Chief Minister of Rajasthan, 2004-05 do not explicitly make a mention or seek to address the UN MDGs, in particular, goal 7 related to water. These are

- Freedom from poverty, malnutrition and hunger
- Empowerment of women and weaker section of the society
- Human resource development and increased infrastructure development in the social development sector
- Employment generation
- Good governance and fiscal reforms
- Development of economic infrastructure services

My comments on Draft State Water Policy- 2005 (already submitted to the Government of Rajasthan) are:

Specific comments:

Page 2/ O: hints towards privatization. Can this be made explicit as to what it entails in absolute and operational terms? Experience suggests that such privatization of basic services and amenities in water sector has not yielded tangible and absolute benefits to water users especially in urban areas and mega cities.

page 3 point 1 wording of incentives and disincentives.....: There can't be any "disincentive" for efficient utilization" of water!!!

point 3 D: environmental criteria also need to be added and defined along with economic, social and financial

page 4 point j and k: N W Rajasthan being a "outside basin" state, precautionary principles needs to be exercised especially with respect to interlinking of rivers. The impact of canal irrigation ("sem" in Western Rajasthan and neighbouring Uttar Pradesh) is a living example of water logging and land becoming sodic.

General comments:

State policies in the context of the state/ national/ and international development goals/priorities.

1. Sectoral policies related to water use.

Analysis of various sectoral policies relating to water use in various sectors namely irrigation, mining, agriculture, excise, industry, power, *etc.* is needed to bring about harmony in water use and management. This has to be categorically stated in the water policy since various sectoral policies often has contradictory clauses with other sector policy. For instance, Excise policy promoting liquor and beverages units in dark zones, mining, tourism and other sectors policies promoting extractive and non- extractive industries/uses of water.

As far as urban development, land use changes and location of industries are concerned; degraded areas need to be considered for such projects instead of developed area. Agriculture

land and watersheds which have been treated (partially/fully) should not be put to other land uses.

Water balance needs to be factored into water audits in industries and other water abstractive units in a particular area.

2. Water use, conservation and management to maintain ecosystem functions especially the wetlands (man made and natural):

Though the draft policy takes note of water conservation and efficiency of utilization, the focus needs to be sharply brought on to the equilibrium between the allocation and use (irrigation, drinking water supply, recreational), *etc.* of water in wetlands for maintaining the integrity of natural ecosystem functioning for survival of flora and fauna especially in locally and internationally renowned wetlands and threatened wildlife for instance Siberian crane in Keoladeo National Park, Bharatpur, (a Ramsar site as well as a UNESCO designated World Heritage Site), Demoiselle crane in Kheenchana, *etc.* The wildlife concerns are given a short shrift as can be seen in the cover note of the Irrigation department which reads 1st para:3rd and 4th lines " water is an essential commodity ...mankind but also the livestock and vegetation".

3. Institutional mechanisms to address disputes and conflicts relating to water use, share and allocation :

A tribunal is needed to speedily address situation arising out of water share (with in state and interstate). This is of paramount importance considering the nature of conflicts that Rajasthan has seen in last couple of years, for instance release of water from Panchna dam to Keoladeo National Park, Bharatpur and agitation of farmers (and consequent deaths) for demanding share of water from various water sector projects and schemes. The inability to address/solve disputes/conflicts is often made out to be a thing of skewed priorities and politics rather than as viewed objectively. The way these situations were handled brought disgrace to Rajasthan both nationally and internationally, with government coming under sharp criticism in terms of gross human rights violation and inability to honor India's commitment in international conventions/agreements.

We urge that the Draft Water Policy 2005 make an attempt to address the UN MDGs and bring the focus on water w.r.t state development goals/priorities. This has also to be seen and addressed in the context of the National Development Goals as set out in the 10th Five year plan (2002-2007) and of Rajasthan Government's Tenth Five year plan 2002-2007 and subsequent five year plans. The policies as a matter of fact should have goal/targets as well as indicators, which could be monitored (independently) against a set time period. For instance, UN MDG goal 7 mentions of "Halve, by 2015, the proportion of people without sustainable access to safe drinking water and sanitation". Some indicators could be:

1. Proportion of population with sustainable access to an improved water source (urban and rural).
2. Proportion of population with access to improved sanitation (urban and rural).

A starting point in defining above said could be "Rajasthan Water Vision 2015" which corresponds to UN MDGs (at least in terms of time frame, but to do not mention UN MDGs explicitly) as suggested by Report of the "Expert Committee on Integrated Development of Water Resources" 2005. Another such vision related to water is outlined in Water Resources Vision 2045.

Indira Chakravarty, All India Institute of Hygiene and Public Health, Kolkata

I give below issues that need to be addressed by the Water Policy:

1. **Issue of personal hygiene and better practices and habits** to keep water safe and free of microbial and other contaminations. This will lead to reduced infection rates and better health and nutritional status. (Ref. – Chakravarty, Indira and Nath K.J.(1988); Water Sanitation and Health of Tribals, 14th WEDC conference, Kualalumpur.
2. **Recommend increased use of surface water for agricultural needs.** The reasons are – safe water is not needed for irrigation hence drawing of ground water is not justified. Secondly this would give on immense amount of respite from the depleting ground water levels.
3. **Recommend domestic use of waste water** produced for **home gardens** etc. This will reduce cost and labour for watering the gardens and result in better environment.
4. **Increased accessibility** to water (creating water sources near habitats) can **save** an immense amount of the **time and energy** of individuals(particularly **women**) who have to bring water from far off sources. This eventually supports an improved health and nutritional status of women. (Chakravarty Indira et.all. Time Energy Savings with Improved Accessibility to Community Water Supply. A study done in NEPAL and Sudan: (Sponsored by UNICEF).

Viren Lobo, SPWD, Udaipur (*response 2*)

I would like to repeat that the Supreme Court judgement by M.C. Mehta says that the State is only a custodian of natural resources. The concept of custodianship is totally missing from the Rajasthan Draft Water Policy; instead, it talks of making the State owner of the resources.

For detailed information on the case - M.C. MEHTA v. KAMAL NATH AND OTHERS, please see the following link:

<http://www.unescap.org/drrpad/vc/document/compendium/in1.htm>

Viren Lobo, SPWD, Udaipur (*response 3*)

I would like to clarify that the message by me dated Tue 4th July were the minutes of a meeting and not necessarily my comments. The input on the M.C. Mehta case was given by one of the participants at this meeting, namely Dr. J.C. Dube.

B.M. Kandpal, SIMAR, Uttaranchal

During our study for SIDA at Tarun Bharat Sangh, Alwar we realised that the Integrated water resources management/development should focus on drought proofing. As it is well known fact that billions have been spent on combating the impact of drought rather than drought prevention.

The policy should clearly spell out the need to river basin management in state.

The policy should also focus on promotion of technologies and institutional mechanisms for inland basin management in the state.

Ajay Bhan Singh, Society for Promotion of Wastelands Development (SPWD), Udaipur
(response 2)

I wish to touch upon the issue of industrialization with reference to the discussions on State Water Policy of Rajasthan.

The policy mentions only the following points about the industrial sector:

- Progressive water tariffs.
- Water recycling facilities.
- Treating urban sewage water for cooling and other processes

Progressive water tariff is applicable only on surface water usage as of now and water recycling is not seen practically in any industrial unit.

In my opinion, other crucial impacts of industrialization on the water sector have not been touched upon by the state water policy. A situational analysis given below highlights some points for member's consideration.

Rajasthan is home to some of the prime mineral resources of the country. Important minerals found within the state are lead, zinc and copper (non-ferrous metals), tungsten (ferrous mineral) and a number of other industrial minerals. Rajasthan is also the sole producer of jasper and wollastonite and a leading producer of cement and steel grade lime stone, soapstone, ball clay, calcite, feldspar, natural gypsum, kaolin, rock phosphate, ochre and building stones. Table below provides a broad picture on the contribution of Rajasthan to India's mineral production. This is still a limited list as only those minerals are listed here which account for 70 percent or more of India's total production.

Table: Mineral Production in Rajasthan

Mineral	% of India's Production	Mineral	% of India's Production
Wollastonite	100	Ball clay	71
Jasper	100	Calcite	70
Zinc concentrate	99	Sandstone	70
Fluorite	96	Flaggy limestone	70
Gypsum	93	Feldspar	70
Marble	90	Lead concentrate	80
Asbestos	89	Ball clay	71
Soapstone	87	Calcite	70
Lead concentrate	80	Sandstone	70
Phosphate rock	75		

Source: www.rajasthan.gov.in

The above picture of mineral availability reflects a sense of prosperity, but is also a major source of environmental disaster within the state. A very large area of the state is under mining and quarrying. The number of legal licenses and leases itself has crossed the 31,000 mark and the number of illegal extraction may be much for more than this. The direct impact of such excessive extraction can be seen on the natural resource base of the state, which is being degraded in an exponential manner. Vast areas under forest have been converted into barren lands, with drastic impact on ground water recharge.

The mineral industries often have to go deep into the ground to extract the minerals and during the process, pump out large quantities of ground water. While such a process has a profound

negative impact on the ground water table, it also results in a large amount of precious groundwater being wasted. In addition, large amounts of water are needed for the processing of the minerals extracted. The processing units are generally located far from the mining sites, and water for processing these minerals is being purchased by the industries at a high cost. The waste generated from the processing of minerals is not disposed appropriately. For example, numerous soapstone slurry dumps are visible in different parts of the state, which not only degrade the soil but also block the groundwater infiltration process.

Thus while calculating the industrial requirement of water for the state, the portion of ground water that has been drawn as part of mineral extraction and wasted is not considered. Most reports provides estimates of industrial consumption to the extent of 11%, which appears to be much lower than reality in Rajasthan's case, especially when the indirect impact of mining of ground water and the effects of industrial activity on groundwater recharge is taken into account.

At the same time, mining is a major employment source. Informal estimates suggest that about 1 million (0.35 million in 1993 as per mineral policy of Rajasthan) are employed directly and about 2.5 million people are employed indirectly with mineral industries. Considering the climatic features of the state (irregular and scanty rainfall, for instance) and dependence of large populations on wage employment, this process cannot stop. However, the employment potential from such work is being affected due to increased mechanization and further scope for extension to other areas. There is an urgent need to address these issues into the water policy, and ensuring that the mining industry also takes the responsibility of recharging and regeneration of water resources.

Other than mining, the cloth dyeing industries located in Sanganer (Jaipur) and Pali are polluting the underground aquifers over many kilometres. Although the ground water has been rendered unfit even for irrigation, it is still being used in crop cultivation impacting human health.

In conclusion, rules and regulations affecting water regeneration will remain only on paper unless these are implemented strictly on the ground. This may require punitive action in monetary and other terms for strict enforcement.

Subodh Kumar, Udyog Bharati, Ghaziabad

SE must be congratulated for opening up a forum where all problems of the present and planning for the future can receive inputs from volunteers at large. In the context of water footprints, I have the following points to offer for members' consideration:

1. Orientation of Agriculture needs to be gradually changed from water intensive to water saving strategies. Rajasthan has the largest cattle population and is the largest milk producing state in India. Rajasthan also has the largest sheep population of India, and India produces 40% of world's wool. These facts indeed point to the solution of water scarcity in agriculture for a state like Rajasthan. Thus, in water scarce areas Animal Husbandry is the most sustainable economic activity.
2. Hydroponics is an alternative to increase fodder availability, leading to increase in milk and wool production and fertility of the cattle, while still saving on water consumption. This is because fodder cultivation with hydroponics requires only 2% of water required for cultivating irrigated fodder. Additionally, hydroponics can also be used to grow pesticide-free vegetables.
3. Urban population wastes an average of 100 liters per capita per day of drinking quality water in flush systems. Although toilet pan and flush system designs the world over have been modified to use 6 liters per flush, the technology has not been standardized as one

- flush is never sufficient, leading to additional flushes and wastage of water. There is a need to improve on this technology.
4. Other technology alternatives that can be developed and made locally available are 'root zone treatment' for waste water treatment and solar pasteurisation and solar ozone purification (technologies now available) for improving drinking quality water in remote places.

[For details on Water Footprints, see <http://www.unesco.org/water/news/newsletter/145.shtml> - Moderator]

Tushar Shah, IWMI, Anand

I am intrigued that the Policy makes no statement on electricity subsidies to tubewells and their metering which is the prime cause for groundwater depletion.

V.Kurian Baby, Socio-Economic Unit Foundation (SEUF), Thrissur, Kerala (response 2)

The fact that the GoR wants to update the Water Policy 1999 is a laudable move in the right direction. A discussion between a numbers of experts committed to sustainable water resources management in India, brought out the following global comments:

1. The outline/section headings of the draft Water Policy (WP) are exactly the same as of the 1999 WP.
2. The overall thrust of the draft WP is capture in the sentence: *"The overwhelming interest of the State is to bring, by physical and managerial measures, as much of the potentially available resources into beneficial utilization as is physically and economically feasible."* (page 3, section 3).
3. The word "sustainability" is not found in the 2005 draft, and the word "sustainable" is used only once in the sentence: *"Rainwater harvesting structures would be constructed to augment water supply – especially in rural areas where ground water sources are not sustainable."* (page 8, section 9). There is no indication that the draft that Rajasthan needs to move towards sustainable management of water as a finite recourse.
4. Though decentralization has found a place in the draft, the much needed central role of PRIs on the basis of subsidiarity is missing.
5. In the draft the role of civil societies and grassroots organizations, including PRIs, is limited to conserve water. The draft does not give them any role as a part of the management process, i.e., conservation is their role and management that of the Government.
6. The policy is focused on awareness creation; however, to translate awareness into practice, supplementary instruments to influence the very incentive/disincentive structure to correct distortions are not much visible.
7. Fundamentally, the policy needs to articulate more pointedly and strongly issues that can only be addressed by the government, in policies, institutions (river basins/PRIs) and rights related to resource management.
8. One of the major issues in the State is the rapid deterioration of ground water levels and water quality which imposes a limit on its growth unless the ecological requirement thresholds are ensured. In the long run, the very sustainability of all other uses will depend on the environmental requirement, which in fact will restrain other uses and could lead to distortion of the policy itself.
9. The policy is silent on how it views the flourishing private water markets in Rajasthan and their regulation.

10. The policy may have a section on monitor-able programme targets and outcome indicators.
11. The policy could be further sharpened by recognizing the constitutional mandate of PRIs in water resource management (not just "source" management), the fiduciary role which the GoR could clarify, the importance of community based management of aquifers, specific directions of regulatory frameworks, process for conflict management and recognizing the importance of subsidiarity so that water resource management decisions are taken at the lowest appropriate level.
12. Overall the draft WP has some improvements compared with the 1999 WP, has watered down some of the stronger statements found in the 1999 WP and in its current form does not highlight the need to move towards sustainable water resources management.

A comparison of the draft Water Policy 2005 viz. a viz. the GoR Water Policy 1999 and some observations can be found at this link

<http://www.solutionexchange-un.net.in/environment/cr/res31070602.doc>

Many thanks to all who contributed!

If you have further comments to offer on this topic, please send them to Solution Exchange for WES-Net, India at se-wes_comments@solutionexchange-un.net.in with the subject reading 'RE: [se-wes] FOR COMMENTS: Rajasthan Draft Water Policy, from UNDP, New Delhi. Additional Reply'

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