Impact of Water Harvesting and Recharge: A Rejoinder

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This note argues that the critique “Water Harvesting and Recharge: A Misinterpretation” (29 November 2008) of “Chasing the Mirage: Water Harvesting and Artificial Recharge in Naturally Water-scarce Regions” (30 August 2008) is erroneous in its reading of the latter’s arguments on the impact of water harvesting and recharge.

The comment on the article “Chasing the Mirage: Water Harvesting and Artificial Recharge in Naturally Water-scarce Regions” by Pradeep Kumar Mishra (29 November 2008) is a misconception of the original paper. The critique has confused between demand management and the demand-driven approach to water development. He has also confused issues between rainfall variability and run-off variability. Further, Kumar says that water harvesting is probably the best option (p 111) without providing any evidence to the effect of comparative economics or social cost benefits of these interventions vis-a-vis large water development projects. He does not seem to have understood “environmental effects” from a larger basin perspective, and believes that water harvesting will bring environmental benefits even in the “closed basins”.

Whether groundwater recharge has a positive or negative environmental impact depends on where the water for recharge is coming from and on the overall hydrological environment of the region. If the water for local recharge comes from local run-off in a water-scarce region, naturally, it can cause negative ecological consequences downstream in the stream which is tapped. We do not need to have the support of Frederick (1993) to say this.

According to Mishra “the paper is based on insights and observations made in the Saurashtra region” (p 110). This is intriguing, where actually the paper is full of data, analysis and evidence from major river basins in India in addition to citation of well-established macro level hydrological analysis (for instance, Pisharoty 1990 and goi 2005). He also misinterprets an argument in the paper that the amount of rainfall plays a key role in the design of water harvesting and recharge structures. Mishra goes on to give a tutorial on what factors actually influence the design of water harvesting structures (WHS), whereas, the paper talks about the implications of “run-off variability” on cost and economics of recharge structures in arid and semi-arid regions (see Figure 3 in the paper), and not the implications of rainfall variability.

The instances of misquoting in the comment are numerous. For example, Mishra argues that the authors had misquoted the work by Frederick (1993). But that article itself says that “overdrawing” of water causes negative environmental effects, as Mishra’s comment clearly mentions (p 140). If it is not “overdrawing of water” from the streams and rivers, what else we are talking about in our paper? Again, according to Mishra our comparison of arid Saurashtra and places in Narmada basin is misplaced. We are comparing the cost of water harvesting and recharging across different locations in India against the data on economic returns from crops in nine agro-climatic sub-regions in Narmada and not the four districts of Narsingpur, Hoshangabad, Dhar and Raisen. From the text, it is clear that we have only given the range (minimum and maximum figures) and not the data for all sub-regions which include semi-arid districts in the basin. Still, Mishra tries to misconstrue this. On the other hand, there is sufficient empirical analysis which shows that the returns on water use in irrigation are even lower in Saurashtra (see Singh et al 2004). Again, Saurashtra is not arid.

Further, according to Mishra, the value of water in the water-scarce regions should take into account its opportunity costs. He also argues for comparing this with the cost of desalination. But, such comparisons are meaningful only in an area, where there is no water even to drink or at a time when there is no water to drink, and not in an area which has irrigated agriculture from the internal renewable water resources like Saurashtra. Through water harvest and recharge in water-scarce regions/basins, we are not creating new fresh water resources, but only distributing the available resources.
Across the basin. Hence, comparing with desalination is absurd.

Another example of misquoting is that there are several examples of people contributing as much as Rs 10 million and he also asserts that the authors had made sweeping statements that “in no case in India farmers have invested on water harvesting on their own funds” (p 69). We had written that “As of today, there are no cases in India in which the farmers on their own had invested in wshs like tanks, ponds and check dams using their own funds. Wherever it has happened it is either under government schemes or with NGO initiatives supported by donor funds” (p 69). Further, it seems that Mishra has not understood the difference between farmers and the people. “People” include businessmen, contractors, philanthropists and also even academicians like us. In Saurashtra and north Gujarat, we know of several cases where contractors have paid the “so-called” people’s contribution to get the water harvesting (earth) work for the village sanctioned. There are hundreds of examples of people contributing money for water harvest and recharge work.

Mishra’s claim that there has been no strong evidence of upstream water harvesting affecting downstream agriculture, and that the authors only bank on the paper by Ray and Bijarnia (2006) is rather prejudiced. In fact, the paper has provided empirical analysis (Figures 1 and 2 in the paper) on how upstream intensive water harvesting reduced the downstream flows in one of the basins, and also cited the case of growing conflicts in Aji river basin in Saurashtra between farmers and urban water users. Finally, Mishra concludes that the authors have touched upon “all aspects” of wshs from a “narrow” perspective, but fails to provide a hint of what the broader perspective could have been. Perhaps, the critique could not comprehend the fact that the authors looked at issues from a practical viewpoint. While the original paper cited a large body of scientific literature, the critique cites only two – by Y K Alagh et al (1995) and Anonymous (2008).

REFERENCES


