

**Precarious situation of Bhakra dams: BBMB says emergency measures are imminent.****Callous, ad-hoc reservoir operation again?  
Could this situation have been avoided?**

The precariously low water levels at BBMB (Bhakra Beas Management Board) dams (Bhakra on Sutlej River, Pong on Beas River and Thein on Ravi River<sup>1</sup>), has lead BBMB to declare that if there are no rains soon, urgent meeting of states will have to be called to consider emergency measures. This, when summer in the Northwest India has already been rather long, hot and dry and when monsoon has been giving all the signs of some serious deficit behaviour already and when India Meteorological Department has also said that North West India may have the worst deficit of all regions of India. But it seems BBMB did not read these early signals and allowed the reservoirs to deplete, did not take measures to build up the levels that it could have had. The ad-hoc, unresponsive and unaccountable reservoir operations, thus has lead to a situation which could have been avoided. Let us see how this could have been avoided.

Analysis of BBMB reservoirs for the last one year shows that if the reservoirs were operated keeping in mind the developing situation, this precarious situation could have been avoided and lakhs of farmers and people all over North West India may not have to suffer.

Let us first take stock of the current reservoir situation. The water storage (Live storage capacity) on June 27, 2012 (as per the latest available weekly bulletin from Central Water Commission<sup>2</sup>) was 16% at Bhakra (compared to 37% same date last year), 14% at Pong (54% last year) and 26% at Thein Dam (47% last year). So it is clear that the water storage in all three dams on the same date last year was much higher than what it is this year. It should be noted that all these reservoirs are on snow fed rivers, so it should not be surprising to find substantial water storage in these dams at the beginning of the monsoon. Here we should also note that rainfall in the catchments of these dams last monsoon was above normal and the reservoirs were almost full at the end of monsoon, say early October 2011. So the lower water level now is not due to any deficit in last monsoon.

So when did the depletion in water storage in these reservoirs happen? It seems the situation was comfortable in these reservoirs till early February 2012, when Bhakra had 58% (64% storage previous year), Pong had 53% (63% last year) and Thein had 35% (41% last year). Over the next two months, the water storage in the three reservoirs reduced by 33% (Bhakra), 23% (Pong) and 16% (Thein), when in previous year, the depletion in the same period was much lower at 25%, 14% and 6% for Bhakra, Pong and Thein respectively. So the three reservoirs lost 8-10% extra water in these two months. Now in these months of Feb and March the residual Rabi crop irrigation should not have been much higher than the previous year. And post Rabi, in summer season, irrigation should anyway be discouraged and disincentivised. Punjab and Haryana has actually passed acts that say that before June 10 and 15 respectively, no paddy transplantation should be allowed. This is indeed welcome. So this extra depletion in Feb and March seems to be the first important issue that has lead to current situation. It is a bit of mystery as to why this happened, only BBMB officials can help unravel this.

This extra depletion this year is further corroborated when we look at the water release figures from the Bhakra and Pong dams, available on BBMB website<sup>3</sup>. We find that the average water releases from both the dams in the period January to March this year were unprecedented: the highest in last 13 years for which the figures are available on the website. In case of Pong dam, the average release even during April-May this year was higher than the figures for last two years. This confirms the conclusion above that there was extra ordinary water depletion in the dams in Feb and March and even beyond this year in these reservoirs.

---

<sup>1</sup> Though Thein or Ranjit Sagar dam is not under BBMB, we have included this dam in this analysis under BBMB dams as it is the storage dam on Ravi, which is part of the BBMB system.

<sup>2</sup> [http://www.cwc.gov.in/bulletin\(2\).pdf](http://www.cwc.gov.in/bulletin(2).pdf)

<sup>3</sup> [www.bbmb.gov.in/english/release\\_pong.asp](http://www.bbmb.gov.in/english/release_pong.asp), [www.bbmb.gov.in/english/release\\_bhakra.asp](http://www.bbmb.gov.in/english/release_bhakra.asp)

Some government sources have been complaining that there was less inflow from the rivers, implying that the water depletion was higher this year due to less inflows. The monthly water inflow figures are not available on BBMB website. But an indication of the inflow from Sutlej River to the Bhakra dam is available from the power generation at the upstream hydropower station of Nathpa Jakhri, having installed capacity of 1500 MW. This project does not have substantial storage capacity, hence most of the inflow in the river during the months of January to June would get reflected in the power generation figures. We find from the power generation figures for this project available on the website of Central Electricity Authority<sup>4</sup> that this station generated 2719.03 Million Units (MU) power in first six months of this year, about 19.5% lower than power generation during the same period last year. When we look at power generation figures at BBMB during the same six months, we find that the power generation during the same six months this year was only 1.5% below that in last year. These figures also suggest that BBMB was releasing more water<sup>5</sup> during these six months when its inflows were about 20% lower than that in last year.

We already saw above that by early April this year, the water level in all the three BBMB reservoirs had majorly depleted due to extra water release during January to March this year and it remains mystery why it was happening. However, after early April, when irrigation releases should be very low and when these reservoirs continue to get significant inflows, due to snow melt, there was a chance for BBMB to increase the water levels in the reservoirs. However, we find that for some unknown reasons BBMB did not do it. On the contrary, the level at Bhakra further reduced from 25% of live storage capacity in early April to 16% by June 27. In this period, BBMB continued to produce power at levels only marginally lower than those last year. It seems like this was the second major problem in the operation of BBMB reservoirs. It's a mystery why BBMB did not choose to build up water storage level during April-June 2012.

There were a number of good reasons why BBMB should have taken that option. Firstly, a number of official monsoon forecasts were available in April 2012 itself, which said that monsoon in Northwest India is likely to be below Normal. For example, the South Asia Climate Outlook Forum conference (in which India Meteorology dept and Indian Institute of Tropical Meteorology along with the World Meteorological Organisation participated) during April 19-20, 2012 developed 2012 forecast of Southwest Monsoon Rainfall over South Asia that said that the probability of Northwest India getting below normal rainfall was 40%, which was the highest for below normal rainfall forecast among all the areas. Seeing this, BBMB should have immediately adjusted its reservoir operation and started building water storage in its reservoirs, which it did not do. It should have also chosen this path since the water levels in its reservoirs were already very low. However, instead of doing that, BBMB continued to allow more outflows than there were inflows (as is apparent from its power generation figures too), thus further depleting the reservoir levels.

This is not the first time that farmers and people in North West India will suffer due to ad-hoc, unaccountable and irresponsible reservoir operation by BBMB, similar situation prevailed in a number of years including 2004 and 2009. Had BBMB's reservoir operation been more responsive to the developing situation, the situation at BBMB reservoirs today need not have been so critical now. India has no transparent, participatory and accountable reservoir operation policy.

It is high time that Governments of India and states develop a more responsible, transparent, participatory and accountable reservoir operation policy, rules and norms. Till then people of India will continue to suffer for unaccountable mistakes of some individuals and won't even know whom to hold responsible. Moreover, Climate change has now become an irrefutable fact and reservoir operations need to be more and more flexible and responsive to weather predictions, be it about low rainfall or high rainfall. Dam operators cannot simply neglect these predictions, but should develop strategies to cope with these events.

**Himanshu Thakkar ([ht.sandrp@gmail.com](mailto:ht.sandrp@gmail.com), 9968242798)**  
**South Asia Network on Dams, Rivers & People ([www.sandrp.in](http://www.sandrp.in))**

---

<sup>4</sup> [www.cea.nic.in](http://www.cea.nic.in)

<sup>5</sup> Power generation being the product of flow and head, if head reduces due to lower water levels, the outflow would need to go up in the same proportion to generate same amount of power.