**BRIEF SUMMARY**

M/S Neri Hydro Power Project is going to be execute is small hydroelectric project proposed on neri stream which is a tributary of beas river the secheme has been finalized after alternative studies the alternative gives maximum generation of power there for it has been taken for preparing detailed project report of the scheme

The main business of the peoples in the project area is agriculture farming and vegetables production etc.

The area is developing rapidly because of road /rail connectivity and people are using new technique in their business. The project life in the lower Dhauladhar range the reason is covered with uniform patches of barren land as well as small forest there is a reasonable good network of roads in nearby area.

M/S neri hydro project pvt ltd. Has obtained all statuary/non statuary clearances to start the execution of the neri shep except forest clearance which is to be issued by the MOEF. The company has deputed well qualified and experienced persons at site/ office to execute the project.

**PROJECT SUMMARY**

**2.1 GENERAL**

Neri Hydroelectric Project located in Mandi district of Himachal Pradesh, is proposed in upper reaches of Neri Khad. It has been contemplated as Run-of-the River scheme. On both of the banks of Neri Khad, the area is mostly covered under thick forest. It is estimated that Neri HEP shall have an installed capacity of 5000kW. The rated net head of the scheme is 128m and nominal discharge from Neri Khad of 5m3/s shall be utilized to generate 25.85 MU of energy annually in a 75% dependable year.

After reconnaissance survey, the left bank of the Neri Khad was found more suitable for development of Neri SHP. The proposed scheme shall consist of an trench weir and intake, a desilting basin with flushing arrangement, free flow R.C.C. Duct connecting up to the Forebay and a surface penstock conveying water to the surface powerhouse. The surface powerhouse has been proposed with two numbers of Horizontal axis Pelton machine of 2.5 MW each to generate 5MW power. Water after power generation will be discharged back into the Neri Khad through a tailrace. An outdoor switchyard has been proposed adjacent to the Powerhouse and the generated power will be transmitted through a transmission

Line.

The construction period for the project has been considered as 30 months excluding twelve months for infrastructure works like road, footpath, ropeways, Clearances/NOC from different Departments and financial closure of the Project. Some preliminary works on infrastructure facilities will be carried out independent of the main construction. Neri hydroelectric project is techno-economically viable and its early execution is planned for reducing the gap between availability and demand of power in the Northern Region of the country.

**2.2 MAIN COMPONENTS**

The project envisages construction of following structures:

**Trench Weir, a Desilting basin with flushing arrangement, free flow RCC Duct connecting upto the Forebay, a Surface Penstock conveying water to the Surface Powerhouse, Tailrace & Switchyard.**

* + 1. **Trench Weir**

A rectangular trench type, reinforced cement concrete (RCC), weir has been proposed for diverting the discharge from Neri Khad at an altitude of El.1180.00m. The size of the Trench Weir is 2m Topw Width, the depth varies between 1.5 m to 3.20 m and Length of the Trench Weir is 20m. The Slope of the trench weir is 1 in 11.76. The Intake Structure shall be well type. The bulk head gate and Service gate are proposed in the Intake structure.

A 500mm dia. Shingle flushing Pipe have been proposed in the Intake structure to convey the accumulated shingles from the trench weir to the Khad.

* + 1. **Desilting basin**

The Desilting basin comprises of single RCC hopper bottom chamber located downstream of Neri Khad Trench Weir. The desilting basin is designed to remove all particles of size 0.2 mm and above. The desilting basin has been provided of size 40 m (length)x 6 m (breadth) x 4.5 m (depth). A 400mm dia silt flushing pipe located at the end of the flushing gallery shall be provided to convey the silt back into the Neri Khad.

* + 1. **Free Flow RCC Duct connecting upto the Forebay**

The free flow RCC Duct will connect upto the Forebay of Rectangular section. A 950m long Power Channel of size 2m (Width) x 1.5m (Depth) will carry silt free water from desilting basin to Forebay tank. The bed slope of the Power Channel has been provided 1 in 400.

**2.2.4**  **Penstock**

A 1.2m dia. penstock of length 455m has been proposed to convey water from Forebay to Power House. The thickness of main penstock varies from 8mm to 12mm. The main penstock before entering into Power House, bifurcate into two numbers of unit penstocks.The thickness of bifurcated penstock is 12 mm. Anchor and Saddle blocks shall also be provided where ever required.

* + 1. **Power House and Switchyard**

A surface power house of size 30.4m x 21.06m x 12.69m has been proposed to house two numbers of Horizontal axis Pelton machine of 2.5 MW each constituting 5 MW plant. A surface switch yard of size about 30m x 30m has been proposed adjacent to the power house.

**2.2.6 Tail Race**

30m long common tail race channel of Trapezoidal shape with 2.0m (Bed Width) x 0.80m (Depth) has been proposed to carry the water from Power House to the Neri Khad. At the end of the tail race boulder protection work will be done to protect the river bed from erosion.

* 1. **TRANSMISSION SYSTEM**

It has been proposed to evacuate the generated power into the Grid at 33KV Naggar Sub-Station through 12km long Transmission line.

* 1. **ANNUAL ENERGY**

The annual energy benefits from the project have been assessed as about 25.85 MU and Net Sellable Energy is 24.56 MU per annum in 75% dependable year.

* 1. **PROJECT COST**

The cost of civil works has been worked as Rs 2086.35 lacs based on the layout proposed in the DPR. The cost of E&M works including switch yard and Transmission line is estimated as Rs 1128.00 lacs.

Based on the above, the cost of the project has been estimated as Rs. 3662.35 lacs at January 2010 price level. It is proposed to finance the project on a 70:30 debts: equity basis.

**2.6 FINANCIAL ASPECTS**

The preliminary financial analysis of the project has been carried out assuming a total cost of Rs 3662.41 lacs and annual energy of 24.56 MU. Based on a tariff of Rs 2.83 per kwh, the Internal Rate of Return works out to 13.60% (After tax and without considering MNRE subsidy).