

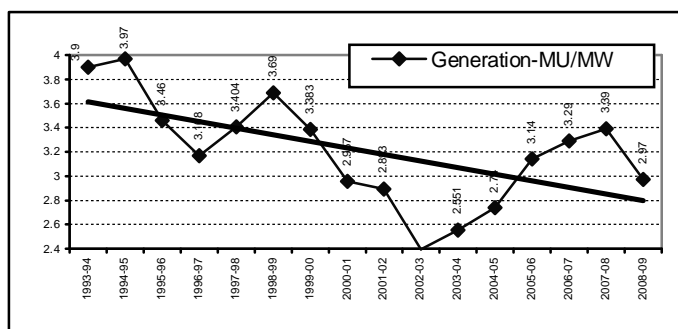
HYDRO PROJECTS

DIMINISHING RETURNS FROM BIG HYDRO: LATEST FIGURES CONFIRM THE TREND

India's installed hydropower capacity as on March 31, 2009 was 38060 MW, up about 1592 MW in last one year. The capacity addition during the year has been at the following projects: Teesta V (capacity added: 340 MW, Sikkim), Baglihar (450 MW, J&K), Balimela (75 MW, Orissa), Varahi (230 MW, Karnataka), Ghatghar (250 MW, Maharashtra), Maneri Bhali II (152 MW, Uttarakhand), Priyadarshini Jurala (78 MW, Andhra Pradesh), Loktak (5 MW added to existing project, Manipur), Sheetla (3.6 MW, Uttar Pradesh), Pahalgaoon (4.5 MW, J&K) and two small projects (8 MW, Arunachal Pradesh).

The Big hydropower projects in India are still considered good in itself by most mainstream development players, including those in the Ministry of Environment and Forests. No questions are asked about the performance of the projects, set up at colossal financial, social and environment costs. We had shown in the past (see for example p 10-11 in June-July 2008 issue of *Dams, Rivers & People*) how the power generation performance of these projects is far from the optimum level or way below the promised figures. Here we revisit this issue, reviewing the figures from the just concluded year.

In the graph below, we have plotted the annual power generation from India's hydropower projects, per MW of installed capacity in each year for the years 1993-94 to the just concluded year 2008-09. The trend line in this graph clearly indicates that power generation per MW installed has been decreasing and the fall is about 20% in these sixteen years.



All figures in the above graph are from the various reports of the Central Electricity Authority (cea.nic.in).

After 2002-3, there is some rise in the generation. However, even after this rise since 2002-3 and fall in the latest year, the per MW generation in the last year was 25% lower than the per MW power generation in 1994-5.

This is very huge reduction & should warrant a study to understand why this is happening.

This falling trend is relevant across the basins, states, sectors, kinds (storage or run of river) and age of projects, though there are

some differences in slope of the graph, level of generation, etc. Elsewhere in this issue, we have provided the graph for generation performance for NHPC projects, where too this falling trend line could be seen.

Here it may be noted that hydropower generation is also dependent on rainfall. The period we are looking at, has generally seen above average national rainfall, the rainfall in 2008 monsoon was 98% of the normal monsoon, very near the normal rainfall. In more than half the years under question, the rainfall has been around average or above average.

It is high time that the Central Electricity Authority, Ministry of Power and others get this trend examined through a credible, independent review. Lessons from such a review should be part of the decision making process for future hydro projects.

In fact the total generation in 2008-09 (with year end installed capacity of 38060 MW) was 113081 Million Units, down from 123424 Million Units in 2007-08 (with year end installed capacity of 36468 MW). In fact the 2008-09 generation was

below the 2006-07 generation figure of 113359 Million Units, even though the installed capacity at the end of 2006-07 was 34476 MW, about 3600 MW below the March 2009 installed capacity.

Some of the possible reasons for this trend include: some rather unviable projects or unviable capacities being added, the old projects not being maintained properly, the siltation of dams and over development in some of the river basins, increased use of water in the basins among others.

It is high time that the CEA, Ministry of Power and others get the reasons for this trend examined through a credible, independent review. Lessons from such a review should be part of the decision making process for future hydro projects. Currently, without the benefit of such an analysis, we are pushing for unviable projects with huge externalized costs, borne by the local communities and future generations. (SANDRP)