

Tour Report of the site visit of Rangit IV HE Project (120 MW), Sikkim being executed by M/s NHPC Ltd.

Introduction:

Rangit Stage-IV Hydro Electric Project was identified as a part of the master plan evolved in 1974 for the development of hydro power potential of Teesta and Rangit rivers of Sikkim. Detailed field investigations and office studies were taken up on this project by the Central Water Commission (CWC) in 2003. A Detailed Project Report (DPR) has been brought out by CWC in August, 2006.

The project is a run-of the river (ROR) scheme, envisaging construction of a 44m high Concrete Gravity Dam near Reshi, a 6.5km long water conductor system comprising of intake, desilting basin, head race tunnel, surge shaft, penstock and a surface power house having an installation of 3 Francis Turbine driven Generating units of 40MW each at a rated head of 103.67m. Rangit Stage-IV Hydro Electric Project has been accorded Techno-Economic Clearance (TEC) by Central Electricity Authority (CEA) on 6th July, 2007.

The Government of Sikkim as a part of national drive for the development of Hydro Potential of the country awarded Rangit Stage-IV Hydro Electric Project to Jal Power Corporation Limited on 1st Nov. 2004. An agreement for setting up of Rangit Stage-IV Hydro Electric Project was signed with the Govt. of Sikkim on 9th December, 2005 on Build, Own, Operate and Transfer (BOOT) basis under joint sector with the State Government through Sikkim Power Development Corporation (SPDC).

Construction of the project started in June' 2008; however, the project stalled in October' 2013 due to paucity of funds post cost overrun. Due to default in payment to lenders, CIRP proceedings were initiated on JPCL vide Hon'ble NCLT order dated April 9' 2019. Hon'ble NCLT approved the NHPC Resolution Plan vide NCLT Order dated 24.12.2020.

MoP on 30th March 2021 conveyed Investment Approval for acquisition of Jal Power Corporation Ltd (JPCL) and construction of Balance Works. On 31st March 2021, NHPC has taken over Jal Power Corporation Limited after payment of resolution amount of Rs. 165 Crore to the Lenders.

SALIENT FEATURES OF RANGIT STAGE-IV H.E.P. (3 X 40 MW)

I. LOCATION

1	Country	: India
2	State	: Sikkim
3	District	: West Sikkim
4	Tehsil	: Soreng
5	River	: Rangit
6	Name of the river basin	: The Brahmaputra
7	Longitude	: 88 ⁰ 18' 10" E
8	Latitude	: 27 ⁰ 13' 10" N
9	Dam Site	: 1.00 Km upstream of village Reshi in West Sikkim
10	Power House	: Near confluence of River Rangit and right bank tributary Rothak Khola
11	Nearest Airport	: Bagdogra - 135 Km
12	Nearest Railhead	: New Jalpaiguri (BG) - 100 Km

II. TYPE OF PROJECT

1	Type	: Hydro Electric Project (ROR)
2	Installed capacity	: 120 (3x40) MW
3	Firm Power	: 15.72 MW
4	Annual energy generated during 90% dependable year	: 513 MUs. (Corresponding to 95% availability of the Machine)

III. HYDROLOGY & CLIMATE

1	Catchment area upto head works	: 1232.00 Sq Km
2	Snow catchment area	: 267.00 Sq Km
3	Average yield	: 3473.00 M Cum
4	Average annual rainfall	: 1551.394 mm
5	Maximum daily rainfall	: 236.90 mm
6	Minimum daily rainfall	: 9.80 mm
7	90% available discharge	: 16.33 Cumecs
8	Maximum Temperature	: 29.2 ⁰ C
9	Minimum Temperature	: 4.9 ⁰ C
10	Seismic Factors	
	-Horizontal direction	: 0.250 g
	-Vertical direction	: 0.166 g

IV. DAM

1	Type of Dam	: Concrete gravity dam
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2	Height of Dam	: 44.00 m
3	Top of Dam	: El. 471.00 m
4	F.R.L.	: El. 468.00 m
5	M.D.D.L.	: El. 458.00 m
6	Dead storage level	: El. 445.00 m
7	Gross storage capacity	: 1.81 M Cum
8	Pondage between F.R.L. and M.D.D.L. (Live storage capacity)	: 1.22 M Cum
9	Dead storage capacity	: 0.59 M Cum
10	Dimension of Spillway gate	: 10.5 m (W) x 14 m (H)
11	Crest elevation (Sluice)	: El. 445.00 m
12	Type of gate (Sluice)	: Radial
13	Crest elevation (Ogee)	: El. 465.00 m
14	Type of gate (Ogee)	: Vertical lift
15	Length of Dam at top	: 135.3 m
16	Width of Dam at top	: 8.00 m
17	Length of spillway	: 66 m
18	Free board	: 3.00 m
19	Maximum tail water level	: El. 455.20 m
20	River bed level	: El. 441.50 m
21	Intake structure	: 3 Nos with invert at El. 448.00 m of size 15.00 m width and 22.00 m height

V. SUBMERGENCE AT F.R.L.

1	Area under submergence	: 13.36 Ha
2	Number of villages affected	
	i) Full	: Nil
	ii) Partial	: Nil
3	Number of persons/families to be rehabilitated	
	i) Urban	: Nil
	ii) Rural	: 37 families

VI. DESILTING CHAMBER

1	Type of Desilting chamber	: Underground
2	Number of Desilting chambers	: 3 Nos
3	Dimension of single Desilting chamber	: 120 m (L) x 13 m (W) x 15 m (H)
4	Size of silt particle to be removed	: 0.25 mm and above
5	Average flow velocity	: 25.30 cm/sec

VII. HEAD RACE TUNNEL

1	Type of Head race tunnel	: Modified horse shoe
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14	Service bay level	: El. 355.00 m
15	Top elevation of Roof truss	: El. 374.00 m
16	Number of machines	: 3
17	Type of Turbine	: Vertical Francis
18	Rated unit capacity	: 40 MW
19	Specific speed	: 178.38 rpm
20	Synchronous speed & frequency	: 250 rpm, 50 Hz \pm 5%
21	Generator rated capacity	: 44.45 MVA with 10% continuous overload
22	Power factor	: 0.9
23	Generator voltage	: 11 KV \pm 5%
24	Excitation system	: Static
25	Heaviest component to be transported	: 25 T
26	Power House crane	: 1 No., 150 / 30 T
27	Maximum gross head	: 123.50 m
28	Maximum net head with one m/c running at rated load	: 118 m
29	Minimum net head	: 97.00 m
30	Rated net head	: 103.67 m
31	Minimum tail water level	: El. 344.50 m
32	Maximum tail water level under PLF	: El. 354.00 m
33	Maximum tail water level with three m/c in operation	: El. 347.10 m
34	Design Discharge	: 128.00 Cumecs
35	Unit Penstock diameter	: 3.2 m (after trifurcation)

XII. TAIL RACE CHANNEL

1	Tail Race Channel shape/ length	: Rectangular, Length about 42 m
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XIII. GENERATOR TRANSFORMERS

: 16.50 MVA, 11/220/ $\sqrt{3}$ KV 1- \emptyset -10 Nos

XIV. SWITCHYARD

1	Type of Switchyard/Voltage Level	: 220KV GIS Indoor
2	Number of bays in the switchyard	: 6 Nos

XV. Evacuation of Power

: Double Circuit 220kV line from Power House to New Melli Pooling station(About 3.2 Km).

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|---|-------------------------|-----------------|
| 2 | Dia of Head race tunnel | : 6.40 m |
| 3 | Length | : 6488 m |
| 4 | Slope | : 1 in 478 |
| 5 | Design Discharge | : 128.00 Cumecs |
| 6 | Number of Adits | : 2 Nos |

VIII. VENTILATION SHAFT

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|---|----------------------------------------------------------------|---------|
| 1 | Dia. Of Vertical Shaft from El. 523m to : 7m
El.493.7m | |
| 2 | Dia. Of Vertical Shaft from El. 493.7m : 4m
to Overt of HRT | |
| 3 | Height upto overt of the HRT | : 73.5m |

IX. SURGE SHAFT

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|---|---------------------------------|----------------------------------------|
| 1 | Type of Surge shaft | : Restricted orifice, Semi-underground |
| 2 | Dia of Surge shaft | : 18.00 m |
| 3 | Dia of orifice | : 2 m |
| 4 | Maximum downsurge level | : El. 445.7 m |
| 5 | Top elevation of Surge shaft | : El. 492.00 m |
| 6 | Bottom elevation of Surge shaft | : El. 427.00 m |
| 7 | Height of Surge shaft | : 59 m |

X. PRESSURE SHAFT

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|---|--------------------------|------------------|
| 1 | Type of Pressure shaft | : Underground |
| 2 | Dia of Pressure shaft | : 5.50 m |
| 3 | Length of Pressure shaft | : 247 m |
| 4 | Thickness of Steel liner | : 20 mm to 36 mm |

XI. POWER HOUSE

- | | | |
|----|-----------------------------------------------|-----------------|
| 1 | Type of Power house | : Surface |
| 2 | Length of Power house | : 75.30 m |
| 3 | Width of Power house | : 20.20 m |
| 4 | Height of PH from lowest excavated :
level | 41.385m |
| 5 | Centre to centre spacing of units | : 16.50 m |
| 6 | Length of service bay | : 18.60 m |
| 7 | Distance between A line to B line | : 9.60 m |
| 8 | Distance between B line to C line | : 9.00 m |
| 9 | Distance between C line to D line | : 11.20 m |
| 10 | Centre line of Turbine | : El. 344.0 m |
| 11 | Turbine floor level | : El. 344.835 m |
| 12 | Upper generator floor level | : El. 352.835 m |
| 13 | Lower generator floor level | : El. 348.835 m |

- **STATUS OF WORK DONE AS ON 05.03.2022**

(i) Status of Award of different Packages:

1. Package-I (Civil Works)

LoA issued on 27th August 2021 for Rs 452.12 Crore & Contract Agreement signed on 23rd September 2021.

2. Package-II (HM Works)

3. Work Awarded on 28.06.2021 to M/s PES Engineering Pvt. Ltd. for Rs. 100.40 Cr. & Contract Agreement signed on 26.07.2021.

4. E&M Works Packages (Splitted into 7 Packages)

(I) E&M Package 2: Awarded on 08.07.2021 for an amount of Rs.80.12 Crore and Contract Agreement signed on 05.08.2021.

(II) EM-1(i)- Design, Manufacture & Supply of Turbine & Generator package comprising of Turbine and Accessories, Governing System & Accessories, Main Inlet Valve & Accessories, Generator Cooling Water System, Cabling System.

Revised Cost Estimate: - 67.75 Cr.

Technical & Price bid opened on 23.02.2022, file is put-up for approval for carrying out negotiation with bidder (single bidder: M/s Andritz) Bid amount is 5.9% higher than the revised cost estimate.

(III) EM-1(ii): Erection, Testing and Commissioning of Turbine & Generator Equipment.

Revised Cost Estimate: - 15.67 Cr.

Awarded to **M/s Fitwell Constructions, Trivandrum**, for **FI Rs. 15.36.00 Cr.** on 31.01.2022

(IV) EM-3: Transmission Line

Connectivity of 120 MW for Rangit-IV HEP (3x40MW) has been granted.

Technical Sanction Cost: Rs.41.50 Cr.

PSA (Project Specific Agreement) signed on 04.02.2022. 10% amount (4.15 Cr) released as per MOU.

(V) EM-4: Supply, Erection & Commissioning of Excitation System, Control & Monitoring System

Technical Sanction Cost: - 12.61 Cr.

Awarded to **M/s Andritz**, for **FI Rs. 1039.58 Lacs** on 09.12.2021 & Contract agreement signed.

(VI) EM-5: Supply, Erection & Commissioning of Drainage & Dewatering System, Compressed Air System

Technical Sanction Cost: - 626.75 Lacs

Awarded to **M/s BC Technomation** for **FI Rs. 499.99 Lacs** on 09.12.2021 & Contract agreement signed.

(VII) EM-6: Supply, Erection & Commissioning of Lubricating Oil Filtration System

Technical Sanction Cost: - 58.03 Lacs

Awarded to M/s CBS Technologies Pvt Ltd. Greater Noida for Rs. 19.11

Lacs on 24.01.2022.

Status of work done by the previous developer as well as NHPC Ltd since taking over.

SI No.	Name of Work	Unit	Total Qty	Executed Qty(Previous Developer)	Work done by JPCL/NHPC	Total Executed Qty	Balance Qty
1	Dam & Intake						
a	Excavation	Cum	492775	409184		409184	83591
b	Removal/ clearance of material deposited due to flooding in working area.	Cum	200000	0	70000	70000	130000
c	Concreting	Cum	173229	61045	4969	66014	107215
2	HRT						
	Heading Excavation	RM	6488	3794	78.6	3872.6	2615.4
	Benching Excavation	RM	6488	3694	26	3720	2768
	Overt Concrete Lining	RM	6488	0	0	0	6488
	Invert Concrete Lining	RM	6488	0	0	0	6488
3	Desilting chamber						0
a	Excavation	RM	3360	2143	100	2243	1117
b	Concreting	RM	3360	0	0	0	3360
4	SFT						
	Excavation	RM	540	0	0	0	540
	Concreting	RM	540	0	0	0	540
5	Pressure Shaft					0	0
a	Excavation	RM	236.55	212.34	0	212.34	24.21
b	Concreting	RM	236.55	0	0	0	236.55
6	Power House						
a	Excavation	Cum	118384	114690	0	114690	3694
b	Concreting	Cum	19900	8565.66	174	8739.66	11160.34
7	Penstock						
a	Excavation	RM	232.49	205.29	0	205.29	27.2
b	Concreting	RM	232.49	0	0	0	232.49
8	Surge Shaft						0

a	Excavation	RM	59	59	0	59	0
b	Concreting	RM	59	0	0	0	59
9	E&M Works						
(i)	Turbine & Generator and its accessories					0	
a	Supply	%	100	70	0	70	30
b	Erection						
	EOT	%	100	0	0	0	100
	UNIT-1	%	100	5	0	5	95
	UNIT-2	%	100	5	0	5	95
	UNIT-3	%	100	1	0	1	99
(ii)	Balance of Plant					0	0
a	Supply	%	100	0	0	0	100
b	Erection	%	100	0	0	0	100
10	HM works						
a	Supply	%	100	0	5	5	95
b	Erection	%	100	0	3	3	97
	Spilway Radial Gate	%	100	0	0	0	100
	Ecological/Envioirementa l Flow Gate	%	100	0	0	0	100
	Intake Gate	%	100	0	0	0	100
	Desilting Chamber Gate	%	100	0	0	0	100
	SFT Gate	%	100	0	0	0	100
	Surge Shaft	%	100	0	0	0	100
	Pressure Shaft Liner	%	100	0	0	0	100
	Draft Tube Gate	%	100	0	0	0	100
	Adit Gates	%	100	0	0	0	100

BRIEFS: PROGRESS OF CIVIL WORKS SO FAR

Dam & Intake Area

- **River Diversion** was done on 7th November 2021 after cleaning of 15000 Cum deposited RBMs from the previously constructed Diversion Channel.





➤ Construction of u/s Coffor wall completed on 29.11.2021



➤ After 1st Stage River diversion, joint survey done and the activity of removal of deposited RBM from the Dam site and Intake area started from 10.11.2022.



Status of Dam site area after River Diversion

- **As on date, approximately 55,000 Cum of deposited RBM removed from Dam & Intake area and the present status of Dam & Intake area is as below:**



Dam Top View



Block 3 of Dam



View of Dam structure from D/s

Activity/Progress at Dam site so far:

1. Joint Survey of block No. 3, 4, 5, 6, 7 & 8 completed.
2. After the joint survey, Block 3 was found at EL 436 m, Glacis of Block 4 & 5 was found completed up to the crest level i.e. EL 445 m, block 6, 7 & 8 were found constructed up to EL 443.5 m, EL 444.7m & EL 449 m respectively. (Block 3,4,5 & 6 are overflow blocks)
3. 1st Concreting started on 27.12.2021 on right pier of Block No. 5 (from EL 437 m to EL 438.6 m)
4. Consequent pouring of concrete done in piers as tabulated below:

Block 5	Right pier raised from EL 437 m to EL 445.25 m	Left pier raised from EL 437 m to EL 443.5 m
Block 4	Right pier raised from EL 437 m to EL 440.2 m	Left pier is already at EL 440.2 m

5. **Block No. 3:** (i) Concreting has been done from EL 436 m (previously constructed level) to EL 438.75 m, total Concreting done so far is 1235 Cum.(ii) For further raising of level, reinforcement binding and shuttering works for drainage gallery and instrumentation gallery is in progress.

Concreting quantity at Dam area till date: 2079 Cum

Activity/Progress at Intake area so far:

1. Deposited RBM removed and joint survey report completed.
2. As per joint survey report, the raft of Intake was found completed up to EL 445.4 m.
3. Till date the level of Intake has been raised from EL 445.4 m to EL 447 m has been completed.

4. Reinforcement binding up to EL 448.5 m (invert level of intake) has been completed.
5. For further raising of level, installation of EPs of service gate & maintenance gate of Intake 1 has been completed, installation of EPs in Intake 2 & 3 as well as reinforcement binding beyond EL 448.5 m is in progress.
6. Cumulative progress of concreting at Intake area till date: 2890 Cum.
7. Till May 22, it has been planned to raise the intake level up to EL 454.5m

Photographs of the Intake area:



After river diversion



Present status

Activity/Progress at HRT area so far:

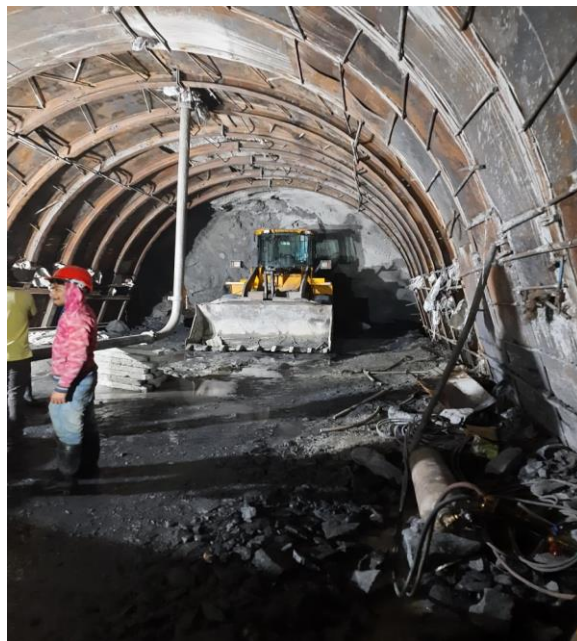
1. Dewatering of HRT area (Face 2) started from 16.10.2021.

2. Removal of Old equipment of previous developer from Face 3 area completed on 12.12.2021.
3. Joint survey of Face 2 completed.
4. 1st Blast taken for heading excavation in Face 2 on 31.12.2021. Total progress till date: 59.4 m.
5. 1st Blast taken for heading excavation in Face 3 on 07.02.2022.Total progress till date: 19.3 m.
6. Cumulative progress against the balances 2694 m of excavation, till date is 78.6 m.

Recent Photographs:



Face 3



Face 2

Progress/Activity in DC area:

1. Dewatering in all the 3 DCs completed on 12.12.2021.
2. Removal of all the old equipment/machinery completed on 16.12.2021.
3. Joint survey done and report submitted to D&E division.
4. 1st benching blast taken on 06.01.2022 in DC 2.
5. At present, levelling of existing excavated profile of DC 3 has been done for preparation of concreting of beam for Gantry Crane to be installed by 15th March 22 for lining of Crown/side walls.
6. Blasting in DC 2 as well as installation of wire mesh followed by shotcreting is in progress, drainage holes are also being done at the required locations.
7. Till date 3655 Cum of excavation done.

Recent photographs of DCs



DC 2



DC 3

Progress/Activity at Pressure Shaft Area:

1. Joint survey of already excavated portion of horizontal pressure shaft (151.85 m length) as well as penstock area has been completed.
2. For starting the excavation activity from March 22 end of balance 24,25 m length (825 Cum) out of total vertical height of 84.75 m pressure shaft, old gantry crane removed and process of installation of new gantry is in progress.

Recent Photographs:



Progress/Activity at Power House Area so far:

1. Dewatering started from 12.11.2021 and completed.
2. Slush removal from Unit 1 , Unit 2 & Unit 3 area completed.
3. Joint survey completed.
4. Concreting in staircase well/lift well is in progress and till date concreting has been done up to EL 347.78 m.
5. Raising of columns & beams of service bay area is also in progress.
6. Till date concreting in Service Bay area has been completed up to EL 361.50 m (EOT level: EL 366 m).
7. Cumulative progress of concreting till date is 174 Cum and during the month of February 22, concreting up to 132.75 Cum has been done against the monthly target of 120 Cum.

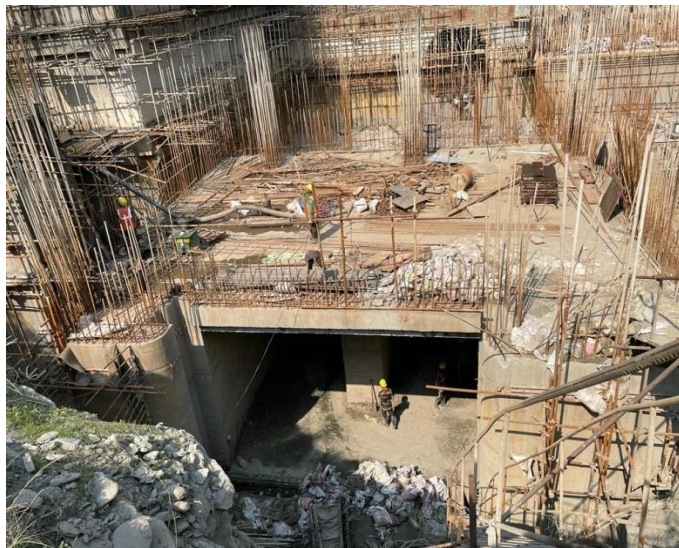
Photographs:



At the time of start of work by NHPC



As on date



Draft tube pit of Unit 1



Service bay area



Staircase/lift well area

Status of Key Equipment & Machineries

1. 45 CPH & 90 CPH batching plant already commissioned.
2. Old Tower Cranes from Intake area & Dam area already removed and foundation work for both the cranes is in progress.
3. 50 TPH crusher plant has been hired locally, however a new crusher plant of 150 TPH capacity is likely to arrive at site by end of March 22.
4. 12 no's of Transit mixer is available at site.

• TENTATIVE DATE OF COMPLETION OF THE PROJECT

As per the Investment Approval sanction order issued by MoP, GoI dated 30.03.2021, the project is to be completed within 38 months from the date of issuance of the sanction order.

- **ISSUES/CONSTRAINTS (IF ANY)**

- (i) **Related to Outstanding fee related to Renewal of Consent to Establish under Air (Pollution & Control of Pollution) Act, 1981:**

For taking approval for Renewal of Consent to Establish under Air (Pollution & Control of Pollution) Act, 1981, the Rangit-IV H.E. Project, had approached the State Pollution Control Board (SPCB), Govt. of Sikkim. However the SPCB has instructed to deposit the outstanding fee against **(a) Consent fee w.e.f. 2014-15 @Rs. 5 Lacs/year (b) DG Set fee w.e.f. 2014-15 @Rs.5000/year & (c) Monitoring fee @Rs.2.0 Lacs/year w.e.f 2014-15, to till date.**

It is pertinent to mention here that the work of Rangit IV HEP was suspended from 2013 to 2021(till the acquisition by NHPC).

As per the following clauses of NCLT order dated 24.12.2020, vide which Jal Power Corporation Limited was taken over by NHPC Limited:

*(a) **The Clause 4 (Resolution Amount):** “As per Appendix-I of Annexure F (Financial Proposal) the Resolution Applicant has proposed a Resolution Plan amount of Rs. 165.0 crores as full and final settlement for all Stake holders including Financial, Operational and other Creditors to be paid within 180 days of this adjudication Authority’s order approving the Resolution Plan (i.e. Effective date) as per Financial Proposal”.*

*(b) **The Clause 7.6(a) of Annexure G (Amount due to the government or government agencies):** “If the Corporate Debtor were to be liquidated, the amount that would have been payable for the claim would have been nil, as per section 53 of the code, list amount due to government agencies at fifth position in the order of priority. The Liquidation Value is payable to the government agencies, is also nil. Further, the Clause 7.6 (b) (Payment Terms) States “Liability on account of Government dues shall be treated as set out in the Resolution Plan, Appendix-1 (Financial Proposal)”.*

*(c) **The Clause 7.6 (f) of Annexure-G:** “Upon the approval of this resolution plan by NCLT, any and all rights and entitlements, recovery, disgorgement, penalty, fees, recoupment of loss, of central government, State government, any regulatory or local authority or body or any agency or instrumentality there or any other party or entity (under any agreement, lease, license, approval, consent, privilege or permission or under statue rules of regulations)whether filed/verified/admitted or not admitted or not admitted/verified/verified or not, due or contingent, asserted or un-asserted, crystallized or un-crystallized, known or unknown, secured or unsecured, disputed or undisputed, present or future, in relation to any period prior to the Effective Dates or arising on account of acquisition of control by Resolution Applicant over the Corporate Debtor pursuant to this Resolution Plan, shall stand permanently extinguished and Corporate Debtor or the Resolution*

Plan shall at no point of time, directly or indirectly, have any obligation, liability or duty in relation thereto”.

As per the above clauses, all the liability prior to the Effective Date (The date on which Resolution Plan is approved by the NCLT) i.e. 24.12.2020 has been extinguished.

The project has approached the SPCB referring the above clauses also, but till date the matter has not been resolved.

- (ii) **Purchases through GEM Portal:** In most of the purchases done through GEM portal, it is being observed that the supplied items/materials are not as per the specifications, as specified/mentioned in GEM portal against that items/materials. For not meeting the required specifications, though the materials are rejected immediately but the purpose of getting the right materials/items at right time is forfeited and to get the desired materials/items, procurement process have to re-started which waste a lot of valuable time and our internal resources. Complain for the same are also being registered against such suppliers, but due to non-stringent compliance of delivering such materials as per the described specifications, a lot of valuable time got wasted.

Apart from that, some key instruments like total station etc. having high precision qualities are not manufactured in India, but due to compliances to procure such materials through GEM portal and also availability of Indian products in GEM portal only, a lot of time got wasted.

DEVIATION FROM TEC CONDITIONS:

Earlier, a diversion tunnel of 284 m (as per submitted drawings) was envisaged, but the above diversion provision is found replaced with a open channel of same length.

INFRA GRANT (IF THERE)

Not any.

TRANSMISSION LINE STATUS

PSA (Project Specific Agreement) signed on 04.02.2022 with PGCIL for evacuation of generated Power.

EWS STATUS:

Presently, the discharge data being maintained by Rangit Power Station (Power House situated at approx. 4 Km u/s of the Dam of this project), is being recorded and being monitored at Project site area of Rangit IV HEP. However, in due course of time, EWS system will be set up in between the Rangit PS & Dam site of this project.

SOME PHOTOGRAPHS OF WORK PROGRESS



1. Preparatory work (balance binding of reinforcement, EPs of gates etc) before taking final lift of raft from EL 447.0 to EL 448.5M is in progress



2. Balance work with in overflow block no 5 & 4 (pier concreting) is in progress.



3. View of Diversion channel (1st stage)



4. Balance work in overflow block no 3 (spillway no 1) is in progress



5. View of Desilting Chamber-2 ongoing inlet transition reinforcement works.



6. View of HRT face-2 ongoing excavation works