STATE POLLUTION CONTROL BOARD-SIKKIM

DEPARTMENT OF FOREST, ENVIRONMENT & WILDLIFE MANAGEMENT
GOVERNMENT OF SIKKIM
DEORALI, GANGTOK.

PUBLIC HEARING NOTICE

NHPC Ltd. proposes to construct a 520 MW hydro-electric project (Teesta Stage-IV) by harnessing the water of Teesta River, in the North District of Sikkim. The Salient features of the Stage-IV project are as under:

SALIENT FEATURES OF THE TEESTA STAGE-IV HE PROJECT:

LOCATION:		
State	:	Sikkim
District	:	North Sikkim
Dam	:	Lat.-27°28'50" N, Long.-88°31' 23" E
Power House	:	Lat.-27°25'N, Long.- 88°30'35''E
Nearest Town	:	Mangan (Distt. HQ)
Nearest Railway Station	:	New Jalpaiguri / Siliguri (West Bengal)
Nearest Airport	:	Bagdogra (West Bengal)
HYDROLOGY:		
River	:	Teesta
Catchment Area	:	3910 sq km
Average Annual Rainfall	:	2546 mm
Design flood	:	10600 m^3/s
River diversion design flood	:	3800 m^3/s
RESERVOIR:		
Full reservoir level	:	EL 755.00 m
Minimum draw down level	:	EL 740.00 m
Gross storage	:	18.6 MCM
Live storage	:	8.2 MCM
Length of reservoir	:	4.37 Km along Teesta 644 m along Tolungchhu
DIVERSION TUNNELS:		
Number	:	Two
Shape	:	Horse –Shoe type
Diameter (finished)	:	12.5 m
Length of DT	:	681 m (DT-1) & 593 m (DT-2)
DAM:		
Location	:	D/s of confluence of Runchu with Teesta
Type	:	Concrete Gravity Dam
Length of dam at Top	:	197.20 m
Max. Height above river bed level	:	65 m
Max. Height above deepest bed level	:	108.50 m
SPILLWAY:		
Type	:	Gated Low Level Sluice Spillway
Design flood	:	10600 m^3/s
Crest of spillway	:	EL 716.00 m
Number and size of sluices	:	Five nos. 9m x 14.5m
Energy dissipation	:	Flip bucket type
COFFER DAMS		
Upstream:		
Top Level	:	El. 728.00 m
Height of Coffer Dam	:	32 m
Length at the Top	:	160m
Downstream:		

Top Level	:	El. 710.00 m
Height of Coffer Dam	:	18 m
Length at the Top	:	110m
INTAKE:		
Number & size of inlets	:	Four Nos. each of size 6.5 m x 6.5 m
Discharge capacity	:	480 m^3/s
Invert level	:	EL 726.00 m
DESILITING CHAMBERS:		
Number & type	:	Four Nos., Dufour
Length	:	360 m
Size	:	17 m x 21.5 m
Minimum particle size to be removed	:	90% of 0.2 mm & above
Crown Level	:	El. 736.75 m
Level of GOC	:	El. 756.00 m
HEAD RACE TUNNEL:		
Number and Diameter (finished)	:	2 Nos. / 8 m dia
Shape	:	Horse-shoe
Length	:	6581.5 m (HRT-I) & 6476 m (HRT-2)
Total Discharging capacity	:	410.76 m^3/s
SILT FLUSHING TUNNEL:		
Outlet Level	:	EL. 704.50 m
Shape & Size of Main Tunnel	:	D-shape, 4.5m X 5.0m
Shape & Size of Branch Tunnel	:	D-shape, 2.0m X 3.0m & 3.0m X 4.0m
Level of GOC	:	El. 715 m
SURGE SHAFT:		
Number and Type	:	2 Nos. Underground with restricted orifice
Internal diameter	:	23 m
Height of surge shaft	:	116.50 m (EL. 796.50m- EL. 680.00m)
Maximum upsurge level	:	EL 795.00m
Maximum down surge level	:	EL 685.00m
PRESSURE SHAFTS:		
Number and type	:	Four Nos. vertical shafts steel lined
Diameter	:	4.8 m
Height	:	110.2 m approx.
Top Horizontal Length	:	101m to 145m
Bottom Horizontal Length	:	59 m
POWER HOUSE:		
Type	:	Underground
Installed capacity	:	520 MW
Number and capacity of units	:	4 nos. of 130 MW each
Size of machine hall	:	166.2 m x 23.5 m x 54 m
Size of transformer cavern	:	123.2m x 16.5 m x 19 m
Length of Service Bay	:	38 m
Elevation of Service bay	:	El. 577.70 m
Length of control room	:	23 m
Spacing of unit axis	:	23.8 m
Maximum Net head	:	159.09 m
Rated net head	:	151.81m (Oct.-May) / 141.81m (June-Sept.)
Main Inlet Valve	:	4m diameter, Butterfly biplane lattice type
Capacity of E.O.T. Cranes in service bay	:	2 x 225 ton (Main)/ 35 ton (Auxiliary)
Capacity of EOT crane in Transformer hall	:	75 ton (Main) / 20 ton
TURBINE, GENERATORS & TRANSFORMERS:		
Turbine Type	:	Vertical Francis
Turbine discharge	:	102.69 Cumec (at 141.81m Head)
Discharge diameter of runner	:	3.6 m
Speed of Turbine	:	187.5 RPM
Generation Voltage	:	11 kV
Step up Transformer	:	53 MVA, single phase, 11kV/ 400/ $\sqrt{3}$ kV
Number of Transformer	:	10
Transmission Voltage	:	400 kV
TAILRACE TUNNELS:		
Shape	:	Horse Shoe
Number and Diameter (finished)	:	2 Nos./ 8 m dia

Length	:	622 m (TRT-1) & 627 m (TRT-2)
Branch TRT	:	4 no. 5.5 m dia, HS shape
Max. Tail water level	:	EL 584.52 m
Min. tail water level	:	EL 582.24 m
Outlet Weir Level	:	El. 582.00 m
D/S Surge gallery	:	2nos. 6 m dia D-shape, 360m long each
Max. D/S upsurge Level	:	EL. 604.00 m
Max. D/S downsurge Level	:	EL. 568.60 m
GIS / POTYARD:		
Type	:	Indoor type located outside the caverns
Dimensions of GIS/ Potyard Complex	:	125 m x 40 m
Type of Switchgear	:	400 kV Gas Insulated Type
No. of bays	:	7
Connecting Cable	:	Single phase 400 kV XLPE cables, 13 Nos.
Capacity of GIS Crane	:	1 x 5 ton
POWER BENEFITS:		
Installed capacity	:	520 MW
Firm Power	:	64.3 MW
Annual energy production in a 90% dependable year	:	2373 MU (At 95% machine availability)
Load Factor	:	51.14 % (At 95% machine availability)
LAND REQUIREMENT:		
Total Land	:	324.07 ha
Govt./ Forest Land	:	143.49 ha
Private Land	:	180.58 ha
SUBMERGENCE:		
Total Land under submergence	:	105.37 ha
Govt./ Forest Land	:	68.82 ha
Private Land	:	36.55 ha
PROJECT COST (At July 2009 PL):		
Total Cost	:	Rs. 3594.74 Cr
Civil Works	:	Rs. 2349.21 Cr
E&M Works	:	Rs. 558.69 Cr
IDC & FC	:	Rs. 686.84 Cr
COST OF GENERATION:		
Cost of generation at Bus bar (including 12% free power to state and return of equity)	:	Rs. 2.32 /Unit
Levellised Tariff	:	Rs. 3.65 / Unit

Whereas by notification of the Govt. of India in the Ministry of Environment & Forests, Govt. of India No. S.O. 1533 (E) dated 14th September 2006 issued under sub-section (1) and clause V of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 read with clause (d) of sub-rule (3) of Rule 5 of Environment (Protection) Rules, 1986 and in suppression of the notification no. S.O. 60 (E) dated 27th January 1994 as made mandatory under part II, section 7, sub-section 3 dated 14th September 2006, the State Pollution Control Board is required to conduct Public Hearing in the interest of the public for preparing recommendations based on the technical assessment of documents and data furnished by the Project Authorities for obtaining necessary environmental clearance from MoEF, Govt. of India. Therefore notice is hereby given to all concerned persons, having a plausible stake in the environment aspects of the project or activity and to provide responses in writing or by participating in the public hearing to be conducted on **22nd July 2011 at Namphrikdang playground, Dzongu, North Sikkim at 11.00 A.M. onwards.** Any person having plausible stake in the environmental aspects of the project or activity can submit their responses before the hearing date which may be addressed to the Member-Secretary, State Pollution Control Board-Sikkim, Department of Forest, Environment & Wildlife Management, Govt. of Sikkim, Deorali, Gangtok. Further access to the details of the project/executive summary, has been made available in the web-site www.sikenvis.nic.in / www.spcbsikkim.org and at the offices of the State Pollution Control Board- Sikkim, Deorali, Gangtok, Office of the District Collector (North) Mangan, District Industry Office, Mangan, North Sikkim and Zilla Parisad Bhawan, Mangan, North Sikkim.

Sd/-
Member Secretary,
State Pollution Control Board-Sikkim
Department of Forest, Env. & W/L Management
Government of Sikkim
Deorali – Gangtok.