

## **HYDRO POWER IN BIHAR – THE CATALYST FOR DEVELOPMENT**

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Dr. A.P.J. Abdul Kalam, President of India, a great scientist and visionary had a ready road map for development of Bihar when he addressed Joint Session of the Bihar Legislature on 28<sup>th</sup> March, 2006. His thoughts under the heading “*Missions for Bihar’s prosperity*” identified the course the State ought to take as follows:-

- Elevate all people living below poverty line in Bihar which is about 42% against the national average of 26% and bring income into their hands and smiles on their faces;
- Increase the per capita income of Bihar from the existing Rs. 6,300/- (2005-2006) to Rs. 35,000/- by 2010.

The strategy for the above divided into missions for different sectors has one devoted to “*Infrastructure Development*” . This welcomes move of the Government of Bihar for carrying out electricity reforms which will enable reduction of large scale transmission and distribution losses in the State. As such he suggested that emphasis should be on quality power with zero interruption and also to augment power generating capacity through several **ways including mini hydel power plants.**

As such, the Bihar State Hydroelectric Power Corporation, the nodal agency for the development of hydro power in Bihar has prepared a co-ordinated strategy for creating additional generating facilities in the rural areas, for improving quality of life of people in these and also provide uninterrupted quality power for the PURA (Providing Urban Amenities to Rural area) based rural enterprises. The strategy has been prepared taking into account following points :-

- The per capita power consumption in the state of Bihar is around 75 units while the average per capita power consumption in the country is around 592 units. It is expected that the demand for power in Bihar would also rise sharply to keep pace with the increasing economic development in the State;
- The Electricity Act 2003 has opened up significant investment opportunities in the generation sector by de-licensing electricity generation. This has enabled setting up power plants at optimum locations and transmitting power to the power deficit states using open access in transmission. The power generation market is entering a competitive mode and cost of generation has become a critical parameter in determining the long-term viability of projects.

- With the enactment of the Electricity Act, 2003, along with other recent initiatives, GoI has outlined the contours of a suitable enabling framework for the overall development of the power sector in the country. As a result, power sector in India is on the threshold of witnessing a gradual transformation from a monopolistic market structure to a market featuring a vibrant competitive milieu characterized by a self-sustaining and viable sector.
- One of the key provisions of the Electricity Act, 2003 on competition in distribution is the concept of multiple licensees in the same area of supply through their independent distribution systems. State governments have full flexibility in carving out distribution zones while restructuring the Government utilities.
- High Voltage Distribution System should be promoted in stages to reduce LT / HT ratio with a view to reducing T&D losses (technical as well as commercial).
- Special Courts as envisaged in section 153 of the Electricity Act, 2003 have already been set up in Bihar for stringent measures against theft of electricity.
- A key objective for the development of power sector is supply of electricity to all areas including rural areas as mandated in section 6 of the Electricity Act, 2003. All consumers have the right to get uninterrupted twenty four hours supply of quality power at tariffs which reflect costs. About 55% of rural households do not yet have access to electricity. Steps have been already been initiated to ensure that the task of rural electrification for achieving access to all households and also ensuring that electricity reaches poor and marginal sections of the society at reasonable rates is completed by year 2012.
- Sections 4 and 5 of the Act provide for innovative models of supply in rural areas. Socially useful public-private partnership involving micro, small and large enterprises are also envisaged. These need to be put in place speedily.
- With exorbitant Gas & LNG prices, these fuels no longer offer a competitive solution for power generation. . As a result coal and hydropower projects, which offer power at least cost with minimum uncertainty of fuel pricing risks are being preferred.
- The boost for hydro projects in recent times has also come because of badly skewed hydrothermal mix in favor of thermal projects. It is widely accepted that the “ideal” hydrothermal mix should be in the ratio of 60% thermal with 40% hydro.
- Recently, Government of India has decided vide its Notification dated January 06, 2006 that procurement of power by utilities shall be through tariff-based competitive bidding (except PSU projects where there is an exemption of five years). Thus, it is no longer permitted, in the new regulatory regime, for private MoU route projects to enter into negotiated PPA with the utilities.

- There are essentially two ways to reduce the cost of power available at the consumer-end. The first is to cut down losses by efficient demand side management and distribution system revamping. The second is to generate low-cost power. **The latter is precisely what can be achieved from hydroelectric power plants.**
- Ironically, despite the fact that hydro power is the cheapest power available, India has not been very successful in promoting this concept. The reasons for the neglect of the sector are plenty. Even though cheap in the long run, the initial investment in hydroelectric power plants is almost 50 per cent higher as compared to coal-based thermal power stations.
- A major part of the money and time for developing such projects goes into civil work. The rough terrain and difficult work conditions ensure long gestation periods for such projects in some cases, taking eight years or even longer. This, in turn, affects the payback period and returns from a project.
- The high capital cost coupled with geological surprises that the terrain may offer and long gestation periods have deterred many private players from developing such projects.
- **The government has tried to promote development of the sector, but the efforts needs to be more consistent than what it was.** In 1998, the Centre introduced the New Hydro Policy, but the absence of a clear R&R policy impeded the development of such projects. What is required is a clear-cut policy direction regarding R&R and setting up of special courts to handle environmental petitions.

The Bihar State Hydroelectric Power Corporation (BHPC) mandated by the Government of Bihar for preparation of strategies and their implementation for development of hydel power, adopted a two-pronged strategy to accomplish the task. The first one was to create additional capacities which were necessitated because of major power utilities and potential sites for establishment of power units/projects going to Jharkhand in the wake of division of Bihar. The second one was to take appropriate measures in accordance with policy indications from the Centre for narrowing the gap between the thermal and hydel power generation.

As a part of the first strategy, execution of small hydro power projects on the canal systems of the State for which detailed project reports (DPRs) were already available was started. Projects for which financial assistance from the National Bank for Agriculture and Rural Development (NABARD) under their RIDF-VIII schemes has been made available, are likely to be commissioned during the 10th Plan period itself. Projects under execution and expected to be completed within the 10th Plan period are as follows:-

Triveni	(2 x 1500 KW)
Nasariganj	( 2 x 500 KW)
Dhelabagh	(2 x 500 KW)
Jainagra	(2 x 500 KW)

In addition, preliminary work in respect to canal based projects is in progress and it is expected that they would be taken up and completed during the 11th Plan period leading to capacity addition of about 43 MW. Another series of small hydel projects (SHPs) that are proposed to be taken up in due course will lead to capacity addition of about 12 MW during the 12th Plan period.

The Kosi Hydel Power Station (KHPS), Kataiya, which could not attain designed generation due to a variety of reasons and is now being operated by the BHPC with derated capacity, warrant major rehabilitation and modernization efforts. It is hoped that these efforts will also be taken up and completed during the 11th Plan period itself which will mean a capacity addition of 22 MW.

Bihar is not endowed with large hilly areas and natural water falls. The BHPC being aware of this limitation decided to go for a Reconnaissance Survey of Rajmahal hills and the Kaimur District of Bihar. While there was no indication of potential in Rajmahal area four sites were identified in the district of Kaimur which have a total potential of 2570 MW through pumped storage schemes. This reconnaissance survey was conducted by a Central Public Sector undertaking, the National Hydroelectric Power Corporation (NHPC).

The NHPC found these sites so attractive that they offered to execute these projects provided the Central Government agreed to have these executed in the Central Sector. The matter has been pursued at the highest levels in the State Government. **The latest development in this direction is that the Union Power Ministry has agreed for preparation of DPR for one of the identified sites namely Sinafdar through the NHPC.** It has been left to the Government of Bihar to decide which agency will execute this project on the basis of the DPR. The stipulation in Union Ministry of Power's consent to preparation of DPR is that if the NHPC is entrusted with implementation of this project, the cost of DPR would be included in the total project cost otherwise the Government of Bihar will have to make payment to the tune of Rs.6 (six) crores for this work.

It is expected that after the potential of Sinafdar is proved by the DPR the Centre may be inclined to accord clearance for other sites as well on the condition that there should be unequivocal commitment for purchase of power generated from these plants.

The BHPC/Government of Bihar have been pursuing with the Centre the issue of Indrapuri Reservoir project (old name Kadhwan). This project was included in Central Electricity Authority's ranking study of Ganga Basin published in 2001.

This project was conceived in the wake of Bansagar agreement signed among Bihar, Uttar Pradesh and the then Madhya Pradesh in 1973. But, now one of the signatory states, Uttar Pradesh, has been raising objections on various grounds in implementation of this project. The State Government, therefore, has proposed that the Government of India should see a way out to have this project implemented as early as possible as it will not only lead to creation of an additional capacity of 450 MW from a hydel power plant of this project but also because it is necessary to save the Sone Canal system.

A reconnaissance survey of the Kosi Basin has identified 18 sites for setting up of hydro power projects in the Kosi river and its subsidiary streams with a total capacity of 226 MW. These include Dagmara which alone has an estimated potential of 126 MW.

The BHPC also propose to take up survey and investigation of Basins of other rivers of north Bihar like Bagmati which originate from Nepal.

The plan outlay for the 11th and 12th Five Year Plans and the capacity addition from these projects is provided in **Annexure-I**.

### **Funds for future expansion :**

- Expected to get budgetary support from Government of Bihar as well as Government of India to some extent.
- For the balance, by approaching the domestic as well as international market for long terms loans. Loans from International Market proposed to be availed through COFACE, France through ECA route to be exclusively utilized. BHPC has already availed loans from PFC and NABARD.

### **PRESERVATION OF ENVIRONMENT**

Environment consciousness is one of our major thrust areas and the same is reflected through our Environment Policy. Some of the major initiatives undertaken by BHPC to preserve the environment are:

- ❖ Environmental consideration internalized during planning of project.
- ❖ Obtaining site, Environment & Forest clearances as per the statutory requirement.
- ❖ Utilization of minimum forest area. Conducting Environment Impact Assessment (EIA) study and framing up of Environment Management Plans (EMP) to properly address the environmental issues.
- ❖ Close monitoring to ensure effective implementation of EMPs.
- ❖ Post-construction EIA to evaluate pre and post- construction scenario to ascertain efficacy of Environment Management Plan undertaken at projects.

In this scenario, the BHPC is determined to play a facilitators role to ease clearance and administrative procedures. Efforts are being made to insulate developers from the problems of land acquisitions, rehabilitation and resettlement. Above all, to assist achieving the target of Government of India to provide power to all by 2012 the prime focus is on improving the bankability of buyers to provide comfort and encouragement to promoters, lenders, equipment suppliers and consumers. Even otherwise, with volatile oil process, dwindling fuel reserves and increasing environmental implications of fossil fuel combustion there is not much of a choice