Large Dam Projects and Displacement in India

The displacement caused by large scale irrigation and hydro-projects has drawn considerable attention in recent years. Many authors have noted that project proposals for such large scale water resource management initiatives seldom include an assessment of the displacement to be caused, or of the costs of rehabilitation (e.g., Thukral 1992, McCully 1997, Singh 1997). Numerous studies have also been conducted on resettlement and rehabilitation of displaced persons and of the impacts of displacement on income, standards of living and physical and emotional health.

In India, the government, which is the planner, financier, developer and owner of **numerous** large dam **projects**, does not have figures of people displaced by large dams, either since independence in 1947 or in toto. This fact is the biggest sign of the fact that displacement and resettlement of people is the least concern of large dam builders.

This is particularly clear when we see that India is the third largest dam builder country in the world. It now has over 3600 large dams and over 700 more under construction.

In the present paper, we have attempted to put together numerous surveys of displacement to arrive at an estimate of the total numbers displaced by large and medium dams in India. The aim of this paper is to examine available data and put forth a numerical estimate of displacement from available data.

It emerges that large dams are the single largest cause of displacement in India since India got independence in 1947. The World Bank notes that though large dams constitute only 26.6% of the total WB funded projects causing displacement, the resulting displacement makes up 62.8% of the total number of people displaced (Cernea 1996b). It is also apparent that project authorities do not consider the problems of displacement and rehabilitation as important parts of the project. The primary concerns are engineering specifications and electricity and irrigation benefits. In this event, concerned authorities seldom undertake detailed and systematic surveys of the population to be displaced (Thukral, 1992). Information on the extent of displacement is therefore hard to obtain.

Even when such surveys are conducted, many characteristics of these surveys lead us to question government figures. It has been noted that project authorities often provide lower displacement figures than might actually be the case in proposal documents, so as to show a favourable cost benefit ratio to the funding authority and thus ensure clearance for the

project (McCully, 1997; Cernea, 1996b). A World Bank review of the status of displacement and rehabilitation has shown that the displacement of as many as 0.6 million people across 192 projects had not been accounted for in project planning. In at least one instance, the number of people actually displaced was seven times the number stated in the project documents (McCully, 1997:92). Calculation of displaced persons by independent investigation shows how figures are under-represented by government authorities. Viegas (1992) points out, drawing on extensive field investigation, that the number of persons displaced by the Hirakud dam was between 1.1 lakh and 1.6 lakh, while the official figures are only 1.1 lakh. Fernandes & Thukral (1989) point out that unofficial figures of displacement due to the Hirakud dam are 1.8 lakh persons (Pattnaik, Das & Misra, 1987, quoted in Fernandes & Thukral 1989). In case of Bargi dam project on Narmada river in western Madhya Pradesh, till the dam was constructed and reservoir was filled, the project authorities kept saying that 101 villages will be submerged. However, when the reservoir was filled, the number of villages submerged happen to be 162. Then, the Chief Engineer just put a white paint on the old figures and wrote down the new figures. The paint being of bad quality, for a long time both old and new figures continued to remain visible (Jhaveri and Singh, 1997).

Further, Thukral (1992) points out that displacement in dam projects often begins before surveys are complete. This obviously leads to underestimates of the number of persons displaced.

Another shortcoming of estimating dam-related displacement is that only reservoir displacement is taken into account. Large dam projects can displace people in a number of ways including due to colonies, due to canals, downstream impacts, catchment area treatment, compensatory afforestation, secondary displacement (at resettlement colonies, for example) and due to related conservation schemes like sanctuaries and national parks. That figures of all such categories displacement, when put together, can lead to much larger figures of displacement as can be seen from the case of Sardar Sarovar Project, under construction on Narmada river in Gujarat state in western India. Here, as per the latest figures of government estimates, while over 41,000 families will get displaced due to reservoir. The canals of SSP will affect a much larger number of people as canals take up 186,000 ha of land compared to reservoir area of 40,000 ha. As per conservative estimates, 24,000 *khatedaars* (land-holding families, meaning thereby, a much larger number of families, since one joint land holder generally represents many more families) will be seriously affected by canals. Similarly, over 10,000 fisherfolk families will lose their livelihood in downstream areas due to complete stoppage of riverflow in nonmonsoon months due to the dam. About 1,000 families have already been affected by the colonies.

The World Bank (1991) estimates that equivalent of some 2-5% of the irrigated command area is taken up by canals and a further 3-8% of land is taken up by reservoirs. That these can be gross underestimations is apparent from the case of SSP quoted above, where equivalent of over 10% of projected irrigated command area is to be taken away by canals. Similarly, in case of Subernarekha project on Bihar-Orissa border, the submergence land is over 12% of projected command area land.

Displacement also takes place where townships are established for technical and administrative personnel involved in the construction of the project, and where protected areas are established as compensatory measures for the forest lands and natural habitats that are lost to submergence. In areas where the oustees are to be resettled, many of the previous residents who do not have title to the land they cultivate are forced to leave as the land is bought and allotted to project oustees. This paper also reflects only reservoir displacement, while accepting that these figures grossly under estimate the displacement caused by large dam projects.

Estimates of displacement also fail to take into account the backwater effect, i.e. the rise in water level as the reservoir begins to silt up. As a result of the submergence are being larger than originally estimated, larger numbers of people are displaced than was originally thought to be the case. Further, persons resettled on the edges of the reservoir may be forced to move repeatedly as the waters rise to submerge the new settlements. Improper surveying also leads to people being resettled within the planned submergence area. Such multiple displacement is not taken into account when estimating the numbers displaced by a dam project. [A lack of coordination between different projects may also lead to oustees being forced to move repeatedly. Persons resettled due to submergence may come in the way of industrial plants, mines, or railway lines that are separate components of the plan to “develop” a region.]

Displacement due to dams in India has been variously estimated. Fernandes, Das & Rao (1989) claimed a decade ago that Indians displaced by dam projects numbered 21 million. As the authors themselves pointed out, these were very conservative estimates. A recent statement by Shri N.C. Saxena (the then Secretary, Ministry of Rural Development, Government of India) however put the total number of persons displaced due to large dams at 40 million. He said in an open meeting that most of them have not been resettled. Roy (1999), based on a survey of 54 projects estimated the people displaced by large dams in last 50 years to be 33 million.

A review by the World Bank posits that an average of 13,000 people are displaced by each new large dam constructed currently (Cernea 1996b). By this estimate, Indians displaced by the country’s 3000+ large dams would number over 39 million. The compilation of figures in the present study

shows a total of 4 387 625 persons displaced across the 140 large and medium dams included in the survey. The average for these 140 dams thus comes to 31 340 persons per dam. It is apparent then that estimates of only 2 million people having been displaced by all dams in India till 1990 are vastly inaccurate (Gleick 1999). While the sample used here is not meant to be representative of all of the India's dam projects, it emerges that the order of magnitude in which displacement should be estimated is in the tens of millions.

Conclusion:

1. Accurate figures of people displaced by large dam projects is difficult to come by due to the utter lack of sensitivity shown by the promoters of large dams across the world.
2. Available estimates of people displaced by large and medium dams in India show that the 140 dams for which such figures are available, have displaced over 4.4 million people. However, firstly, these are only government or World Bank estimates and hence are likely to be very conservative figures. Secondly, these only figures of people displaced by reservoirs and do not include people displaced by related works of dam projects like canals, colonies, downstream impacts, compensatory afforestation, catchment treatment and sanctuaries.
3. While as per GOI admission, less than a quarter of estimated 40 million people displaced by large dams in fifty years have been resettled in India, there is no resettlement of other categories of displaced as there is no policy.
4. The weakest sections of people in India, namely the tribals, the scheduled castes and backward caste people have suffered maximum in the process of displacement, much disproportionate to their population percentages. Women among these classes suffer even more.
5. The condition of people displaced by SSP, who are claimed to have been resettled is pathetic, with basic civic amenities and livelihoods severely endangered and standard of living much worse than before displacement, as per many independent assessments. If this is the condition of people displaced by most controversial, most visible project that is under scrutiny of the highest court in India and that was for a long time under the scrutiny of the World Bank, and of a project whose proponent claim that the resettlement is best in the world, the condition of other displaced **can be expected** to be worse.
6. India even now does not have a national resettlement policy. Not that existence of one would help unless there are legal institutional mechanisms to ensure its implementation. This is abundantly clear from the condition of people under the World Bank projects even now, even as the World Bank continues to have an R&R policy that ensures that living standards of people must improve after resettlement.
7. That leads us to the last conclusion. This submission is not just about numbers. Numbers are necessary to reiterate the seriousness of the

issue of displacement due to large dams. This submission would like to emphasize that unless past performances are analysed honestly, ruthlessly and thoroughly, no amount of policy making will help.

Notes:

1.Figures on power generation are derived from CBIP report on large dams. Where two figures for submergence areas are provided, the latter figure is from CBIP (1987).

2. For entries marked with a *, the displacement figures for under construction projects have been estimated from the 1971 census. Displacement by the time of completion of the project is expected to be significantly larger.

Sources:

Bhalla, Surjit S. , 1999, private communication regarding CWC figures of displacement compiled by him **on 4th October 1999**.

Cernea, M.M. 1996. "Public Policy Responses to Development Induced Population Displacement". *EPW*: June 15 1996:1515-1523.

E.G. Thukral (ed.) *Big Dams, Displaced People: Rivers of Sorrow, Rivers of Change*. Sage Publications, New Delhi.

Fernandes, W. S.C. Das & Sam Rao. 1989. "Displacement & Rehabilitation : an estimate of the extent and prospects" in W. Fernandes & E.G. Thukral (eds.).*Development, Displacement and Rehabilitation*. ISI. New Delhi.

Fernandes W. & E.G. Thukral (eds.)1989. *Development, Displacement and Rehabilitation*. ISI. New Delhi.

Fernandes, W., S. Choudhury, M. Rao & N. Misra. 1993. Deforestation Displacement and Impoverishment of Tribals: Are Tribal Sub-plans the Solution? Unpublished report. ISI. New Delhi.

Gleick, P.H. 1999. *The World's Water: The Biennial Report on Freshwater Resources*. Island Press. Washington D.C.

Hemadri, R. 1999. "Indian Experience on Displacement, Resettlement, and Development: People's Perspectives". Annexure to WCD Submission on Dams, Displacement, Policy and Law in India.

Jhaveri, Jharana and Anurag Singh, 1997. *Kaise Jeebo Re*, documentary film on displacement in Narmada Valley. Jan Madhyam, New Delhi.

Leidermann, S.M.1999. “Environmental Refugees from Energy Projects: Exploration, Extraction, Construction, Operation and Waste Disposal" Unpublished paper for the "Symposium on Global Connections: Environmental Justice in the Americas and Abroad" at the Annual Meeting of the Geological Society of America Thursday, October 23, 1997 Salt City Convention Center, Salt Lake, City Utah

McCully, Patrick. 1997. *Silenced Rivers: The Ecology and Politics of Large Dams.* Orient Longman. Hyderabad, India.

Misra, Swati. 1995. “Development, Displacement and Rehabilitation: with specific reference to Big Dams in India”. CSSS, SSS,JNU.

Roy Arundhati, 1999. *The Greater Common Good,* India Book Distributors, Delhi.

Singh, Satyajit. 1997. *Taming the Waters: the political economy of large dams in India.* Delhi. Oxford University Press.

Smitha, Sunil. 1996. “Fishing in the Tawa reservoir: Adivasi’s Struggle for Livelihood” *EPW.* April 6, 1996:870-872.

World Bank 1991. *India Irrigation Sector Review,* World Bank, Washington.

Following numbers have been used in the attached excel file containing the displacement figures in Indian dams.

1. World Bank. 1985. Inventory of Dams related to World Bank Projects.
2. Daud, Justice S.M. 1993. The Indian People’s Tribunal on Environment and Human Rights. First Report, Bombay 1993.
3. Gleick, P.H. (ed.) 1993. *Water in Crisis: A Guide to the World’s Fresh Water Resources.* Oxford University Press . Oxford. Table G-11
4. Chambers, R.1988. Managing Canal Irrigation: Practical Analysis from South Asia. Cambridge University Press. Cambridge
5. Rich, B. 1994. *Mortgaging the Earth: The World Bank, Environment, Impoverishment and the Crisis of Development.* Beacon Press. Boston, MA.
6. World Bank. 1993. “Early Experiences with Involuntary Resettlement: Impact Evaluation on India- Maharashtra Irrigation II project”. OED.
7. Scudder, T. 1973. “Summary: Resettlement” in Ackerman, et al. (ed.) *Man Made Lakes: Their Problems and Environmental Effects*. American Geophysical Union. Washington D.C.
8. Viegas, P. 1992. “The Hirakud Dam Oustees: Thirty Years After”. In E.G. Thukral (ed.)*BigDams, Displaced People: Rivers of Sorrow, Rivers of Change.* Sage Publications, New Delhi.

9. *India Today*, 10 September 1993
10. Maloney, C. 1990. 'Environmental and Project Displacement of Population in India' *UFSI Field Reports*. No. 14.
11. Goodland, R. 1995. 'How to Distinguish Better Hydros from Worse'. Unpublished MS.
12. Cernea, M.M. 1994. 'African Population Resettlement in a Global Context'. In C.C. Cook (ed.)*Involuntary resettlement in Africa : Selected Papers from a Conference on Environment and Resettlement Issues in Africa*. World Bank Technical Paper, No. 227.
13. Bhanot, R. & M. Singh.1992."The Oustees of the Pong Dam: Their Search for a Home. In E.G. Thukral (ed.)
14. Goldsmith, E. & Hildyard, N. 1984. *The Social and Environmental Impacts of Large Dams Vol. 1*. Wadebridge Ecological Centre, Cornwall.
15. Cernea, M.M. & S.E. Guggenheim. 1993. *Anthropological Approaches to Resettlement :Policy, Practice and Theory*.Westview Press. Boulder, Colorado.
16. Motor-Columbus/Appio & Associates. 1979. 'Lokoja Hydroelectric Project Feasibility Study' Appendix C2: 'International Resettlement Experience'NEPA, Lagos.
17. Billorey, R. 1993. 'Selaulim Dam', in C. Alvares (ed.) *Fish Curry and Rice: A citizen's Report on the State of the Goan Environment.* ECOFORUM. Mapusa, Goa.
18. Maloney, Clarence. 1991. Environmental and project displacement of population in India, part I: development and deracination. Field Staff Reports of Universities Field Staff International and Natural Heritage Institute. Asia, 1990-91/No.14, 16pp.
19. CBIP. 1979/1987. Large dams in India. 2. Vols. Central Board of Irrigation and Power. Chankyapuri, New Delhi.
20. Cernea, M.M. 1996b. Resettlement and Development : The Bankwide review of projects involving involuntary resettlement 1986-1993. World Bank. Washington DC. 1996.