



Environment

Water Community



Solution Exchange for the Water Community Consolidated Reply

Query: Pricing Mechanism for Water from Local Sources - Experiences; Advice

Compiled by [Nitya Jacob](#), Resource Person and [Sunetra Lala](#), Research Associate

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From [Sabyasachi Das](#), Sahjeevan, Bhuj, Gujarat

Posted 2 February 2009

I am Sabyasachi Das working in Sahjeevan, a voluntary organization working on conservation and natural resource management in Kutch district of Gujarat. Sahjeevan also works with communities on decentralised drinking water systems.

We are working on a decentralized drinking water system managed by *Pani Samitis* (Water Committees) in the Abdasa taluka of Kutch District. We have developed local water sources in several villages in the district over 15 years by promoting rainwater harvesting, building/rehabilitating recharging structures, catchment treatment, and drinking water wells, after studying the local hydrogeology.

After the Bhuj earthquake, Water and Sanitation Management Organization (WASMO) developed drinking water distribution networks in the affected villages of the Kutch district including storage tanks, stand posts, pipelines etc. The understanding was that Gujarat Water Supply and Sewerage Board (GWSSB) would provide water to a central point in the village or Narmada water would reach the villages. GWSSB charges a highly subsidised Rs. 14 per head per year to supply water to villages. GWSSB and WASMO agreed to support the hardware components of the programme, which focus on restoring/developing local drinking water sources such as ponds, tanks and wells.

We feel most villages can be self-sufficient in water if they revive these sources, while external sources can be used in emergencies or during drought. We also feel communities should pay for water from local sources, and that this should be lower than the cost from an external source to incentivise the community's management and protection of local water sources. However, these individual user charges have not been calculated, even though many *Pani Samitis* have worked out the operational and maintenance costs for these sources.

In this background, we request Water Community members to provide information on the following:

- How can individual user charges for water from local sources be calculated, including the methodology for valuation of water, assuming a willingness to pay by the community? Please include definitions for water price, tax, tariff and valuation of water.
- Are there any specific examples or experiences of the economic impact of improved water supply at the community and household level?

Also, please share information on cases/experiences of villagers managing their own drinking water sources and having an established pricing mechanism.

We will use the information provided to develop a community-led management plan for *Pani Samitis* to run village drinking water systems, and protection of local sources.

Responses were received, with thanks, from

1. [Vishwanath Srikantaiah](#), BIOME, Bangalore
2. [R. K. Sood](#), National Institute of Epidemiology, Chennai
3. David Foster, Administrative Staff College of India, Hyderabad ([Response 1](#); [Response 2](#))
4. [Murali KochuKrishnan](#), Action for Food Production (AFPRO), Bhubaneswar
5. Ramakrishna Nallathiga, Centre for Good Governance, Hyderabad ([Response 1](#); [Response 2](#))
6. Satya Prakash Mehra, Rajputana Society of Natural History (RSNH), Rajasthan ([Response 1](#); [Response 2](#))
7. [Shailendra Tiwari](#), Seva Mandir, Udaipur
8. [Jyotsna Bapat](#), Independent Consultant, New Delhi
9. [Ravi Singh](#), Margshree Farm, Agra

Further contributions are welcome!

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Summary of Responses

The concept of “pricing water” as a way to cover operation and maintenance costs is now widely accepted globally. Putting a monetary value on community water sources, which is a common good, helps, members felt prevent users from treating water as a free, inexhaustible resource. It also helps to pay for the upkeep of community water sources and ensure sustainability.

Discussing the **issue of water pricing**, respondents generally felt is a good idea to charge a water usage fee, whether for domestic, industrial and agricultural use, and especially for the latter, as it is the largest user. Pricing policies need to take into account issues of subsidy entitlements, members highlighted. Firstly, they advised adopting a minimum consumption limit (say 200 lpcd per family) and determining the degree of subsidy (as percentage of the cost). Next, the maximum consumption limit, beyond which a surcharge is justifiable, needs to be set. Discussants recommended working out subsidies for Below Poverty Line (BPL) families, SC/ST households, and fishing communities separately.

Authority, efficiency and accountability are three guiding principles involved with setting a fee for providing and services. Thus, members argued the entity setting the fee must have the authority to do so, be able to deliver services efficiently, and accountable to customers. While setting the fee, the authority also needs to ensure that the same is not over-priced. This authority, respondents felt can be either locally constituted or statutory, and usually source water from a public or community resources.

Looking at different **pricing models currently used** in India, discussants shared cases where private water suppliers have successfully occupied the space of government utilities by offering an assured water

supply, though at a relatively higher cost. In Udaipur district, [Rajasthan](#), certain individuals took control of reservoirs to supply water to villagers and industries, and charge commercial rates. Water tankers owned by the reservoir controllers carry water to villages and industrial units. Elsewhere, in [Bharatpur](#) district, private suppliers' have created a piped water system covering households in certain villages, again for a fee, and the water supply is regular. Members felt these cases demonstrate that the work of the state's Public Health Engineering Department (PHED), which is responsible for ensuring there is a water supply, is not satisfactory and this gap has encouraged the growth of private water suppliers.

In [Kerala](#), by contrast, under the government's Jananidhi programme, self-help groups have taken over managing water supply schemes at the micro-level from the government, and participated in setting an suitable pricing mechanism. Kerala also has a framework of user charges for water supply and sewerage. Another mechanism used in [Himachal Pradesh](#) to price water from a community resource involved calculating the cost of constructing water tanks defrayed over their lifetime, a scarcity rent, sustainability of the watershed, a discount rate and a maintenance charge. This assumed the lifetime of the water tank would be 20 years, and the scarcity rent for water covered twenty years. The idea was to collect enough money to replace the tank in twenty years as well as surplus for watershed conservation. This was the basis for calculating the household cost of water on a volumetric basis.

Similarly, in certain districts of [Orissa](#) with the help of various organizations, an NGO worked out an appropriate pricing mechanism to ensure water availability at the community levels. In [Karnataka](#), a village was able to design and extend water supply to all households and set up a volumetric metering system, while in West Bengal the Kolkata municipal authorities prescribed user charges and established well-structured tariffs. The tariffs include the cost of setting up the system, defrayed over its lifetime, and the operation and maintenance costs. Kerala has also worked out a similar [Frameworks of Cost Estimation and Determination of User Charges](#).

Assuming pricing water will ensure better supply, the **economic impact** will primarily show up in terms of savings on healthcare services (i.e. fewer person-days lost). The impact is also discernable when there is enough water for economic activities such as animal husbandry, value-added agriculture and small businesses. Moreover, regular water supply frees women from the chore of providing for water, allowing them to work and/or supplement the family income, enabling them to send their children to school and improve the overall standard of living. In addition to these tangible benefits, better water supply has intangible benefits of enhanced self-esteem of women and giving them an opportunity for greater involvement in the village development processes, but these benefits are qualitative and hard to measure.

Finally, while members recognized the potential of water pricing to address many water scarcity issues, they also voiced **concerns regarding the concept of "charging for water"**. They suggested using funds and work projects from government schemes such as the National Rural Employment Guarantee Scheme to rehabilitate water sources. People could contribute their labour instead of cash, and receive water free, although suppliers could potentially charge for certified pure water. Another approach could be allowing community-managed water supply systems, which provide an assured amount of water, to charge a fee, based on the costs of operation and maintenance, and charge a development fee to cover the costs of setting up the system. However, respondents noted that many times grant money covers the initial costs of setting up a water supply scheme.

Globally, there is a trend towards charging for water supply schemes to cover costs of operation and maintenance. This implies better service delivery, with the resultant benefits of freeing family members for economically productive work. However, the government has to play the role of a reliable service provider, in the absence of which private operators will step in; if this trend catches on, it can undermine the concept of water as a common good.

Comparative Experiences

Kerala

Jalanidhi Project Completes 3,681 Schemes for Water Supply (from [Murali KochuKrishnan](#), *Action for Food Production (AFPRO), Bhubaneswar*)

In June 2008, under the state government's water supply programme, 3,681 water supply systems, managed by 3,891 beneficiary groups were completed in. The beneficiary communities are operating and maintaining them. They collect Rs 4-5/household for maintaining the system, and women play a big role in the planning process. Working with communities, the programme was able to fix an appropriate pricing mechanisms and the community actively participated, helping the programme to succeed. Read [more](#)

Orissa

Action For Food Production (AFPRO) Ensures Community Water Supply, Ganjam and Gajapati District (from [Murali KochuKrishnan](#), *Action for Food Production (AFPRO), Bhubaneswar*)

In Ganjam and Gajapati Districts there was a scarcity of drinking water. To address this, the NGO AFPRO ensured a community water supply in each village by erecting stand posts and fixing appropriate pricing mechanisms for service delivery, based on the gravity flow system. This initiative has successfully formed community user groups who are now in charge of implementation, operation and maintenance of the structures. Read [more](#)

Rajasthan

From [Satya Prakash Mehra](#), *Rajputana Society of Natural History (RSNH), Rajasthan*; [response 1](#)

Water Tankers Supply Water to Meet Drinking Water Needs, Udaipur

Kanpur village faces severe water shortages. It is located in such a remote area that the tanks, which supply potable charge for the same. Although this has been declared illegal by the PHED, the demand for water supplies from the locals has ensured that this business still thrives, particularly during summers. Communities here have expressed their willingness to pay for the water supplied by these tankers due to the acute shortages. Read [more](#)

Private Pipelines Deliver Water Illegally to Households, Bharatpur

In Jatoli Ghana village, Bharatpur, a water deficient part of Rajasthan, a network of private pipelines illegally supply potable groundwater for household and drinking purposes. The site of the supplier's facilities are as well equipped as the PHED's water pump house and the pipelines deliver water in a timely manner, through a well-connected network. Although the people have benefitted from this facility it continues to remain an illegal system. Read [more](#)

Related Resources

Recommended Documentation

From [Vishwanath Srikantaiah](#), *BIOME, Bangalore*

Rural Water Supply: The Hebballi Experience

Article; by S. Vishwanath; BIOME; India Together; Bangalore; August 2007

Available at <http://indiattogether.com/2007/aug/env-hebballi.htm>

Describes how Heball village, Karnataka has designed and extended water supply services to all households based on a pricing mechanism and recovered costs from the same

A Fair Price for Water

Article; by S. Vishwanath; BIOME; India Together; Bangalore; December 2006

Available at <http://www.indiatogether.org/2006/dec/env-tariff.htm>

Discusses what the appropriate pricing mechanism for water ought to be in order to balance equity, accessibility and cost recovery using a case study from Bangalore

On the Hidden Cost of "Free" Water (from David Foster, Administrative Staff College of India, Hyderabad; [response 1](#))

Article; by David Foster; Administrative Staff College of India, Hyderabad; India Water Portal; Bangalore; February 2008

Available at <http://www.indiawaterportal.org/blog/2008/02/09/on-the-hidden-cost-of-free-water/>

Provides insights into the real cost of water, which only appears to be "freely" available and therefore the need for appropriate water pricing

Charging Fees for Public Sector Goods and Services (from Ramakrishna Nallathiga, Centre for Good Governance, Hyderabad; [response 1](#))

Guide Book; Office of the Controller and Auditor General; New Zealand; June 2008

Available at <http://www.solutionexchange-un.net.in/environment/cr/res-02020901.pdf> (PDF; Size: 1.4 MB)

Discusses the principles that need to be kept in mind while pricing public goods and services, including water and how the costs can be calculated

From Ramakrishna Nallathiga, Centre for Good Governance, Hyderabad; [response 2](#)

Water Supply and Sewerage

Document; Local Self Government Department; Government of Kerala; Kerala

Available at <http://www.solutionexchange-un.net.in/environment/cr/res-02020903.pdf> (PDF; Size: 100 KB)

Describes how Kerala has provided a framework and principles for a user charge levy in the case of key water and sanitation delivery sectors such as pricing of water supply and sewerage

Community Management in Water and Sanitation Sectors: Framework for Cost Estimation and Determination of User Charges

Article; Minimum Needs Programme, Water Resources Department; Government of Kerala; Kerala

Available at <http://www.solutionexchange-un.net.in/environment/cr/res-02020904.pdf> (PDF; Size: 368 KB)

Discusses how Kerala needs to institute a pricing mechanism for water service delivery and user charges for the same

From [Sunetra Lala](#), Research Associate

Pro-Poor Water and Wastewater Management in Small Towns

Article; by Dr. K. C. Bellarmine; PLANET Kerala; United Nations Economic and Social Commission for Asia and the Pacific; 2004

Available at http://www.unescap.org/pdd/prs/ProjectActivities/Ongoing/Water/Kerala/Kerala_ES.pdf (PDF; Size: 88 KB)

Discusses the relevance of water harvesting in Kerala and provides details on different water harvesting models and the pricing mechanisms used for the various approaches

Water Management in Pimpalbare: The People Succeed Where Government Failed

Article; by Surekha Sule; InfoChange News and Features; March 2004

Available at <http://infochangeindia.org/200403083359/Water-Resources/Stories-of-change/Water-management-in-Pimpalbare-The-people-succeed-where-government-failed.html>

Describes how farmers in the Pimpalnare village, Maharashtra , left to fend for themselves, set up and managed their own irrigation system, by fixing their own pricing mechanisms

Recommended Organizations and Programmes

From [Murali KochuKrishnan](#), Action for Food Production (AFPRO), Bhubaneswar

Swajaldhara, New Delhi

Ministry of Rural Development, Government of India, 9th Floor, Paryavarn Bhawan, CGO Complex, Lodhi Road, New Delhi 110003; Tel: 91-11-24361043; Fax: 91-11-24364113; jstm@water.nic.in; <http://www.ddws.nic.in/swajaldhara.htm>

Drinking water supply scheme which aims at decentralised community implementation of drinking water projects, wherein community participation is in the form of labour, cash, etc

Jalanidhi, Thiruvananthapuram

PTC Towers, SS Kovil Road, Thampanoor, Thiruvananthapuram, Kerala 695001; Tel: 91-471-233700; Fax: 91-471-2337004; mis@jalanidhi.com; <http://jalanidhi.com/>

Project implemented by the Kerala government to provide water and sanitation services through implementation of appropriate pricing mechanisms for the service delivery

Action for Food Production (AFPRO), New Delhi

25/1-A Pankha Road, D-Block, Janakpuri, New Delhi 110058; Tel: 91-11-28525452; Fax: 91-11-28520343; afprodel@afpro.org; <http://www.afpro.org/services.htm>; Contact D. K. Manavalan; Executive Director; Tel: 91-11-28525412

Provides community-based drinking water schemes for communities in Orissa by working out appropriate pricing mechanisms towards user charges, O&M, etc

Public Health Engineering Department (PHED), Rajasthan (from Satya Prakash Mehra, Rajputana Society of Natural History (RSNH), Rajasthan; [response 1](#))

PHED Jal Bhawan 2, Civil Lines, Jaipur 302006; Tel: 91-141-2222337; Fax: 91-141-2222337; raj_secy@nic.in; http://rajwater.gov.in/wc_tech.htm

State level agency in charge of managing the state water supply and sewerage system, including fixing appropriate pricing mechanisms for services

National Council of Applied Economic Research, New Delhi (from [Jyotsna Bapat](#), Independent Consultant, New Delhi)

Parisila Bhawan, 11, Indraprastha Estate, New Delhi 110002; Tel: 91-11-23379861 ; Fax: 91-11-23370164; infor@ncaer.org; <http://www.ncaer.org/research03.html>

Worked out a pricing mechanism in Himachal Pradesh to calculate the price of water supply as part of the Swajaldhara programme

From [Sunetra Lala](#), Research Associate

Kerala Rural Water Supply and Sanitation Agency (KRWSA), Thiruvananthapuram

PTC Towers, S S Kovil Road, Thampanoor, Thiruvananthapuram 695001, Kerala; Tel: 91-471-2337002; Fax: 91-471-2337004; mis@jalanidhi.com; <http://jalanidhi.com>

Autonomous institution, whose objective is to improve the quality of rural water supply and environmental sanitation by fixing appropriate pricing mechanisms

Aga Khan Rural Support Programme (AKRSP), Gujarat

Swastik Cross Road, Navrangpura, Ahmedabad 380009 Gujarat; Tel: 91-79-6427029; apoorva@akrspi.org

Works on water, sanitation and related issues in several state of India, with a strong focus on community participation in service delivery, including water service delivery related projects

Department of Drinking Water Supply, New Delhi

Ministry of Rural Development, Government of India, 9th Floor, Paryavarn Bhawan, CGO Complex, Lodhi Road, New Delhi 110003; Tel 91-11-24361043; Fax: 91-11-24364113; jstm@water.nic.in; <http://ddws.nic.in/>

Central Government agency responsible for providing drinking water and sanitation services across India

Related Consolidated Replies

State and Non-State Actors in WSS Service Delivery, from Padmaja Nair, Independent Consultant, Lucknow (Experiences). Water Community, Solution Exchange India, Issued 13 May 2006. Available at <http://www.solutionexchange-un.net.in/environment/cr/cr-se-wes-13050601.htm>

Discusses forms of organizational relationships or partnerships, the nature of formal or informal arrangement of partnerships & factors that promote such collaboration

Public Private Partnership in Delivery of Urban Services, from A. N. P. Sinha, Planning Commission, New Delhi (Experience, Examples). Water Community and Decentralization Community, Solution Exchange India, Issued 8 June 2006

Available at <http://www.solutionexchange-un.net.in/decn/cr-public/cr-se-decn-wes-08060601-public.pdf>

Addresses various aspects of service delivery in urban areas, highlighting PPP models and the underlying features of these partnership arrangements

Water Budgeting by Communities, from Ravi Niwash, United Nations Volunteer, Jharkhand (Experiences). Water Community, Solution Exchange India, Issued 7 November 2006

Available at <http://www.solutionexchange-un.net.in/environment/cr/cr-se-wes-07110601.htm>

Presents advice on the process that could prepare communities to take up water budgeting for better management of water resources, covering issues, suggestions and experiences

Paradigm Shift in Groundwater Governance, from K. A. S. Mani, Andhra Pradesh Farmer Managed Groundwater Project (APFAMGS), Hyderabad. Water Community, Solution Exchange India, Issued 9 August 2008

Available at <http://www.solutionexchange-un.net.in/environment/cr/cr-se-wes-food-12030801.pdf> (PDF, Size: 400 KB)

Raises issues concerning the existing community-managed models, shares members' experiences with these models and suggestions for scaling up

Responses in Full

[Vishwanath Srikantaiah](#), BIOME, Bangalore

Since I am a bit familiar with the excellent project, I will try and answer the specific questions that Sabyasachi Das raises.

How can individual user charges for water from local sources be calculated, including the methodology for valuation of water, assuming a willingness to pay by the community? Please include definitions for water price, tax, tariff and valuation of water. Since the local sources are generally open wells, the cost of the water should be based on the investments needed to make available continuously the water in the wells. This would mean budgeting for the usual repairs and maintenance, the pumping charges if any and a sinking fund to be able to replace the pumps and pipes. If there is no pumping and distribution system that is the water is drawn from the wells by hand then the major cost would be in the recharge structures designed to feed the aquifer to keep the water available sustainably.

Are there any specific examples or experiences of the economic impact of improved water supply at the community and household level?

Since most budgeting and availability of water is for consumptive purpose such as having a bath or washing clothes, the economic impact of improved water supply is clearly in the opportunity costs of health expenditure savings and in better health and therefore better economic productivity. The key economic impact will arise when water is made available in sufficient quantity, apart from lifeline and livelihood needs, to meet economic needs.

In certain cases such as in pottery making and in rearing milch cows, domestic water has the ability to steadily improve the income of families. A cow for example needs 90 litres of water a day whereas typical rural water supply schemes are designed for 40 lpcd only and 55 lpcd in some states. Providing the additional water for milch cattle and for potters say, has the ability to not only provide health benefits but also pay for the system since a cash surplus may be possible to be generated by the household from the domestic water so supplied or made available. Work has begun on this aspect of water for life, livelihood and economic benefit, but it is also dependant on the ecological availability of the water itself in the ecosystem plus the additional demand of say fodder (which also requires water) which will better help families, communities and systems to cover the cost of maintaining the water system.

Also, please share information on cases/experiences of villagers managing their own drinking water sources and having an established pricing mechanism.

In this particularly successful case (available at <http://indiatogether.com/2007/aug/env-hebballi.htm>) in a village in Karnataka, the village has not only been able to design and extend water supply services to all households but also meter and recover costs on a volumetric basis. They have also been able to create a sinking fund and are in a position to be able to maintain the entire system. Of course the capital cost has been subsidised by the state.

The picture is no rosier on the urban front, here is an article regarding the case of Bangalore – please visit <http://www.indiatogether.org/2006/dec/env-tariff.htm> for the same.

[R. K. Sood](#), National Institute of Epidemiology, Chennai

I disagree on pricing for basic welfare services like water. NAREGA funds can be used to rehabilitate traditional water sources and the people can contribute free labour in addition, which is more practicable in rural economies, rather than cash fee.

If premium services are provided as "CERTIFIED PURE WATER" then we may not mind paying. The tariffs should be decided on the basis of local ability to pay, as well as willingness to pay in addition to factoring operational costs. But anybody would resent paying for the same coliform-tainted water.

[David Foster](#), Administrative Staff College of India, Hyderabad (response 1)

I encourage those who are interested in Pricing Mechanisms for Water to check out the following website: <http://www.indiawaterportal.org/blog/2008/02/09/on-the-hidden-cost-of-free-water>.

This will link you to an interesting post on the India Water Portal that explores the real cost of what we normally think of as "free" water. The site contains a spreadsheet that allows you to make your own assumptions regarding the factors affecting poor families and then see how that cost compares to the cost charged to other people in the community. Due to "hidden costs" there are usually some real surprises regarding the true cost of water to the poor.

Murali KochuKrishnan, Action for Food Production (AFPRO), Bhubaneswar

Any scheme for drinking water resource development should be set to revolutionize the drinking water supply in the rural areas through the decentralized and community friendly approaches. The success of the programme/project will be a noteworthy one, if the community owns it as their own property. There are several models of community oriented decentralized system with people's participation in all stages of implementation of the project in terms of labor/kind/cash/land etc. for efficient maintenance and effective management of the systems. A few success stories are very well available with the Swajaldhara schemes of the Government of India.

Likewise, the JALANIDHI project of the Kerala Government implemented through the self-help groups in panchayats, has resulted in the timely implementation of small scale water supply projects, recharge measures to the groundwater as part of source strengthening measures, improved sanitation and health conditions and better wages for the rural folk involved in the system development. In several cases, trained women in the groups were involved to do the construction work.

This has resulted in increased daily wages and social dignity for the women in the group. The user group ensures the operation and maintenance cost and management of the system is carried out. The takeover of small drinking water projects by the self-help groups or water user groups from the Government have ensured accountability and sustainability of the project implemented in various regions. In totality, the Government needs to play only a role of the facilitator rather than the service providers.

The community fee and contribution for water use, operation and maintenance should be on common acceptable terms and conditions and also based on the amount of water used and the paying capacity of the community. The water user group should ensure the conflict free management of the system and work out the norms and strategies for "operation & maintenance fund" generation and proper accounting of the same.

AFPRO as a technical organization and its implementing partners in Orissa have generated a very small initiative of promoting of gravity flow based drinking water system in Ganjam and Gajapati District of Orissa, where in the water are made available at the community's door step through installation of stand post at different locations.

The system is still Sustainable because of the following factors:

- Community formed water user groups comprising 7 members, which includes 3 women and 4 men and regularly collects Rs.4 or 5 per household for maintenance of the GFS system. Here the system functional through the natural force of gravity and no other energy is involved
- Developed a forest protection mechanism and controlled deforestation at the upper catchments of the source to sustain it
- Involvement of local masons in the water user group makes the system of maintenance proper and prompt
- Responsibilities were equally distributed among the community without gender bias during planning, implementation, operation and maintenance process
- Women were encouraged to have their say in every decision making processes for common consensus
- It's a sense of responsibility, where each & every family contributes the same amount towards repair & maintenance cost of the system
- With the absence of disparity on the basis of sharing and distribution of water, social justice has been established
- Both male & female commonly share the responsibility for the maintenance of the system
- Local village institutions successfully continue with proper representation from female & male members of the village
- This has contributed to an enhanced self esteem of the village women & male members appreciated their involvement in the village development processes

Promotion of gravity flow based drinking water system involves a one-time investment and a regular operation and maintenance of the system. The recurrence cost is nullified in this initiative. It is of less cost and zero energy technology.

However, for the PWS in other regions involves a recurrent cost including that for energy. This needs to be decided in common consensus with the users groups for deriving the O&M cost requirements and appropriate sharing.

The Jalanidhi project of Kerala will provide some insights for the questions asked.

In short, no project will be sustainable, however technically well-planned it may be until or unless "Total Community Participation and ownership of the project is ensured by the community through prompt management of the system."

Ramakrishna Nallathiga, Centre for Good Governance, Hyderabad (*response 1*)

The recovery of water supply service provision costs (primarily, operation and maintenance) is a widely used concept across the world used by local governments - both rural and urban governments. The document enclosed gives a generic methodology and process involved in the pricing and cost recovery of water supply services (<http://www.solutionexchange-un.net.in/environment/cr/res-02020901.pdf>, PDF, 1.4 MB). Based on the framework suggested the user charge principles can be laid down with flat price per connection unit to begin with.

This is an interesting question that would find a diverse set of responses ranging from no charge to be levied on water (from activists basing arguments in the rights framework) to full cost recovery of water service (from service providers and the agencies concerned). Pricing is also a somewhat difficult question, as it may be criticized if based on cost recovery of service provision (which is a widely prevalent norm) to capture all the values of water as resource.

The Manila World Water Forum clearly mentioned that the sustainability of water resource - social, economic, environmental and financial - is important for ensuring the availability of water for future generation, apart from using for the current generations. However, the current pricing mechanisms rarely address these dimensions by using corresponding methods of the valuation of water.

Satya Prakash Mehra, Rajputana Society of Natural History (RSNH), Rajasthan (*response 1*)

Here are few examples of management of drinking water sources and pricing mechanism for the same:

Kanpur village, Udaipur (Rajasthan): One will find large private tanks in this area. It can be quantified through the number water tankers of a particular capacity, which draws water from these tanks. These tanks supply water for the remote areas of villages where potable water is not available. The expenses are shared by the village community.

Not only this, these tankers supply water for small industrial use in the area. Although, the storage and selling is illegal and the local administration has raided the facility several times but due to the demand of the locals it continues. Further, due to good rainfall the surface water sources are available so this supply is very limited and only 2-3 tanks are there. Summer period is best to locate such tanks in the concerned areas.

Jatoli Ghana village, Bharatpur (Rajasthan): One can find the local supply of potable groundwater for household and drinking purposes through a network of private pipelines. Interestingly the site of the

supplier's facilities look like the PHED's water pump house. Pipelines in different parts and houses are there and timely supply of water in well managed system is there. But who is to say whether this is illegal or not?

Both of these examples are illegal in terms of administrative system but if the villagers or local residents are getting potable drinking water at some cost which is better than the PHED water supply which is saline and not fit for drinking, at least for people like me (I am getting the RO water from outside). But villagers cannot afford 20 litre bottles so such supply is really helpful for the community in such areas.

Here, we can calculate the pricing of water by knowing the expenses incurred in pumping water out, burning of fuel in pumping the desired quantity of water and maintenance of pipelines along with labour charges against the cost charged by the owner. The only point to consider is what is the cost of groundwater?

[Shailendra Tiwari](#), Seva Mandir, Udaipur

I agree with [Satya Prakash Mehra](#). As a resident of Udaipur, Rajasthan I will try to corroborate the fact.

Selling of water is a flourishing business here. It further intensifies during drought years. In Udaipur, the PHED supplies water from the lakes in and around Udaipur. The PHED supply is highly insufficient and erratic, so most of the household tend to rely on their own bore wells. However, at many places the groundwater is either saline or inadequate. Under these circumstances, people usually resort to private water vendors.

In the absence of an appropriate governance and pricing mechanism, drinking water problem in the "city of lakes" Udaipur, remains a durable disaster.

[Jyotsna Bapat](#), Independent Consultant, New Delhi

We had calculated this mechanism, based on methodology for valuation of water, for a study conducted by NCAER for Himachal Pradesh towards the end of the Swajaldhara programme. There we had assumed a certain population growth rate and based on the future demand the capacity of the water storage tank was calculated for the piped water supply.

The construction cost of tank was thus known. Life was assumed to be twenty. Then we added a scarcity rent for water over next twenty years (called hotelier principle) that would be used in the future. The idea was to collect enough money to be able to have replacement cost of the tank in the 20 years time and some annual routine money available to conserve the water shed so that sustainability of the resource can be ensured over time in addition to O&M costs. A discount rate of 10% was used and some operations and maintenance cost of 15% per annum was assumed. A model was created to arrive at the present per household cost for the volume of water consumed per month.

But we were not able to get the numbers on monthly collections to validate the model because in the villages we visited we found that routine monthly collections did not happen. Only when something broke down in case of maintenance collection per household was made to take care of repairs. You can always check with an infrastructure economist on how to do this as it is a standard methodology for all infrastructure project financing.

[Satya Prakash Mehra](#), Rajputana Society of Natural History (RSNH), Rajasthan (response 2)

I am in favour of pricing water for the commercial sector. The commercial use of water from the surface as well as ground level is affecting the groundwater table as well as its quality.

I have few examples from the southern parts of Rajasthan. Without naming the industrial units, I would like to draw the attention of the members to the fact that the groundwater is over exploited in these areas; there is no check and control on the amount of groundwater that is withdrawn. Further, the poor section mainly the residential population is facing water scarcity. Moreover, many industries are using surface water which otherwise could be used by the locals surrounding the land.

I am not against development or the industrial sector but the question is what their accountability for scarcity of water? If there is drought, the units still run, and the poor public has to find new sources or the government has to arrange for alternatives, which are financially unsustainable.

So my argument is to price water for the commercial units to make them realize their duties before withdrawing water from any of the sources whether groundwater or surface water.

I can cite another example related to water management by the rural people from the northeastern parts of Rajasthan. The people here realized the importance of water when the flood prone area faced severe water problems. Now, people are repairing their traditional sources of water collections *pokhars*, *talao*, etc. The rural people with the help of NGOs are securing water for the summer time and also assuring its sustainability. People have realized that it was the availability of the surface water, which controlled the salinity of underground water table. If surface water dry up then well water will also be unavailable in the area over a period of time.

David Foster, Administrative Staff College of India, Hyderabad (*response 2*)

While [Satya Prakash Mehra](#) raises some very valid points regarding the need to price water for commercial users, I believe that many of the arguments equally valid in the agricultural sector, which consumes by far the largest amount of water in India.

Shouldn't farmers have an incentive to minimize the cultivation of water intensive crops when the only source of water is ground water in a region with a rapidly falling water table? There are many farmers in water stressed regions of Andhra Pradesh, for example, who not only pay nothing for the water but receive subsidized power for pumping water so that they can grow water intensive crops.

Ramakrishna Nallathiga, Centre for Good Governance, Hyderabad (*response 2*)

Kerala has provided a framework and principles/concepts of user charge levy in the case of key sectors - water supply and sewerage. Kolkata has also laid down for the user charges in its legislation and prescribed well structured tariffs. The enclosed documents provide a good approach for using the user charges principles and framework.

Please visit <http://www.solutionexchange-un.net.in/environment/cr/res-02020903.pdf> (PDF; Size: 100 KB) and <http://www.solutionexchange-un.net.in/environment/cr/res-02020904.pdf> (PDF; Size: 368 KB) for more details.

Ravi Singh, Margshree Farm, Agra

[David Foster](#) raises a very relevant issue, practically the subsidies may be better spent on things like drip irrigation, better seed and saplings, etc, a shift towards organic farming, which will ultimately mean less inputs and consequently less water use. If you subsidise it ought to be to help create sustainability, which clearly free power and water intensive crops will not achieve in areas with dwindling water resources.

Another issue is whether the subsidies are really helping farmers or are they ultimately lining the pockets of rural moneylenders!

[Satya Prakash Mehra](#)'s point is well taken. Everyone must start metering the water they use. This should be seen as encouraging sustainability and will help create awareness about water conservation. The less water we use will also take load of our infrastructure costs and taxpayers' money will be saved. May be we should all stop seeing water meters as billing machines but as eco-friendly devices.

Many thanks to all who contributed to this query!

If you have further information to share on this topic, please send it to Solution Exchange for the Water Community in India at se-wes@solutionexchange-un.net.in with the subject heading "Re: [se-watr] Query: Pricing Mechanism for Water from Local Sources - Experiences; Advice. Additional Reply."

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