

TALLO LIKHU JALAVIDHYUT AAYOJANA (28.1 MW)



MONTHLY PROGRESS REPORT # 52

AUGUST, 2022

(16 Shrawan to 15 Bhadra, 2079)

Prepared By:



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1 PROJECT OVERVIEW AND INSTITUTIONAL ARRANGEMENT

Tallo Likhu Jalavidhyut Aayojana is a run-of-river (RoR) hydropower project which utilizes Gross Head 118 m and Design Discharge of 29.75 m³/s resulting to an installed capacity of 28.1 MW. The entire project area (headworks to powerhouse) is located in Likhu-Tamakoshi Rural Municipality (Saipu, ward no. 2 and Bijulikot ward no. 4) of Ramechhap, Bagmati Province of Nepal. Geographically, the project lies between Longitudes 86°15'38" E to 86°13'17" E and Latitudes 27°25'56" N to 27°22'47"N. Geologically, the project area belongs to the Lesser Himalayas.

The project's headworks area is accessible via two different road routes. One from Kathmandu-Dhulikhel-Charikot-Nayapul-Dhobi-Sirise (227 km) and another from Kathmandu-Dhulikhel-Khurkot-Manthali-Dhobi-Sirise (170 km).

CONSTRUCTION MANAGEMENT

The Employer/Owner	Swet Ganga Hydropower & Construction Ltd. (SGHCL)
The Engineer/ Consultant	Sanima Hydro and Engineering Pvt. Ltd. (SHEPL)
The Contractor (Civil Construction Works)	High Himalaya Hydro-Bavari Construction J.V.
The Contractor (Hydro-mechanical Works)	Machhapuchhre Metal & Machinery Works (P.) Ltd. (3MW)
The Contractor (Electro-mechanical Works)	Asia Pacific Power-Tech Co. Ltd., China
The Contractor (Transmission-line Works)	Aster Teleservices Nepal Pvt. Ltd.
Pre-construction works, camp facilities, social environment	Direct by the Employer

2 KEY DATES

Table 1: Key dates of major events of the project

Description	Date
Generation License issued by Department Electricity Development (DoED), Ministry of Energy (MoE), Government of Nepal (GoN)	2 Baisakh 2073 (14 April 2016)
	The license period of the project is from
	28 Chaitra 2072 to 27 Chaitra 2107 B. S.
Power Purchase Agreement (PPA) with Nepal Electricity Authority (NEA)	14 Poush 2073 (29 December 2016)
Financial Closure	10 Falgun 2074 (22 February 2018)
Contract of Main Civil Works	5 Chaitra 2074 (19 March 2018)
Contract of Hydro-mechanical Works	9 Poush 2075 (24 December 2018)
Contract of Electro-mechanical Works	18 Bhadra 2076 (4 September 2019)
Contract of Transmission Line Works	8 Shrawan 2077 (23 July 2020)
RCOD	15 Mangsir 2078 (1 December 2021)

3 CONTRACT PACKAGES AND IMPLEMENTATION

Main civil construction works	Contract Package 1
Hydro-mechanical works	Contract Package 2
Electro-mechanical works	Contract Package 3
Transmission Line works	Contract Package 4
Pre-construction works, camp facilities, social environment	Direct by the Employer

4 FINANCING

Equity	Promoters	25% of the total Project Cost
Debt	Consortium of Banks	75% of the total Project Cost (Lead Bank: Laxmi Bank Ltd, Member Banks: Kumari Bank Ltd., Hydroelectricity Investment and Development Company Ltd. Century Commercial Bank Ltd., and Prabhu Bank Ltd.)

5 RESOURCES AT SITE

5.1 MANPOWER FROM EMPLOYER AND ENGINEER'S SIDE:

Table 2: Human Resource at site from the Employer and Engineer's side

Description	Number
General Manager	1
Resident Engineer	1
Environment and Social Officer	1
Finance/Admin Officer	1
Civil Engineer	3
Electrical Engineer	2
Mechanical Engineer	2
Engineering Geologist	1
Safety Coordinator	1
Civil Overseer/Sub-overseer	4
Mechanical Overseer	5
Electrical Overseer/Sub-overseer	6
Surveyor	2
Social Mobilizer	3
Admin Assistant	2
Driver	5
Cook	3
Office Helper	4
Construction Helper	6
Store keeper	1
Total:	54

5.2 MANPOWER FROM CIVIL CONTRACTOR'S SIDE:

Table 3: Human Resource at site from the Civil Contractor's side

Description	Number
Technical Manpower	15
Financial and Administrative manpower	18
Skilled workers(Machine Operators, Electricians, Heavy Drivers)	15
Semi-Skilled workers(Light Drivers, Civil workers)	18
Unskilled workers(Helpers, Kitchen workers, Pump operators)	16

Description	Number
Security guards	19
Total (A)	101
Other Workers (Sub-Contractors)	
DL/Bhimeshwor Construction (Headworks, Seti and Powerhouse)	17
Jaya Likhu Construction	8
Gaiya Devi Construction (VB01)	14
Balaji Metal Works (Powerhouse, Main Outlet)	5
Total (B)	44
Grand Total (A+B)	145

Note: Data as per weekly report provided by the Main Civil Contractor on 31st August 2022.

5.3 MANPOWER FROM HYDRO-MECHANICAL CONTRACTOR'S SIDE:

Table 4: Human Resource at site from the Hydro-Mechanical Contractor's side

Description	Number
Site Project Engineer	1
Site Supervisor	3
Safety Officer	1
Store In-charge	1
Quality Controller	1
Electrician	1
Sand Blasting Operator	1
Hydra Operator	1
Tractor driver	1
Fitter	2
Welder	12
Helper	14
Cook	3
Total	43

5.4 EQUIPMENT MOBILIZED BY CIVIL CONTRACTOR

Table 5: Equipment mobilized by the Civil Contractor

S.N.	Equipment Name	Number	S.N.	Equipment Name	Number
1	Generator 62.5KVA	1	24	Pusher leg	37
2	Generator 30KVA	1	25	Blaster (Exploder)	6
3	Generator 125KVA	1	26	Siren	6
4	Generator 25 KVA	1	27	Core Cutting machine	2
5	Generator 160 KVA	1	28	Hand drilling machine	3
6	Generator 250 KVA	1	29	Air compressor	7
7	Air Receiver tank	4	30	Vibrators	5
8	Ohm meter	6	31	Water pump 10"	2
9	Excavator	2	32	Water pump 12"	1
10	Dump Truck	4	33	Water Pump 1.5"	6
11	Transportation Truck	1	34	Water pump 6"	4
12	Backhoe Loader (JCB)	1	35	Grinding machine(4")	6

S.N.	Equipment Name	Number	S.N.	Equipment Name	Number
13	Wheeled loader	4	36	Grinding machine(7")	1
14	Tractor	3	37	Welding machine	8
15	Light vehicle	3	38	Ply cutter machine (8"/7")	1
16	Concrete Batching Plant	1	39	Prism with tripod set	5
17	Concrete mixer	6	40	Leveling staff (5m)	4
18	Grouting pump	4	41	Total station (Topcon)	3
19	Concrete pump	1	42	Auto level with tripod set	4
20	Transit mixer	2	43	Shotcrete machine PZ5	3
21	Blower fan set	-	44	Compressive test machine	2
22	Pull out test machine	1	45	Lubricator	43
23	Shotcrete Robot (Jacon)	-	46	Diesel Tank 16000Ltr	3

5.5 EQUIPMENT MOBILIZED BY HYDRO-MECHANICAL CONTRACTOR

Table 6: Equipment mobilized by the Hydro-Mechanical Contractor

S.N.	Equipment	Number
1	Hydraulic Crane	1
2	Excavator	1
3	Tractor	1
4	Diesel Generator (200 KVA)	1
5	Diesel Generator (40 KVA)	1
6	Diesel Generator (12.5 KVA)	1
7	Welding Machine	14
8	Compressor	1
9	Grinding Machine (7")	14
10	Grinding Machine (4")	8
11	Master Oven	1
12	Portable Oven	14

5.6 CONSTRUCTION MATERIALS STORED BY CIVIL CONTRACTOR AT SITE:

Table 7: Construction material stored by the Main Civil Contractor

Materials	Unit	Balance Quantity
Diesel	Litres	2,420
Rebar (25mm dia.)	Ton	0.10
Rebar (20mm dia.)	Ton	-
Rebar (16mm dia.)	Ton	-
Rebar (12mm dia.)	Ton	-
Cement	Bags	360
Plasticizer	Kg	1,400.00
Steel Fibre	Kg	125.00
Micro Silica	Kg	400.00
Accelerator	Kg	275.00

Note: Data as per weekly report provided by the Main Civil Contractor on 31st August 2022.

6 CIVIL CONSTRUCTION WORK PROGRESS

6.1 HEADWORKS

The civil work progress at headworks in August, 2022 is as follows:

- All the construction works of the headworks have been completed.

Table 8: Progress at Headworks in August, 2022

S. N.	Description	Unit	Quantity	Remarks
1	C25 concrete at Fish passage	m ³	20.00	
4	Rebar works at Fish passage	Ton	2.00	



Figure 1: Fish passage from downstream side



Figure 2: View of weir, undersluice, and intake and fish passage

6.2 HEADRACE TUNNEL, SYPHON CROSSING AND SURGE SHAFT

HRT FROM MAIN INLET PORTAL TO SETI OUTLET PORTAL

The construction works of the portal anchor blocks have been completed at both the main inlet portal and Seti outlet portal. The access road to Dhade has been diverted through the main inlet portal anchor block with necessary retaining wall, backfill and delineation.



Figure 3: Road diversion through main inlet portal anchor block



Figure 4: Seti outlet portal anchor block



Figure 5: Headrace tunnel stretch between the Main inlet portal and Seti outlet portal

HRT FROM SETI INLET PORTAL TO POKU OUTLET PORTAL

All the civil works have been completed at this portion.



Figure 6: Headrace tunnel stretch between the Seti inlet portal and Poku outlet portal

HRT FROM POKU INLET PORTAL TO MAIN OUTLET PORTAL

All the civil works have been completed at this portion.



Figure 7: Headrace tunnel from Poku inlet portal to main outlet portal

SETI CROSSING

All the civil works have been completed at this portion.

POKU CROSSING

All the civil works have been completed at this portion.



Figure 8: Poku syphon crossing

SURGE SHAFT, ROCK TRAP AND CONNECTING TUNNEL

All civil works have been completed at this portion.

6.3 PENSTOCK, PPV HOUSE, POWERHOUSE AND TAILRACE**PENSTOCK ALIGNMENT:**

The civil construction works of the penstock alignment from main outlet portal to powerhouse have been completed.

PPV HOUSE:

The civil construction works of the PPV house have been completed except the main door installation and a small part of the roof.



Figure 9: PPV house and penstock anchor block VB01

POWERHOUSE AND CONTROL BUILDING:

All civil construction works of the powerhouse have been completed. Fencing work is ongoing at the peripherals of the powerhouse.

TAILRACE:

The construction of all civil works of the tailrace culvert has been completed.

SWITCHYARD:

All civil works of switchyard have been completed and fencing around the switchyard is ongoing.



Figure 10: Fencing works at the switchyard area



Figure 11: Powerhouse and switchyard from east



Figure 12: Powerhouse machine hall

7 HYDRO-MECHANICAL WORKS

All the major hydro-mechanical installation works of the project have been completed. The roofing works of the gate hoisting structures is ongoing.



Figure 13: Testing of the undersluice radial gates



Figure 14: Installation of tailrace stoplog



Figure 15: Roofing and stairway works at the Settling basin inlet gate hoisting area

8 ELECTRO-MECHANICAL WORK PROGRESS

All the electro-mechanical installation works in the powerhouse, control room and the switchyard have been completed. The dry testing work is ongoing and in the verge of completion. The double bus bar connection at New Khimti substation is remaining.



Figure 16: High and low voltage Cubicle room



Figure 17: Cooling pipeline system in the powerhouse



Figure 18: View of switchyard near powerhouse



Figure 19: Penstock protection valve

9 TRANSMISSION LINE WORKS (132 KV)

The erection of all the transmission towers and stringing works of the conductors from powerhouse of the project to the New Khimti substation have been completed.



Figure 20: OPGW stringing between gantries at New Khimti Substation

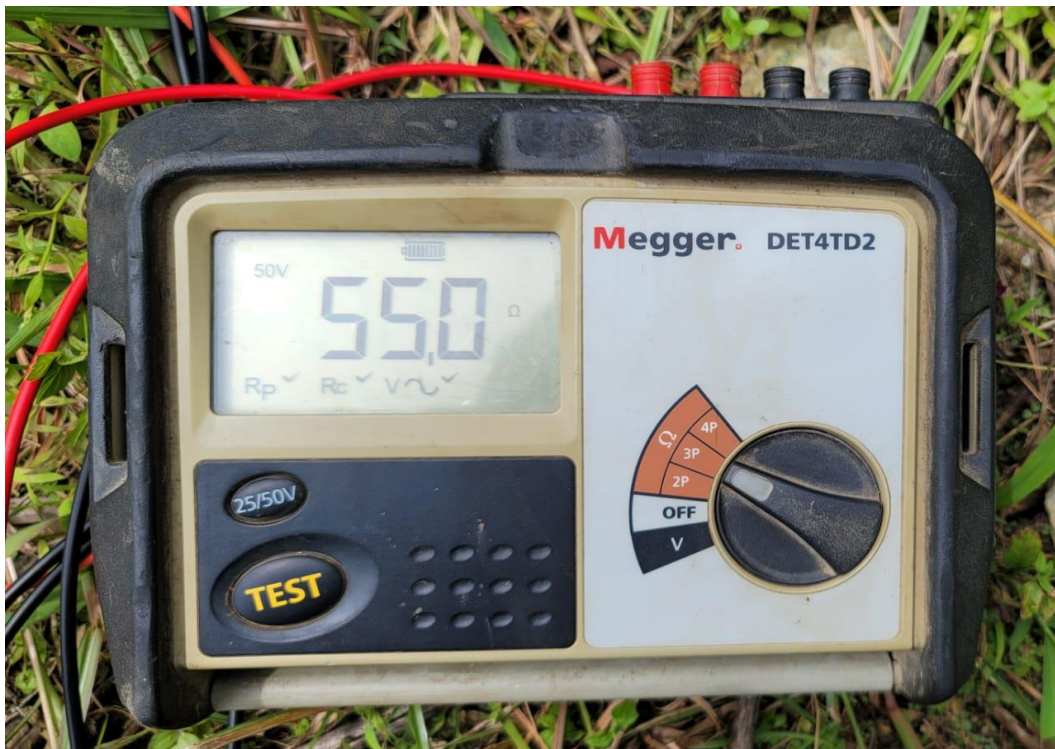


Figure 21: Checking of Megger values at tower locations

10 SOCIAL AND PUBLIC

The major social activities undertaken in August 2022 are:

- Public road repair carried out at landslide affected areas at Saipu-Dhade road.
- Stone soling has been carried out at the damaged public road at Kotgaun.
- Discussion has been made with the public regarding testing works and precautionary notice has been circulated through written notice and miking.



Figure 22: Road repair at Kotgaun area

तल्लो तटिय क्षेत्रको लागि सूचना

**श्वेत गंगा हाइड्रोपावर एण्ड कन्सट्रक्सन लिमिटेड
तल्लो लिखु जलविद्युत आयोजना (२८.१ मे. वा.)
सावधानी तथा जनचेतनाको लागि जारी सूचना !**

लिखु तामाकोशी ०२ (साबिकको सैपु) मा बाँध बाँधी लिखु खोलाको पानीलाई फर्काई सुरुङ्ग मार्फत सेती तथा पोकु खोल्सी हुँदै लिखु तामाकोशी ०४ (साबिकको बिजुलिकोट) को लिखु खोलामा भारी तल्लो लिखु जलविद्युत आयोजनाको परिक्षण कार्य यहि ०७ भदौ २०७९ देखि हुन गइरहेको कुरा सम्बन्धित सबैमा जानकारी गराउदछौ । यसरी आयोजना परिक्षणको समयमा खोलामा पानीको वहावमा तल/माथी हुने भएकोले खोलामा बालबच्चाहरू खेलबाट रोक्नु हुन, पौडी नखेल्न हुन, आयोजना क्षेत्रमा बिना अनुमती प्रवेश नगर्न हुन तथा खोलामा अन्य क्रियाकलाप गर्दा आवश्यक सावधानी अपनाउनु हुन र कानूनले बन्देज गरेका नदीमा जलचरहरूलाई हानी हुने किसिमका (विष्फोटक पदार्थ, विषादी आदी प्रयोग गरी माछा मार्ने) कार्य नगर्नु/नगराउनु हुन सम्बन्धित सबैलाई जानकारी गर्दछौ । साथै यो सूचनालाई वेवास्ता गरी खोलामा प्रवेश गरे/गराएमा हुनजाने दुर्घटना प्रति कम्पनी जवाफदेहि हुने छैन साथै जोर जवरजस्ती गरे/गराएमा कानूनी कारवाहिको भागिदार हुनु पर्ने कुरा सम्बन्धित सबैलाई जनहितको लागि सू-सूचित गर्दछौ ।

बलावरण तथा समुदाय शाखा
 श्वेत गंगा हाइड्रोपावर एण्ड कन्सट्रक्सन लिमिटेड

Figure 23: Notice to public regarding testing works

11 OCCUPATIONAL SAFETY AND HEALTH (OSH)

Although all the major construction activities of the project have been completed, some minor construction works like fencing, final landscaping, etc has still been ongoing at the construction area. Thus, the safety precautions have been continued at the working area. Also, new signage has been installed at site for the purpose of awareness during testing works.

11.1 OSH PROGRESS

Table 9: OSH implementation at site during August 2022

Particular	Description	Remarks
Safety during final stages of the project	Since the final stages of construction can be hasty and hazardous, regular monitoring has been carried out to prevent possible mishaps.	Work has been ongoing smoothly
Compliance of PPE at all working fronts	Workers have been provided with appropriate PPE. The use of PPE is well monitored.	Ongoing
Lifebuoy ring installation	Lifebuoy rings have been installed at deep water area for preparedness against accidental drowning during testing.	The site security guards are alerted so the rings are not stolen
Signage	Safety signage has been installed at deep water area, pipe testing area and entrance area,	Good condition
Disinfection	Disinfectants have been sprayed at the quarter area for prevention against COVID 19.	



Figure 24: Deep water sign at Settling basin

12 PROGRESS PHOTOGRAPHS



Figure 25: Aerial view of the project's headworks area



Figure 26: Undersluice stoplog



Figure 27: Dry testing work at the switchyard



Figure 28: Welding at Powerhouse and switchyard from top



Figure 29: Fabrication of the powerhouse main door



Figure 30: Powerhouse main gate and guard post under construction



Figure 31: Feeder panel, charging panel and battery panels at the control room



Figure 32: Final inspection of the headrace tunnel with experts

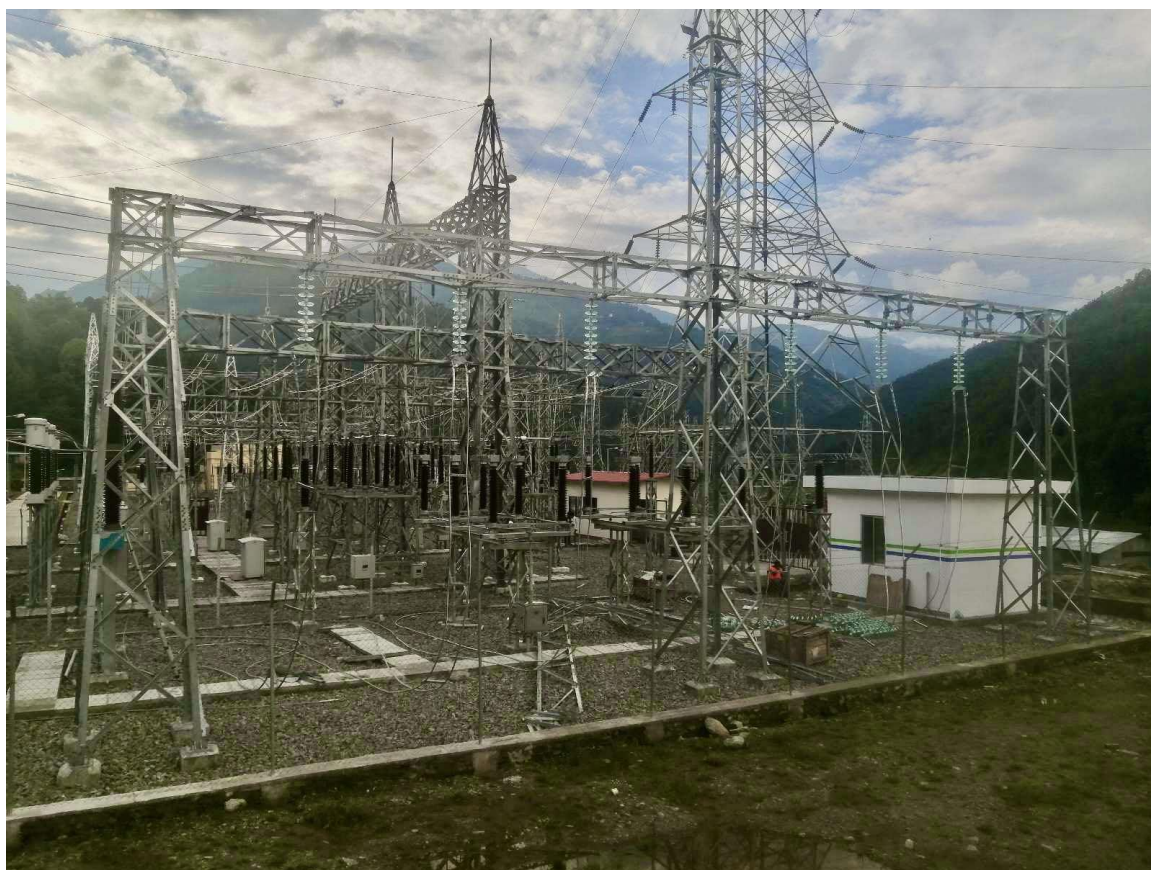


Figure 33: New Khimti Substation

13 PROGRESS CHART

