



Environment

Water & Environmental Sanitation Network
(WES-Net India)



Solution Exchange for WES-Net India Consolidated Reply

**Query: Considerations for sharing of catchment pond water resources/
from Jal Bhagirathi Foundation, Rajasthan/ Advice**

Compiled by Preeti Soni
28 June 2005

Original Query: Alka Awasthi, Jal Bhagirathi Foundation, Jodhpur, Rajasthan
Posted: 13th June 2005

I am Dr Alka Awasthi, working as a Senior Programme Officer at the Jal Bhagirathi Foundation. The Jal Bhagirathi Foundation supports community participation efforts for the sound management of water resources in the drought-prone Marwar region of Rajasthan. We recently came across a situation in which we couldn't reach a clear line of action, and would appreciate advice from this community.

In some of our project villages, talabs (ponds) have been constructed with catchments and paals (retaining walls) under various development schemes. People of one particular village have access to a large pond that lies just beyond their village boundary. The pond, constructed under a government-sponsored scheme, benefits 25 villages and hamlets including the village in question. People of this village want to construct another pond just adjacent to the existing pond. The proposed pond will lie in the revenue area of this village.

The proposed pond, although lies very close to the existing pond, it has its own catchment enough to fill the pond. There can be two options:

1. Construct this new pond (this will involve huge expenditure from the community as well as from the project)
2. Demolish the retaining wall (paal) of the existing pond and make a new paal in such a manner that the water from the catchment of the proposed pond also flows into the existing pond (this will involve comparatively less expenditure).

Although the second option seems to be techno-economically better, the people of the said village want the first option. This is because they will have their own pond (in their revenue area) and in time of lean season they will not have to worry that other people may stop them from taking water from the existing common pond shared by 25 habitations. In other words, the second option is preferable to the community because of reasons of water resource security that is of paramount importance in this desert region. The first option is preferable on grounds of better utilization of funds by the Foundation.

The Jal Bhagirathi Foundation would like to hear about any **advice, experiences or models** we can suggest to the villagers that would offer a lower cost option while allaying their security concerns.

With regards,

Dr. Alka Awasthi
Senior Programme Officer
Jal Bhagirathi Foundation
Jodhpur

Solution Exchange received Responses, from:

- 1) [Lalit M Sharma](#), S.M. Sehgal Foundation, Gurgaon
- 2) [Mihir Mitra](#), ICEF, New Delhi
- 3) [Surendra K Yadav](#), National Institute of Health & Family Welfare, New Delhi
- 4) [Alok Srivastava](#), UNDP, New Delhi
- 5) [Prema Gera](#), UNDP, New Delhi
- 6) [Arumugam Kalimuthu](#), Plan International (India), New Delhi
- 7) [R. K. Pandey](#), Action for Food Production, New Delhi

Further contributions are welcome

Summary of Responses

WES-Net members offered technical, economic, social and behavioural considerations to be taken into account for resolving this challenge. Given that the main issue appears to be water resource security for this village, it could be seen as a case of how best to manage the use of common property resources. Among the considerations cited were the following:

- Finding a way to assure the village in question that their interests and concerns would be accommodated in any water-sharing arrangement with the existing 25 villages. One item mentioned was to involve the local Gram Panchayat, a Jan Samiti or a 'Pani Panchayat', where water management issues could be taken up.
- Clarifying land ownership rights on where the pond is situated, in order to bring more clarity to the situation of how and on what terms water can be made available
- Pointing out the economic costs of creating a separate pond, including maintenance, security and management issues, particularly when compared with continuing the use of the existing pond.
- Considering the consequences of one village pulling out of the existing arrangement with respect to possible resulting tensions with the other communities, or the prospect that other villages may reciprocate by constructing their own ponds to the detriment of the overall land use situation.
- Similarly, considering the need to renegotiate water supply arrangements with other present beneficiaries who may be neglected as a result, such as hamlets or households excluded due to distance from the pond or due to social exclusion of certain castes etc.
- Educating all of the 25 villages using the pond on how to utilize the water more efficiently

In case the village was concerned with alleviating water scarcity in addition to offering water resource security, contributors also presented a range of technical and economic considerations to be taken into account in determining the feasibility of building a new pond or expanding an existing pond. Among them were establishing technical estimates for the inflow-outflow balance, ensuring a favourable siting of the pond, and poly-lining the pond bed to help ensure water availability in the dry season.

Finally, one member volunteered his knowledge about comparable situations in southern Tamil Nadu that could be reviewed in more depth for finding possible solutions that could be relevant for Rajasthan.

JBF could consult with the community to establish their willingness to pay for a new structure in light of the above considerations, and encouraged to seek a more secure water-sharing arrangement with the other

villages. From the perspective of JBF as the funding organization, a case could be made for weighing the expenses to be incurred in building a new pond as against using the funds in another village with more acute water scarcity problems.

Related Resources

Suggested Documentation

CCS 2003. **Managing water resources: Communities and markets.** CSS briefing paper. New Delhi: Center for Civil Society.

The paper provides an interesting discussion on managing water resources using examples from India as well as other countries.

(www.ccsindia.org/water_brief.pdf 74 KB)

Giordano MA and Wolf A T 2003. **Sharing waters: Post-Rio international water management.** Natural Resources Forum (27): pages 163-171.

Journal article discusses the water sharing and management agreements at the international level

http://www.transboundarywaters.orst.edu/publications/narf_051_Giordano.pdf 2MB)

Hegde N G. 2003. **Networked ponds transform drylands.**

Article discusses a Karnataka water project that is more than an innovation making water and irrigation a reality in a drought-prone area.

(<http://www.indiatogether.org/2003/aug/env-baifwater.htm> 8 KB)

Ostrom, E 1990. **Governing the Commons: The Evolution of Institutions for Collective Action.** Cambridge University Press.

The book provides empirical data to explore conditions under which common pool resource problems have been satisfactorily or unsatisfactorily solved. Water rights are among the cases considered.

___ 2001. **Pani Panchayat creates reverse migration.**

Article covering the story of the Pani Panchayat in Pune

(<http://www.goodnewsindia.com/Pages/content/inspirational/paniPanchayat.htm> 17 KB)

The Hindu 2002. **Little pani, less panchayat.**

Is P. Sainath's note on the Pani Panchayats in Orissa

(<http://www.thehindu.com/thehindu/mag/2002/09/15/stories/2002091500080100.htm>
[t/inspirational/paniPanchayat.htm](http://inspirational/paniPanchayat.htm) 18 KB)

Suggested Websites

Swajaldhara, Department of drinking water supply, Ministry of Rural Development

<http://ddws.nic.in/swajaldhara/html/index.html>

This section of the official web-site of the Ministry of Rural Development provides details of its Swajaldhara programme.

Pani Panchayats in Orissa. <http://www.orissawater.com/P.Panchayat1.htm>

The site details the concept of Pani Panchayat in Orissa.

Solution Exchange Responses in Full

[Lalit M Sharma](#), Programme Leader - Water Management, S.M. Sehgal Foundation, Gurgaon, Haryana

It is not understood why the community wants the new pond:

- Pond capacity problem – storage is not sufficient.
- People from other village stop them taking water from this pond, or similar problem at present or in the future.
- Do they think that their catchments should serve only this village, etc.

Before deciding one should clearly conclude why do they want to go away from the **age old system** I know for water there is a feeling or belief - " living together and dying together." I know the world is changing and this new pond may become another mile stone in the cultural change.

Will there be any affect on the existing pond in case the catchment is reduced? To me before deciding for a new pond the matter should be studied from social and political perspective deeply.

[Mihir Maitra](#), India Canada Environment Facility (ICEF), New Delhi

This is a local situation and calls for a local solution. I am forwarding my opinion based on what I understood from your mail.

Socially, you have to establish how serious the said villagers are about the new tank and why. Is it the distance, is it the feeling of ownership, is it water security, is it the desire to influence etc and then how much they are willing to pay for it. Will they contribute a large sum to substantiate such demand or do they want it simply because the project is there. Make a rough cost estimate of both the options, mention the risks and ask the said villagers to contribute at least 50% of cost then see.

Technically, you have to ensure that the new tank is a favourable site (meaning less excavation, shorter retention wall etc.), has sufficient catchment area, will have sufficient water even during the lean period and does not share the run off of the existing tank. Also consider the distance between the two. Looks like that the proposed tank is in the down stream of the existing tank.

Redesigning the Paal which I understand is basically extending the size of the existing tank, will not solve the problem of the said village because it not just water they are after; they want their own water source. Let them have it if they are willing to pay for it.

[Surendra K Yadav](#), National Institute of Health & Family Welfare, New Delhi

Perhaps the old pond may be renovated and the area can also be enlarged if needed and if there is a requirement for a bigger pond. The problems of maintenance can arise in the future in the new pond also if the water quality is so bad or soil at bottom is not as per requirement. Sometimes removal of bottom soil also improves the ponds. Is pond water used for human consumption (drinking also)?

[Alok Srivastava](#), UNDP, New Delhi

I would like to say what has been said already, but with a hint about which consideration should override the other considerations.

Since both the options are techno-economically feasible I think we should look at the Social Cost and Benefits to decide on the course of action. The important aspects of social costs to look into could be:

1. First of all, the first pond is a common property resource (CPR) and there is an already established way to manage that CPR. If we build the new pond very close to the old one, there will be the issue of managing the new pond as a CPR, which would involve 'policing' it effectively during the lean months. It is easier said than done. And it entails economic cost. Has that cost been taken into account?
2. The denial of water to other nearby villages may cause social tension. It may also lead the other villages to deny this one village something else (who knows). Who would manage that tension? The government, the gram Panchayat or the Janpad Panchayat? Hence it may become necessary to involve the concerned agency which may have to come in the aftermath of the construction of the second pond. This is a social cost.
3. There would certainly be a Gram Panchayat or a few Gram Panchayats covering the area of 25 villages. Why don't they (or the Janpad Panchayat) be involved in deciding what is best for the community. The important thing here is to define what is the 'community' here – one village or many villages. In trying to satisfy one village are we endangering the community feeling among this group of villages. This also is a social cost.
4. The financial cost aspect – from your question it appears that the cost of creating a new pond is huge. If that be so, is it not a good idea to invest a part of that money into expanding the holding capacity of the old pond, and give the village something else which they may want.

It is also not clear from the question whether the first pond is situated on the land of any one village. It should be, because all the land should belong to one village or the other. Even if the land records show that the land is 'neutral' I think that would be so because the pond may be very old, and no classification of land may have been carried over from the time of its inception. If that be so, are we now not saying that while the first pond is common, the second one will not be, even though both are situated on lands that belong to one or a few villages. Of course, political viewpoint is important.

My line would be to move into the realm of social and political considerations to arrive at a solution, and also to involve the local body, which may be an elected one so that issue does not snowball into an unmanageable problem later on.

Prema Gera, UNDP, New Delhi

In a region like Marwar, improving access of communities to water will always remain a priority. From your mail, it is apparent that the issue here is (a) of creating an additional source for one village so that it is able to meet some of its unmet water requirement in the lean season and (b) the water source is a 'secure source' as the proposed pond will be on the village's revenue land and the water need not be shared with 25 habitations as is the case with the existing water body.

While on the face of it, it seems a sound option but in reality as we know creating new harvesting water structures can create a new set of problems/tensions at local levels which Alok and Mihir Maitra have already pointed to. In addition, I would like to raise the following issues:

a) From JBF's point of view, there are limited financial resources and the question that you could ask is that does this particular village need an additional structure or the resources could be better utilized in another village which has more acute water scarcity problems.

b) Also within the village in question, a more closer analysis is required. Who is benefiting from the existing water body - are there any hamlets/households excluded due to distance from the pond or due to

social exclusion of certain castes etc. If the proposed structure is addressing these issues, then there may be some value in exploring an additional structure in the village.

c) You also mention that the village has a separate catchment for the proposed pond - but there could be issues related to water availability in the downstream villages.

Since JBF has larger consultative bodies - e.g. Jal Samitis at block levels and if there are other water management bodies e.g. for the existing water body being shared by 25 habitations, issues such as these should be taken up for discussion at these forums as well.

Arumugam Kalimuthu, Plan International (India), New Delhi

In southern Tamil Nadu, sharing a pond (locally called "oorani") water for drinking by 2 to 3 village communities are very common. There are certain norms will be adopted to design these village drinking water ponds; I believe that those norms are very well suited to your area as well.

1. Inflow to the tank
 - a. The existing and the proposed pond get inflow from the catchment or canal?
 - b. In case the existing and the proposed structure is purely depend on the runoff from the catchment, there is a necessity to estimate the expected inflow to the tank from the catchment (3 or 5 years rainfall moving average and probability analysis can be used to chose a dependable rainfall for the inflow calculation).
2. Estimating losses
 - a. Percolation loss
 - b. Evaporation loss
3. Estimating the balance (Inflow – Losses) would help to take a decision such as whether or not you need to:
 - a. Increasing the size of the exiting pond or
 - b. To go for additional pond digging
 - c. In case the evaporation and percolation losses are high, single pond with deeper depth is better than wider water spread area.
4. Better maintenance and management of the pond, establishing an appropriate institutional set-up is also important.

R. K. Pandey, Action for Food Production, New Delhi

The situation mentioned in your mail is identical to many cases in rural India where a single water storage system is shared by many inhabitants. According to me, the aspect of water use efficiency should be checked in both the cases. As you mentioned that location of the second pond is situated very near to the earlier one and the main concern of the villagers is the water availability during lean season. Measures should be taken to ensure better and efficient use of water from the pond. Since enough catchment area is available, it is better to improve the capacity of earlier pond by extending it or by deepening it. It will be cost effective considering the amount of increase in storage space.

On the other hand the saved amount could be spend to educate the villagers to carryout an efficient agriculture and domestic water use practice. The real picture of the effect of your interventions could be judged only by assessing the benefit to the 25 habitations.

The poly-lining at the pond bed level may also be suggested which will ensure water availability in the pond for a longer period.

Many thanks to all who contributed to this query!

Moderator's Note: I thank you all for following and/or participating in the discussion. This was a very practical query that has drawn very interesting responses. For your information, the query is still open and we invite your insights and responses. As per a suggestion from Ms Prema Gera, we will try and follow up the developments taking place in the village and apprise you of the decision that is finally made regarding the construction of the new pond or expansion of the existing one.

If you have further information to share on this topic, please send it to Solution Exchange for the Water and Environmental Sanitation Network in India at se-wes@groups.solutionexchange-un.net.in with the subject reading 'Re: [se-wes] Query: Considerations for sharing of catchment pond water resources/ from Jal Bhagirathi Foundation, Rajasthan/ Advice'

May I remind you all that the next query is already posted on the Network. This is another interesting problem posed by Mr Rahul Banerjee from Indore on '**Urban water supply from water impounding and aquifer recharging**'. Do share your experiences and information with him and the rest of us as well. We welcome all your responses.

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