

Executive Summary

With the creation of Uttarakhand in November 2000, its hydro-power potential was recognized as key to the development of the State. The Government chalked out an ambitious plan to harness its hydropower potential through the concerted efforts of both the State and the private sector. The State policy to encourage generation of hydro-power was formulated in October 2002. The prime aim was to develop the state as 'Urja Pradesh', which would cater not just to the needs of the State but also to that of the power starved northern grid.

A performance review of the implementation of hydro-power projects through private sector participation was covering the key aspects of planning, allotment, operation, environment impact and monitoring of the projects revealed that:

Forty-eight projects with a total planned generation capacity of 2423.10 MW had been undertaken by Independent Power Producers (IPPs) in the State during 1993 to 2006, however, till March 2009, only 10 *per cent* of the projects with generation capacity of 418.05 MW were complete and operational. The prime reasons for the delays are problems associated with land acquisition, forest clearances and enhancement in project capacities. Significant areas of concern leading to non-achievement of the planned generation capacity are inadequate pre-feasibility studies for the projects, deficient project execution and primarily, absence of monitoring and evaluation of the projects by departmental authorities/nodal agency (UJVNL). More grave is the total neglect of environmental concerns, the cumulative impact of which may prove devastating for the natural resources of the State. Specific shortcomings in the State's initiative of hydropower development through private sector participation are enumerated below:

i) Pre-implementation Arrangements

- ◆ Pre-feasibility (PFR) study based on ground survey of the river basin, its topography and hydrology was to be carried by Uttarakhand Jal Vidhyut Nigam Limited (UJVNL), the nodal agency, for accurate evaluation of the hydro-power potential of a river/stream. However, significant alterations ranging from 22 *per cent* to 329 *per cent* in the capacity of 85 *per cent* of projects, raised serious doubts on the credibility of PFR studies

[Paragraph 3.1]

- ◆ There was no specific institutional mechanism to verify the basis of capacity enhancement as variations were noticed in the norms for computing the power potential in the capacity enhancement proposals of project developers.

[Paragraph 3.3]

- ◆ The systemic deficiencies were used by the project developers in their favour as out of 13 sample projects, nine projects were designed to be pegged just under the threshold of 25 MW to garner maximum benefits from enhanced capacity and to avoid enhanced royalty payment, which would have become due had the capacity been fixed at 25 MW or more.

[Paragraph 3.3]

- ◆ There were instances of undue extensions, without charging for liquidated damages, for implementing the projects in the garb of capacity revision, implying loss of royalty and deprivation of anticipated benefits from electricity. In addition, the Government also faced the prospect of incurring huge financial losses on account of upfront premium.

[Paragraph 3.4]

Pre-feasibility studies should be carried out with due diligence so that reliable data can be obtained for computation of power potential of projects. There is a need for standardization of norms for working out dependable water discharge, plant efficiency and other crucial inputs and therefore, a uniform and firm policy for granting extensions and terminating agreements needs to be put in place.

ii) Project Execution

- ◆ Out of total 48 projects allotted during 1993 to 2006, only 10 *per cent* projects were complete and operational after lapse of 15 years. Consequently, the envisaged power generation worth 2005.05 MW could not be achieved. As of March 2009, only two projects were likely to get commissioned in the year 2009 while nine other projects were under various phases of construction. The remaining 12 were found to have not progressed beyond the DPR/clearance stage despite freezing of IAs.

[Paragraph 4.1]

- ◆ There was also no evidence of any punitive action being undertaken against any of the developers for defaulting on IA conditions. The liquidated damages, as a consequence of undue delays in commissioning of projects, were not recovered in a single case.

[Paragraph 4.2.1]

- ◆ Further, the failure of the nodal agency to enforce the conditions of regular and timely submission of quarterly progress reports by the project developers resulted in non-assessment of the progress of projects by the Government to avoid delays in their implementation.

[Paragraph 4.2.2]

- ◆ Negligence towards environmental and safety concerns was yet another consequence of weak monitoring by the nodal agency in ensuring adherence to prudent utility practices.

[Paragraph 4.4]

- ◆ The execution phase was also found characterized by generation losses of 10.57 million units of power worth Rs. 2.64 crore, mainly attributable to grid failure, transmission obstruction due to low voltage and hindrances by local people indicating inadequate maintenance of grid infrastructure.

[Paragraph 4.5]

A sound monitoring mechanism and evaluation system is required to be put in place to ensure that lapses on the part of IPPs during civil construction, installation of plant & machinery and operations are avoided. To fix accountability in cases of violation of conditions stipulated in the IA the Executive needs to prescribe appropriate instructions.

iii) Environment Impact

- ◆ The State's policy on hydropower projects was silent on the vital issue of maintaining downstream flow in the diversion reach (the stretch of the river from the point of diversion into tunnel to the point where it is released back into its natural stream). The physical verification of four¹ out of five operational projects, showed that river-beds down stream had almost completely dried up, the water flow was down to a trickle, and extremely inadequate for the sustenance of ecology and nearby groundwater aquifers.

[Paragraph 5.3.1]

- ◆ Given the current policy of the State Government of pursuing hydro-power projects indiscriminately, the potential cumulative effect of multiple run-of-river power projects can turn out to be environmentally damaging. Presently, 42 hydro-power projects are in operation, 203 are under construction or clearance stage, while several others are at the conceptual stage.

[Paragraph 5.3.2]

- ◆ Negligence of environmental concerns was obvious as the muck generated from excavation and construction activities was being openly dumped into the rivers contributing to increase in the turbidity of water. The projects seemed oblivious of the fact that such gross negligence of environmental concerns lead to deterioration of water quality and adverse impact on the aquatic biota.

[Paragraph 5.3.3]

- ◆ The plantation activity was highly deficient, as 38 *per cent* of projects reported hardly any plantation; posing severe hazards both for natural ecology and stabilization of hill slopes.

[Paragraph 5.4.1]

The individual and cumulative impact on the downstream river flow should be seriously considered to ensure that the projects do not result in disastrous impact on the environment. Minimum flow in the diversion reach should be computed and prescribed taking into account the groundwater recharge potential of the river, irrigation, ecology and silt load factor. It should be ensured that post-construction environmental and ecological monitoring continues and includes provisions for modifying plant operations when unacceptable impacts are observed. In accordance with the Gol guidelines, an additional 1 per cent free power from the project may be provided and earmarked for Local Area Development Fund.

¹ Rajwakti, Debal, Hanumanganga and Loharkhet

iv) Government Support

- ◆ In the absence of a well-laid down policy, land acquisition proved to be a major obstacle, derailing project development from its time schedule. Forest land clearances were received with delays ranging from 85 days to 295 days in many cases.

[Paragraph 6.1]

- ◆ In a certain case, grid infrastructure for power evacuation was not installed well in time resulting in energy losses and deferment of royalty payments to the Government.

[Paragraph 6.2]

The State Government may form a nodal authority for addressing the problems of land acquisition, forest clearance and resettlement & rehabilitation for all the projects. It is an essential requirement that reliable grid infrastructure should be made available well before the expected synchronization of the hydropower projects to avoid energy losses in absence of evacuation facilities.

