

NATIONAL MISSION FOR CLEAN GANGA (NMCG)
**MINISTRY OF JAL SHAKTI DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION, GOVT. OF INDIA**



जल शक्ति मंत्रालय
जल संसाधन, नदी विकास और गंगा संरक्षण विभाग
MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION

**DEVELOPMENT OF NEW SEWAGE TREATMENT PLANTS,
REHABILITATION OF EXISTING SEWAGE TREATMENT
INFRASTRUCTURE AND O&M FOR 15 YEARS IN KANPUR**

UNDER

**ONE CITY ONE OPERATOR CONCEPT THROUGH HYBRID ANNUITY
BASED PPP MODE (HAM – KANPUR)**

(STC agreement dated 19.04.2019 & LOA: Pr-12012/41/2018-PPP/NMCG dated 04.02.2019)

Monthly Progress Report

Of

Project Engineer

APRIL - 2023



Executing Agency
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ABBREVIATIONS

ASP	Activated Sludge Process
BEP	Basic Engineering Package
BOD	Biochemical Oxygen Demand
CETP	Common Effluent Treatment Plant
COD	Chemical Oxygen Demand
COD	Commercial Operation Date
CPs	Condition Precedent
CTE	Consent To Establish
CTO	Consent to Operate
DFGs	Dual Fuel Generators
DPR	Detailed Project Report
ESHS	Environment, Social, Health And Safety
GOI	Government of India
HAM	Hybrid Annuity Model
I&D	Interception & Diversion
IPS	Intermediate Pumping Station
KPIs	Key Performance Indicators
KRMPL	Kanpur River Management Private Limited
LOA	Letter of Award
MOM	Minutes of Meeting
MPS	Main Pumping Station
O&M	Operation and Maintenance
PLC	Programmable Logic Control
PMC	Project Management Consultant
PDD	Proposal Due Date
PDMC	Project Development and Monitoring Consultant
PPP	Public Private Partnership
QAP	Quality Assurance Plan
RFP	Request for Proposal
RTU	Remote Terminal Unit
RTOLMS	Real Time Online Monitoring System
TOR	Terms of Reference
SBR	Sequential Batch Reactors
STP	Sewage Treatment Plant
TEPH	Treated Effluent Pump House
UASB	Up-Flow Anaerobic Sludge Blanket Reactor

MONTHLY PROGRESS REPORT – HAM KANPUR

1. INTRODUCTION

The Govt. of India, recognizing that long-term rejuvenation of the river Ganga will have significant social and economic benefits on the lives of the 500 million people living along its basin, has identified cleaning of the river Ganga as one of its priorities. For this purpose, in May 2015, the GoI approved the flagship Namami Gange program for cleaning, rejuvenation, and protection of the river Ganga. In January 2016, the GoI approved a hybrid annuity model to implement STP projects under the Namami Gange program on a PPP basis.

Subsequently, the MoWR issued the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 (Ganga 2016 Order) to constitute various authorities to assist the GoI in achieving its aim of effective abatement of pollution in the river Ganga. The Ganga 2016 Order applies to all states in the catchment of the river Ganga basin, including Uttar Pradesh. The Ganga 2016 Order revised the legal status of NMCG (which was initially constituted as a registered society under the Societies Registration Act, 1860) to an authority constituted under the Environment (Protection) Act, 1986 and designated NMCG as the nodal agency for the implementation of the Ganga 2016 Order.

Rapidly increasing population, rising standards of living and exponential growth of industrialization and urbanization have exposed water resources, in general, and rivers, in particular, to various forms of degradation. The mighty Ganga is no exception. The deterioration in the water quality impacts the people immediately. Ganga, in some stretches, particularly during lean seasons has become unfit even for bathing. The threat of global climate change, the effect of glacial melt on Ganga flow and the impacts of infrastructural projects in the upper reaches of the river, raise issues that need a comprehensive response.

The Uttar Pradesh Jal Nigam (Jal Nigam) is a statutory body constituted under the Uttar Pradesh Water Supply and Sewerage Act 1975, and has the power to develop, maintain and regulate water supply and sewerage works in Uttar Pradesh. With a view to implement the Namami Gange program and the Ganga 2016 order in the State of Uttar Pradesh, the Jal Nigam, in association with NMCG has decided to undertake the development of:

- three new STP facilities (30 MLD Pankha, 15 MLD Unnao & 5 MLD Shuklaganj) and their O&M for 15 years;
- rehabilitation of existing 130 MLD Jajmau Phase-I STP facility with O&M for 15 years and;
- O&M for three existing STP facilities (43 MLD Jajmau Phase-II, 210 MLD Bingawan & 42 MLD Sajari) in Kanpur under Hybrid Annuity based PPP mode.

While the Jal Nigam will be the principal executing agency and bidding authority for the Project, NMCG will be responsible for making payments to the Concessionaire and Project Engineer.

2. HYBRID ANNUITY MODEL (HAM)

Government of India has approved the Namami Gange program as an integrated approach for effective abatement of pollution in river Ganga and Yamuna. As part of this and to ensure that no untreated domestic sewage flow into the river Ganga and Yamuna, various interventions are planned such as Interception & Diversion works and development & operation of Sewage Treatment Plants (STPs).

Considering various development models in practice for the construction, operation and maintenance of Sewage Treatment Plants, Government of India has approved the Hybrid Annuity based Public Private Partnership (PPP) mode as one of the options for the development & operation of STPs. Under this model, private investor/developer will design, build, finance, construct, rehabilitate, renovate, operate and maintain the asset (STPs, IPS, and MPS) to the Project Executing Agency/Jal Nigam at the end of the Concession Period (15 years). 40% of the Capital cost will be paid to the developer during construction of the STP. Balance 60% along with Operation & Maintenance (O&M) cost will be paid over the Concession Period on achievement of key performance indicators as per the contract. Entire cost of development and operation of the STPs will be 100% funded by the Government of India as central sector scheme.

NMCG & UPJN appointed M/s. Shah Technical Consultant Pvt. Ltd., as third party engineering firm as Project Engineer for this project through tendering process. Letter of Award is issued dated 4th February 2019 and agreement signed between the parties on 12th April 2019.

3. OBJECTIVES

To achieve above objectives, effective development of three new STP facilities at Pankha, Unnao and Shuklaganj with O&M for 15 years, rehabilitation of existing Jajmau 130 MLD STP with O&M for 15 years and O&M of existing 210 MLD USAB based Bingawan STP facilities, 43 MLD Jajmau and for 42 MLD Sajari STP facilities for 15 years are proposed under this program. The objectives that NMCG and the UP Jal Nigam wish to achieve through the Project are mentioned in Figure 1.

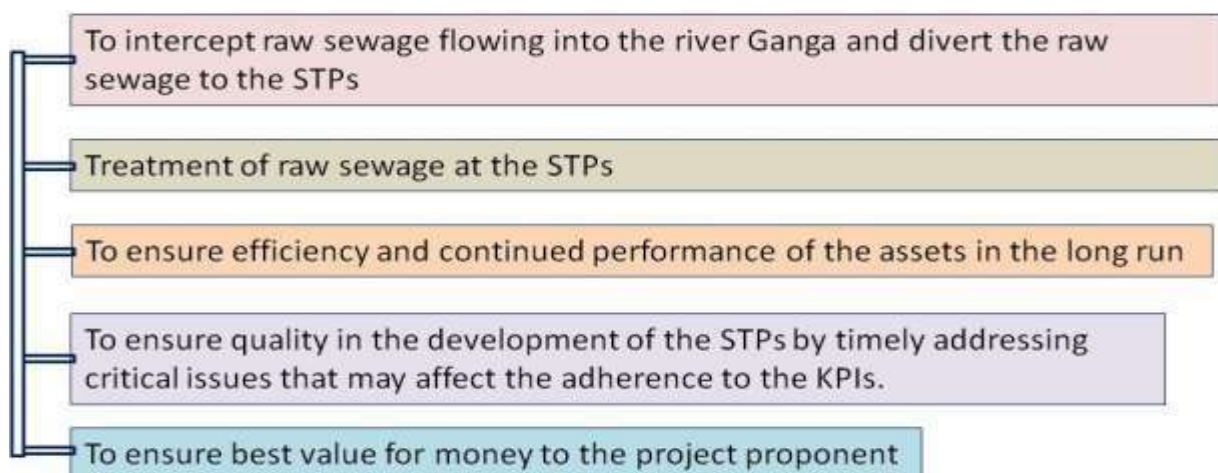


Figure 1: Objectives of NMCG and UP JAL NIGAM

4. HAM KANPUR PROJECT AT A GLANCE

Details of HAM Kanpur project are given in the following table:

Table 2.1: HAM Kanpur Project at a Glance

Name of Project	:	Development of new Sewage Treatment Plants and O&M for 15 years, Rehabilitation of existing Sewage Treatment Infrastructure and O&M for 15 years in Kanpur under One City One Operator concept through Hybrid Annuity based PPP mode. (HAM – Kanpur)
Client	:	National Mission for Clean Ganga (NMCG), New Delhi and UP Jal Nigam
Execution Agency	:	Uttar Pradesh Jal Nigam (UPJN)
Consultant	:	Shah Technical Consultants (P) Ltd. as ‘Project Engineer’
Agreement & LOA	:	STC Agreement dated 12.04.2019 & LOA: Pr-12012/41/2018-PPP/NMCG dated 04.02.2019
Concessionaire	:	Kanpur River Management Private Limited (KRMPL) an SPV of Shapoorji Pallonji & Company Private Limited, Mumbai
Concessionaire’s Agreement	:	14/GM/2018-19 dated 21.12.2018
Cost of Project (CAPEX+OPEX)	:	Rs. 816.25 Cr. (CAPEX 255.50 Cr. + OPEX 560.75 Cr.)
Effective Date	:	11.10.2019
Completion date (as per contract)	:	24 Months from effective date (21 months construction + 3 months trial run)
O&M period	:	15 years after last Commercial Operation Date (COD)
Description of Work	:	<ul style="list-style-type: none"> ➤ Construction of three new STPs (SBR) at different locations (30 MLD at Pankha, 15 MLD at Unnao and 5 MLD STP at Shuklaganj) and related infrastructure with 15 years of O&M; ➤ Rehabilitation of 130 MLD (Phase-I) STP at Jajmau with construction of 200 MLD TEPS and 173 MLD CCT at Jajmau with O&M for 15 years; ➤ O&M of 43 MLD (Phase-II) Jajmau facilities, O&M of 210 MLD Bingawan facilities and O&M of 42 MLD Sajari facilities for 15 years;

5. PROJECT WISE DETAILS OF COMPONENTS UNDER HAM KANPUR PROJECT

HAM Kanpur project is divided into 5 districts of the Kanpur– Pankha (District –III, Kanpur), Unnao & Shuklaganj – (District Unnao), Jajmau – (District I, Kanpur), Bingawan – (District II, Kanpur) and Sajari – (District IV, Kanpur).

Under this project, development and O&M work of total seven STP facilities are proposed in which three new STP facilities based on SBR technology with associated infrastructure have been proposed for - 30 MLD Pankha (District III, Kanpur), 15 MLD Unnao&5 MLD Shuklaganj.

Rehabilitation and O&M for 15 years is proposed for 130 MLD Jajmau STP facilities (Phase-I) and O&M of 210 MLD USAB based Bingawan STP facilities, 43 MLD Jajmau Phase-II and for 42 MLD ASP based Sajari STP facilities for 15 years.

5.1 PANKHA FACILITIES

Project wise components details of Pankha Facilities are given in table 5.1:

Table 5.1: Pankha Facilities

SN	STP Facility	Capacity/Dia./Size	Nos./Length
Date of Start- Effective Date (11.10.2019)			
Scope of Work- New Construction and O&M			
1	STP	30 MLD	1
2	MPS	115MLD	1
3	ICI Nala IPS	25 MLD	1
4	Sundar Nagar	20 MLD	1
5	Thermal Nala (A) tapping	22 MLD	1
6	Thermal Nala (B)(tapping)	8 MLD	1
7	ICI Nala (tapping)	7.85 MLD	1
8	Rising main (IC Nala IPS to collection chamber)	800mm-φ	6.450 km
9	Rising main (Sundar Nagar IPS to collection chamber)	800mm-φ	0.547 km
10	Common Gravity main (collection chamberto MPS)	2000mm- φ	1.948Km
11	Sewer network	16.624 km	
		350mm-φ	2.258 km
		400 mm-φ	0.611 km
		450 mm-φ	0.704 km
		500 mm-φ	0.718 km
		600 mm-φ	1.046 km
		700 mm-φ	1.079 km
		800 mm-φ	3.226 km
		900 mm-φ	1.171 km
		1000 mm- φ	0.060 km
		1200 mm-φ	2.290 km
		1600 mm-φ	1.635 km
		2000 mm-φ	1.826 km
12	Manhole		308 nos.

5.2 UNNAO FACILITIES

Project wise components details of Unnao Facilities are given in table 5.2:

Table 5.2: Unnao Facilities

SN	STP Facility	Capacity/Dia./Size	Nos./Length
Date of Start- Effective Date (11.10.2019)			
Scope of Work- New Construction and O&M			
1.	STP	15 MLD	1
2.	Sump cum Pump house (MPS)	40 MLD	1
3.	I&D works (Nala tapping)	90 MLD	1
4.	Trunk Sewer	1200mm ϕ	3.6Km
5.	Manholes		46 nos.
6.	Rising main (MPS to STP)	750mm ϕ	100m
7.	Rising main (bypass)	750mm ϕ	100m
8.	Effluent gravity channel (STP to discharge point)	1.5m x1.0m	300m
9.	Effluent disposal drain	700mm	570m

5.3 SHUKLAGANJ STP FACILITIES

Project wise components details of Shuklaganj STP are given in table 5.3:

Table 5.3: Shuklaganj Facilities

SN	STP Facility	Capacity/Dia./Size	Nos./Length
Date of Start- Effective Date (11.10.2019)			
Scope of Work- New Construction and O&M			
1.	STP	5 MLD	1
2.	Sump cum Pump house (MPS)	20 MLD	1
3.	Connecting sewer (in zone 2)	400-500mm ϕ	200m
	Effluent Disposal line	400mm ϕ	310m
	(I&D to STP)	600mm ϕ	430m
	I&D works (Nala tapping)	45 MLD	1
4.	Collection chamber	3.5mx3.6mx1m	1
5.	Rising main (MPS to STP)	500mm ϕ	50m
6.	Rising main (bypass)	500mm ϕ	50m
7.	Effluent channel (STP to discharge point)	1.5m x1m	100m

5.4 JAJMAU (PHASE I) FACILITIES

Project wise components details of Jajmau are given in table 5.4:

Table 5.4: Jajmau Facilities

SN	STP Facility	Capacity/Dia./Size
Date of Start- Effective Date (11.10.2019)		
Scope of Work- Renovation and O&M		
1	STP (ASP) with power Generation	130 MLD
2	Sump cum Pump house (TEPH)	200 MLD
3	CCT	173 MLD
4	Nawabganj IPS	14.35 MLD
	PH1	5.35 MLD
	PH2	9 MLD
7	Parmat IPS	66.67 MLD
	PH1	32.83 MLD
	PH2	21.6 MLD
	PH3	12.4 MLD
11	Baba Ghat / Muar mill IPS	7.42 MLD
	Guptar Ghat IPS	1.44 MLD
	Jajmau CSPA	129.6 MLD

5.5 JAJMAU PHASE II STP FACILITY

Project wise components details of Jajmau Phase II are given in table 5.4:

SN	STP Facility	Capacity/Dia./Size
Date of Start- Effective Date (11.10.2019)		
Scope of Work- Renovation and O&M		
1	Khalasi Lane IPS	50.69 MLD
2	Sanjaypuram IPS	4.03 MLD
3	Jajmau MPS	25 MLD

5.6 BINGAWAN FACILITIES

Project wise component detail of Bingawan is given in table 5.5:

Table 5.5: Bingawan Facilities

SN	STP Facility	Capacity/Dia./Size
Schedule Handing Over Date- 01.04.2019		
Scope of Work- Renovation and O&M		
1	STP (USAB)	210 MLD
2	Installation of online monitoring system (RTOLMS)	
3	Bingawan MPS	200 MLD
4	Rakhimandi IPS	108 MLD
5	Halwakhanda IPS	69.12 MLD
	Munshipurwa IPS	18.79 MLD
7	Sisamau Nala (tapping)	8 MLD

5.7 SAJARI FACILITIES

Project wise component detail of Sajari is given in table 5.6

Table 5.6: Sajari Facilities

SN	STP Facility	Capacity/Dia./Size
Schedule Handing Over Date- 11.10.2019		
Scope of Work- O&M for 15 years		
1	STP on ASP Technology	42 MLD
2	MPS	42.24 MLD
3	Chakeri IPS	14.33 MLD
4	Sanigawan IPS	14.33 MLD

6. PHYSICAL PROGRESS OF WORK

As per the provision of Concessionaire Agreement, effective date of the project was to be declared before 19th April 2019. Effective date for work execution under HAM Kanpur project was declared on 11th October 2019. Hence, work related to construction / execution of new STP facilities and related infrastructure started after effective date i.e.

- i. transfer of land for STP in Pankha from KDA;
- ii. permission of laying of sewer line along road in Pankha from KDA;
- iii. Unnao & Shuklaganj and renovation of existing facilities i.e. Jajmau 130 MLD.

The overall physical progress of the facilities have been taken in the same proportion as financial progress as per milestones in approved Construction Plan. Overall progress can be monitored as project works have been divided in eight milestones each having progress of 12.5%. Execution of works of new STP facilities and O&M of existing facilities were hampered because of COVID-19 pandemic. Nationwide lockdown was imposed in April 2020 to June 2020 due to which work progress was affected severely. Again in April 2021, due to second wave of COVID-19 progress of work was again affected as majority of workers, staff and officials were affected by the second wave of COVID pandemic.

Once process of unlock started, the Concessionaire was asked to speed up the work. The Concessionaire submitted revised construction plans for new STP construction facilities compensating relevant construction milestone works with extended timeline. Originally, the scheduled date of project completion was 10th October 2021 i.e. 24 months from the effective date. But due to COVID pandemic and heavy rainfall during monsoon season of 2021, milestone works were lagging far behind the schedule. On dated 03.09.2021, in the JMD UPJN meeting, new target date for completion of balance works of Pankha and Unnao STPs was given i.e. 15th Dec. 2021. But the works of these STPs couldn't be completed on 15th Dec. 2021 due to inadequate deployment of manpower and poor work planning / lack of double shift working at these facilities. In the NMCG meeting dated 30.12.2021, the Concessionaire assured to make Pankha plant operational on 15.01.2022 by taking Thermal Nala-A flow into the STP. For Unnao STP, NMCG directed the Concessionaire to complete the works of STP by 31.01.2022.

In the NMCG meeting dated 17.02.2022 the Concessionaire requested for final time extension due to COVID-19 1st & 2nd waves as per guidelines released by GOI and also requested for extension due to additional works under variation. With above, the Concessionaire requested for EOT for Pankha till 25/04/2022 and for Unnao till 15/05/2022. DG NMCG discussed EOT with UPJN and PE and it was decided to grant the EOT for the aforesaid period with condition of double penalty if works still not completed within extended time. The progress of construction of new STP facilities is given in following headings.

During 11th & 12th April 2022, ED (T) along with Mr. Rajat Kumar Gupta, SWMS NMCG visited Kanpur to know about the status and progress of the project. It was noted that due

to fund issues with KRMPL, desired progress of STPs has not been achieved. PE informed that at Pankha and Unnao STPs 85-90% of civil works are completed but due to non supply

/ erection of E&M equipments and incomplete works of sewer laying/manholes and IPS (Sundar Nagar & ICI Nala) progress is not increasing. Also, since last month manpower is extremely low (15-20) and KRMPL will not be able to complete the Pankha and Unnao STPs at scheduled extended dates.

In the NMCG meeting dated 27.04.2022, chaired by DG, progress and status of HAM Kanpur project was again discussed. It was noted that KRMPL has missed the final deadline i.e. 25.04.2022 for the completion of Pankha STP and will also miss the Unnao STP completion date i.e. 15.05.2022. DG, NMCG expressed displeasure towards KRMPL and after discussion completion dates of Pankha and Unnao were decided as 15.07.2022 and 15.06.2022 respectively. DG, NMCG also put condition that failing to complete the mentioned plants on time KRMPL will be subjected to triple fold penalty.

On dated 5th & 6th June 2022, DG, NMCG along with ED (T) and Mr. R.K. Gupta, SWMS NMCG visited Kanpur for progress review of HAM Kanpur Project. During visit DG NMCG was disappointed with the KRMPL regarding slow progress of the project. DG NMCG gave strict directions to increase the manpower, required machinery and expedite the Pankha, Unnao, Jajmau and Sajari STP works. New timeline to complete Pankha & Unnao STP with full plant operation on SCADA control given is 31/07/2022 and 15/07/2022 respectively.

For Sajari plant, DG noticed that O&M of the plant is not in order with visibly septic conditions in aeration tank. There was recurrent operational issues with thickener, sludge pumps etc. leading to sludge buildup. KRMPL committed to improve the O&M and compliance to the KPIs by 30/06/2022. Improvement has been made in the aeration tank operation and the KPIs are also meeting. But the issues of sludge thickeners operation, gas generation, sludge pumps etc still not resolved.

In the NMCG meeting dated 02/08/2022 and Kanpur visit dated 08/08/2022, ED (P) NMCG gave strict directions to increase the manpower, required machinery and expedite the Pankha, Unnao, Jajmau and Shuklaganj STP works. New timeline to complete Pankha, Unnao & Shuklaganj STP with full plant operation on SCADA control given is 31/10/2022, 15/10/2022 and 13/06/2022 respectively.

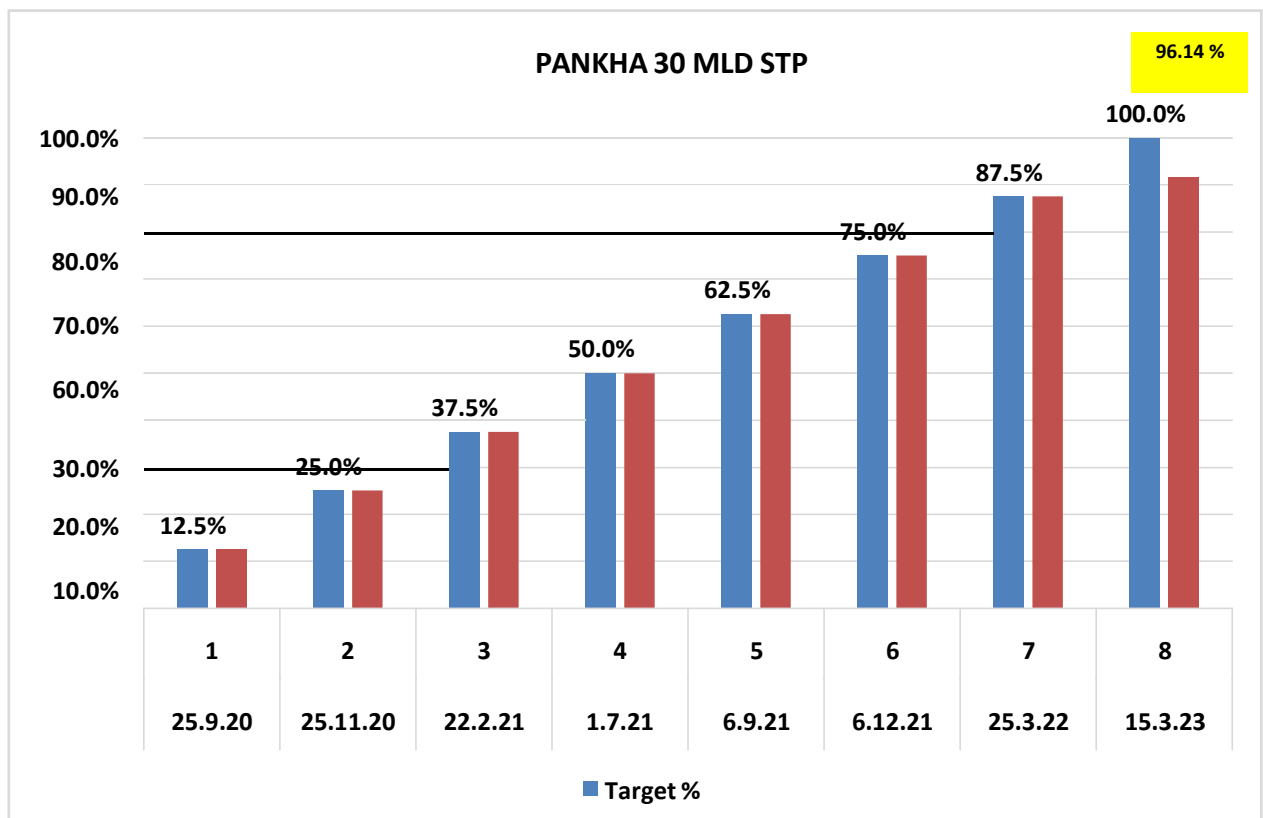
In the NMCG meeting dated 05/09/2022 ED (P) NMCG again reviewed the progress status and gave strict directions to increase the manpower, required machinery and expedite the Pankha, Unnao, Jajmau and Shuklaganj STP works.

In the NMCG meeting dated 01/11/2022 ED (P) NMCG reviewed the progress status and gave strict directions to increase the manpower, required machinery and expedite the Pankha, Unnao, Jajmau and Shuklaganj STP works. New date for completion of Pankha and Unnao STPs is 20/12/2022.

In the NMCG meeting dated 06/02/2023 ED (P) NMCG reviewed the progress status and gave strict directions to increase the manpower, required machinery and expedite the Pankha, Unnao, Jajmau and Shuklaganj STP works. New date for completion of Pankha and Unnao STPs are 15/03/2023 and 30/04/2023 respectively.

6.1 MILESTONE WISE ACTIVITIES AND PROGRESS: PANKHA STP FACILITIES

- Total progress of 30 MLD Pankha STP till April 2023 is 96.14%.
- Manpower deployed was 30-50 nos.
- 7 milestones have been achieved out of total 8.
- 8th Milestone was due on 25/03/2023;
- During NMCG meeting dated 06/02/2023, the Concessionaire was directed to complete the rehabilitation works of Pankha STP by 15/03/2023.
- New date for STP completion in all respect (DG NMCG visit dated meeting dated 25.02.2023) was 30/04/2023.

**Sunder Nagar Nala Tapping**

- During Trial Run, overflow was found from common MH chamber near 4 ATM chauraha;
- Sewer line also got choked due to non proper cleaning. Hence 100% sewer is not being taken to the STP;
- Sewer line cleaning work has been started by KRMPL
- Road restoration work is in progress;
- Field instrument (Differential Level transmitter, Ultrasonic level transmitter, Electromagnetic flow meter etc.) commissioning work is pending.
- All Mechanical equipment testing & commissioning work is pending

SUMMARY OF MILESTONE WISE PROGRESS AT PANKHA STP

Milestone	Schedule Completion date	Actual completion date	Milestone Amount (Rs.)	Targeted Progress till 30.04.2023		
				Milestone Amount (Rs.)	% Target	% Achieved
1st milestone	25.09.2020	25.09.2020	12,48,39,750.00	124,839,750	12.50%	12.50%
2nd milestone	25.11.2020	25.11.2020	12,48,39,750.00	124,839,750	12.50%	12.50%
3rd Milestone	22.02.2021	22.02.2021	12,48,39,750.00	124,839,750	12.50%	12.50%
4th Milestone	01.07.2021	01.07.2021	12,48,39,750.00	124,839,750	12.50%	12.50%
5th Milestone	06.09.2021	06.09.2021	12,48,39,750.00	124,839,750	12.50%	12.50%
6th milestone	06.12.2021	06.12.2021	12,48,39,750.00	124,839,750	12.5%	12.50%
7th milestone	25.03.2022	25.03.2022	12,48,39,750.00	121,887,531	12.5%	12.20%
8th milestone	20.12.2022 Approval pending	Not completed	12,48,39,750.00	89,266,424	12.5%	8.93%
			99,87,18,000.00	96,01,92,455	100%	96.14%

Unit Wise Progress Status of 30 MLD STP Pankha

STP Units	Target %	Achieved %
I&D structure (All 3)	100%	93%
Sewer Laying (15 km of 16.624)	100%	90%
Manholes (245 completed of 308)	100%	87%
Rising Main (6.65 km of 7 km)	100%	97%
MPS	100%	97%
PTU	100%	95%
SBR	100%	98%
Air Blower	100%	96%
CCT	100%	98%
Chlorination Room	100%	95%
Supernatant Sump	100%	98%
Sludge Thickener	100%	98%
Centrifuge Building	100%	95%
Effluent Disposal System	100%	95%
Admin Building	100%	96%
Staff Quarter	100%	98%
Guard Room	100%	98%
Transformer Yard	100%	97%
DG Set	100%	97%
Boundary Wall	100%	95%

Milestone Wise Progress of Work

Detail of Milestone wise progress is given in the **Annexure 1** attached separately with this MPR.

PHOTOGRAPHS OF PANKHA STP SITE



MPS works



VCB Panel & Admin Building



Chlorination Room



Centrifuge Building

6.2 MILESTONE WISE ACTIVITIES AND PROGRESS: UNNAO STP

- Total progress till April 2023 was 93.01%; Till date 7 milestones out of 8 completed.
- Manpower deployed at the 15 MLD STP Unnao site was in the range of 20-30 nos.
- During NMCG meeting dated 06/02/2023, the Concessionaire was directed to complete the construction works of Unnao STP by 30/04/2023.
- Considering NMCG direction, EOT till 30/04/2023 was granted to the Concessionaire with applicable LD as per CA clause 7.12(a) with double penalty (please refer MOM of NMCG review meeting dated 17.02.2022).
- Trail run expected to start by 30-04-2023.
- Field instrument (Differential Level transmitter, Ultrasonic level transmitter, Open channel flow meter etc.) commissioning work is pending.
- Automation work for BOP is pending.
- Earthing Chamber / pit work equipment is pending.
- Testing and commissioning of all mechanical equipments are pending.

SEWER LINE ISSUE:

- KRMPL decided to repair existing sewer line as water table is down and line is workable.
- Sewer line cleaning / de-silting work of 1300m sewer line cleaned out of 3200m.
- De-silting and cleaning of only 27 MH done out of 42 MHs.

EARTH FILLING STATUS:

- Till Feb. 2023, total 11,000 cum earth filling was done by KRMPL out of total 19,000 cum. 8000 cum earth filling is still pending.
- Earth filling activity was stopped since 11.02.2023 and despite many letters by PE and UPJN, KRMPL has not started balance earth filling work.
- KRMPL needs to expedite earth filling and related activities including layer by layer mechanical compaction. Further Field Dry Density (FDD) test should be conducted for each layer after compaction.

STATUS OF DIFFERENT STP UNITS ARE:

STP Units	Target %	Achieved %
I&D structure	100%	100%
Sewer Laying (3.2 km of 3.2 km)	100%	90% (Cleaning and testing due)
Manholes (42 completed of 42)	100%	90% (Cleaning and testing due)
MPS	100%	100%
PTU	100%	100%
SBR	100%	100%

Air Blower	100%	100%
CCT	100%	95%
Chlorination Room	100%	95%
Supernatant Sump	100%	95%
Sludge Thickener	100%	95%
Centrifuge Building	100%	100%
Effluent Disposal System	100%	100%
Admin Building	100%	93%
Staff Quarter	100%	95%
Guard Room	100%	97%
Transformer Yard	100%	95%
DG Set	100%	95%
Boundary Wall	100%	90%

SUMMARY OF OVERALL PROGRESS AT UNNAO STP

Milestone	Schedule Completion date	Actual completion date	Milestone Amount (Rs.)	Progress till 30.04.2023		
				Milestone Amount (Rs.)	% Target	% Achieved
1st milestone	25.09.2020	25.09.2020	4,78,36,250.00	47836250.0	12.50%	12.50%
2nd milestone	06.12.2020	06.12.2020	4,78,36,250.00	47836250.0	12.50%	12.50%
3rd Milestone	25.03.2021	25.03.2021	4,78,36,250.00	47836250.0	12.50%	12.50%
4th Milestone	07.08.2021	07.08.2021	4,78,36,250.00	47836250.0	12.50%	12.50%
5th Milestone	15.11.2021	15.11.2021	4,78,36,250.00	47836250.0	12.50%	12.50%
6th milestone	25.03.2022	04.04.2022	4,78,36,250.00	47,638,413	12.50%	12.44%
7th milestone	25.04.2022	Not completed	4,78,36,250.00	34,684,905	12.50%	9.06%
8th milestone	15.06.2022	Not completed	4,78,36,250.00	34,436,966	12.50%	8.99%
Overall Progress			38,26,90,000.00	355,941,534	100%	93.01%

Milestone Wise Progress of Work

Detail of Milestone wise activities and their progress of work for Unnao STP is given in the **Annexure 2** attached separately with this MPR.

PHOTOGRAPHS OF UNNAO STP SITE



MPS final works



Decanter Installation & Testing



Diffuser leakage testing done

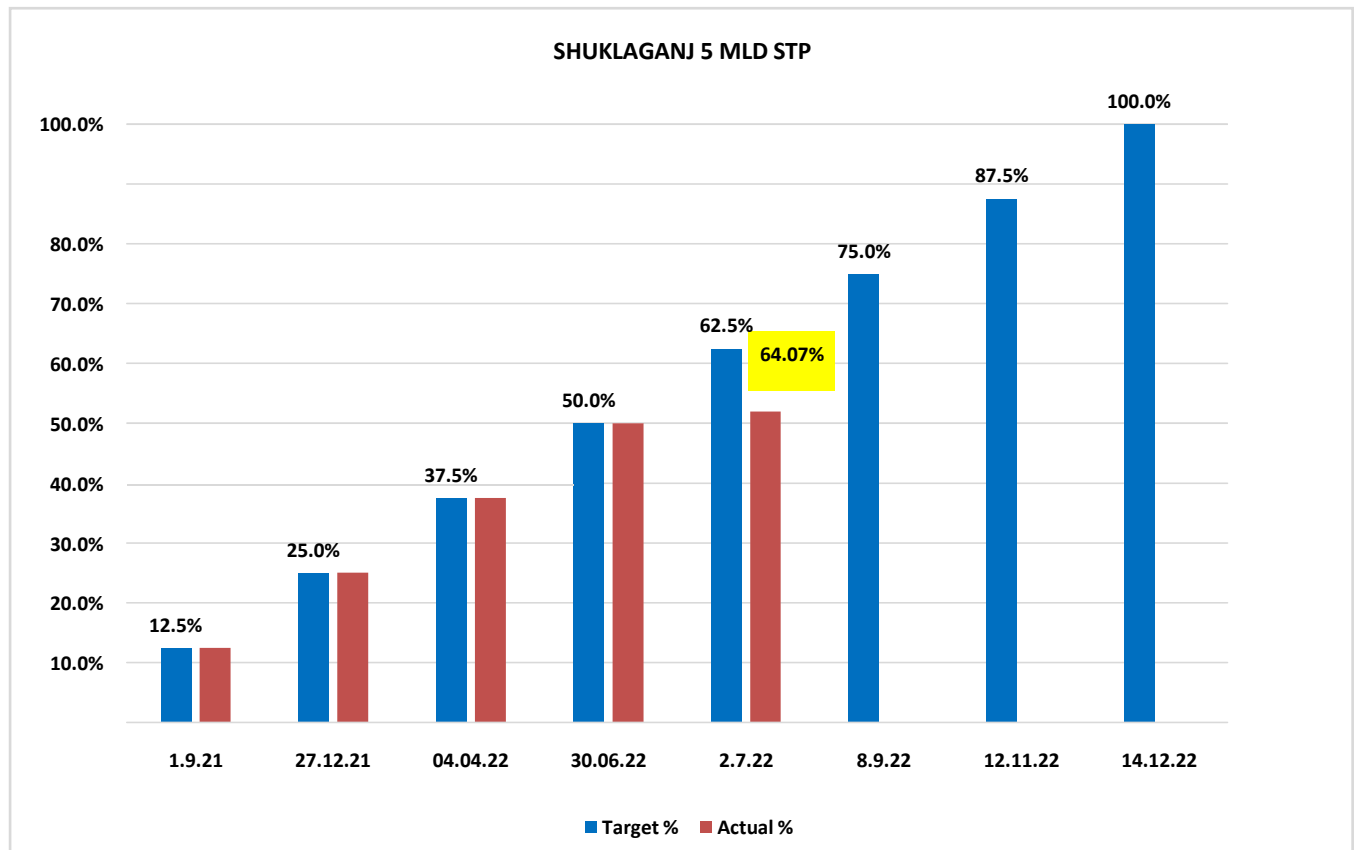


HT VCB Panel testing done

6.3 MILESTONE WISE ACTIVITIES AND PROGRESS: SHUKLAGANJ STP

Progress of construction works for 05 MLD STP at Shuklaganj is very slow. Total progress till April 2023 is 64.07%. In the meeting dated 01.11.2022, EOT for Shuklaganj STP is recommended till 13.06.2022. Status and progress of Shuklaganj STP is as following:

- During March 2023, the manpower deployed at the 05 MLD STP site was 15-20 nos. KRMPL need to increase the manpower up to 100 to achieve the target on time;
- EOT till 13.06.2023 has been considered on behalf of hindrances due of COVID 2nd wave and extra works due poor SBC/land change, flooding and ITR vetting etc.



- KRMPL needs to expedite the progress by increasing the manpower and working on multiple fronts.
- During visit, progress of different STP components was checked as per the approved construction plan and it was found that progress of 05 MLD STP is very slow. Detail is given below:

STP Units	Target %	Achieved %
I&D	38%	10%
Sewer Laying (900 mm, 424m)	38%	10%
Manhole (09 nos.)	38%	0%
Pumping Main (500mm dia, 80 m)	38%	0%
MPS	38%	75%
PTU	38%	20%

SBR	38%	65%
Blower	38%	20%
CCT, Chlorination Building	38%	50%
Thickener, Supernatant Sump	38%	75%
Centrifuge	38%	15%
Admin Building	38%	20%
Staff Quarter	38%	45%
Guard Room	38%	70%
Boundary Wall	38%	50%

SUMMARY OF OVERALL PROGRESS AT SHUKLAGANJ STP

Milestone	Schedule Completion date	Actual completion date	Milestone Amount (Rs.)	Progress till 30.04.2023		
				Milestone Amount (Rs.)	% Target	% Achieved
1st milestone	01.09.2021	01.09.2021	2,66,18775.0	2,66,18775.0	12.50%	12.50%
2nd milestone	27.12.2021	27.12.2021	2,66,18775.0	2,66,18775.0	12.50%	12.50%
3rd Milestone	25.03.2022	04.04.2022	2,66,18775.0	2,66,18775.0	12.50%	12.50%
4th Milestone	02.05.2022	-	2,66,18775.0	2,66,18775.0	12.50%	12.50%
5th Milestone	02.07.2022	-	2,66,18775.0	1,51,89,944.0	12.50%	7.13%
6th milestone	08.09.2022	-	2,66,18775.0	94,36,581.0	12.50%	4.43%
7th milestone	12.11.2022	-	2,66,18775.0	19,41,217.0	12.50%	0.91%
8th milestone	14.12.2022	-	2,66,18775.0	33,89,897.0	12.50%	1.59%
Overall Progress	21,29,50,200.0			13,64,32,739.0	100%	64.07 %

Milestone Wise Progress of Work

Detail of Milestone wise activities and their progress of work for Shuklaganj STP is given in the **Annexure 3** attached separately with this MPR.

Photographs of Shuklaganj STP



MPS works



PTU column casting



Supernatant Sump



CCT Building works

7. STATUS AND ISSUES OF JAJMAU (PHASE – 1) 130 MLD STP AND IPS REHABILITATION

Till April 2023 overall progress is **78.73%**.

- **Aeration Tank** – All 18/18 aerators replaced; 3 of 3 tanks rehabilitation completed.
- **Thickener** – One thickener testing and commissioning still pending.
- **New CCT** – Caustic tank, neutralization tank and recirculation pumps, ejector pipes and valves etc. supply and installation pending
- **TEPH** – 11 pumps have been supplied but all accessories of valves, NRV, pipe and Dismantling Joint and ARV etc pending
- **Sludge Digester (2 nos)** – 2nd Digester cleaning still pending
- **Gas holder (02 nos)**.- Supply done installation pending
- **BFP** – 2 BFP installed out of 4 and 4 BFP supply still pending

MILESTONE WISE ACTIVITIES AND PROGRESS

Milestone	Schedule Completion date	Actual Completion date	Milestone Amount	Targeted progress till 30.04.2023		
				Milestone Amount	% Target	% Achieved
1 st	15.10.2021	15.10.2021	240160000.00	240,160,000	25%	25%
2 nd	15.03.2022	15.03.2022	240160000.00	240,160,000	25%	25%
3 rd	15.06.2022	06.03.2023	240160000.00	2301,05,462	25%	23.95%
4 th	09.08.2022	Not completed	240160000.00	458,72,411	25%	4.77%
Overall progress	960640000.000			7562,97,872.86	100%	75%
Total %	100%				100%	78.73%

Mechanical equipment Status for 130 MLD STP Jajmau

SI No .	Mechanical Equipment Name	Total QTY. (Nos)	Supplied (Qty.)	Pending Supply Qty.(Nos)	Drawing Submission pending from KRMPL ends	REMARKS
1	Poly Dosing Tank	8	6	2		
2	Belt Filter press	4	2	2		
3	Floculator Tank	4	2	2		
4	Belt	8	4	4		
5	EOT	1	0	1	Pending	
6	Valves(NRV, Sluice Valve) for Supernatant pumps	1 Lot	0	1 Lot	Pending	
7	Caustic Solution Tank	1	0	1		
8	Caustic pump	2	0	2		
9	Absorption tower	1	0	1		
10	Booster Pumps	3	0	3		
11	Ejector	3	0	3		
12	PVC Pipe & Fittings for chlorination system	1 Lot	0	1 Lot		
13	Chlorine Tonners	25	0	25		
14	Piping / valves for Chlorine gas line Gas chlorine pipe work	1 Lot	0	1 Lot		
15	Landia system	1 Lot	40%	60%		
16	Gas Holder Membrane type dome accessories	1 lot	0	1 Lot		
17	Multistage Centrifugal Blowers	2	0	2		
17	BEM heat Exchanger	3	2	1		
18	Dehumidifier	1	0	1		
19	Radiator	2 lot	0	2 lot		
20	Ventilation system	2 lot	0	2 lot		
21	Gas Engine feeding blower	2	0	2		
22	Main Water Pump	2	0	2		
23	Auxiliary Water Pump	2	0	2		
28	Valves, NRV& DJ for TEPH	1 Lot	0	1 Lot	Pending	
29	Valves, NRV & Fittings for TSPH	1 Lot	0	1 Lot	Pending	
30	Valves, NRV& DJ for RSPH	1 Lot	0	1 Lot	Pending	
31	Filtrate pump-7.5 kw	2	0	2	Pending	
32	Sluice Gates	15	0	15	Pending	

EMI equipment Status for 130 MLD STP Jajmau

Electrical Equipment Name	Total QTY. (Nos)	Supplied (Qty.)
DG set-2 nos.	2 nos.	Pending
LPBS-91 nos.	91 nos.	Pending
Main LT PCC Panel-1nos	1 sets	Pending
LT distribution panel-1 nos.	1 nos.	Pending
T.E.P.H panel-1 nos.	1 nos.	Pending

APFC Panel -2 nos.

2 nos.

Pending

EMI equipment Status for 130 MLD STP Jajmau

Unit /Location	Items / Description of Work	Total Quantity	Supply
Mechanical & Manual Fine screen chamber	Differential Ultra level transmitter	6 Nos	Pending
Grit Chamber	torque Switch	3Nos.	Completed
Parshall flume	Open channel flow meter	1nos.	Completed
	Online water quality Analyzer	1 nos.	Pending
Distribution Chamber	Ultrasonic level transmitter	1 nos.	Pending
Primary sedimentation tank (PST)	torque Switch	3 nos.	Pending
Aeration tank	DO meter	3 nos.	Pending
Final Sedimentation tank (FST)	torque Switch	3 nos.	Completed
Return sludge Pump house	Pressure indicators	4 nos.	Pending
	Ultrasonic level transmitter	1 nos.	Pending
Sludge Thickener & Blending Tank	torque Switch	2 nos.	Completed
	level indicating transmitter	1nos.	Pending
	Ultrasonic level transmitter	2nos.	Pending
Thickened Sludge Sump	level indicating transmitter	1nos.	Pending
	Ultrasonic level transmitter	1nos.	Pending
Digester Unit	level indicating transmitter	1nos.	Pending
	Ultrasonic level transmitter	1nos.	Pending
	Radar level transmitter	2nos.	Pending
Belt filter press feed pumps unit	pressure indicator	4 nos.	Pending
Supernatant Sump unit	pressure indicator	4 nos.	Pending
	level indicating transmitter	1 nos.	Pending
Poly Dosing System	Ultrasonic level transmitter	1nos.	Pending
	Pressure indicator	1 nos.	Pending
	Level switch,	1 nos.	Pending
	conductivity type level switch	8 nos.	Pending
Biogas handling unit	Flow meter,	2 nos.	Pending
	Temperature gauge	1 nos.	Pending
	Level transmitter	1 nos.	Pending
	Gas Analyzer	1 nos.	Pending
Chlorination Building	Leak absorption system	1 nos.	Pending
	Pressure gauges	1nos.	Pending
Chlorine contact Tank (CCT)	Level switch	1nos.	Pending
	Pressure gauges	1nos.	Pending
Treated effluent Pump house	Pressure gauges	11 nos.	Pending
	Ultrasonic level transmitter	1 nos.	Pending
Overhead Ground water tank	Floating type level switch	2 nos.	Pending
PLC / SCADA		Sets	Pending

Nawabganj IPS: Supply of Electrical & Instrumentation equipments List:

Unit /Location	Items / Description of Work	Total Qty	Supply
Wet well	Ultrasonic Level transmitter	2 nos.	Pending
Pump House-1	Pressure indicator	3 nos.	Pending
	pressure transmitter	3 nos.	Pending
Unit /Location	Items / Description of Work	Total Qty	Supply
	Inlet flow meter	1 nos.	Pending
Pump House-2	Pressure indicator	4 nos.	Pending
	pressure transmitter	4 nos.	Pending
	Inlet flow meter	1 nos.	Pending

Parmat IPS: Supply of Electrical & Instrumentation equipments List:

Unit /Location	Items / Description of Work	Total QTY	Supply
Wet well	Ultrasonic Level transmitter	1nos.	Pending
Pump House-1	Pressure indicator	3nos.	Pending
	pressure transmitter	3nos.	Pending
	Inlet flow meter	1nos.	Pending
Pump House-2	Pressure indicator	2nos.	Pending
	pressure transmitter	2nos.	Pending
	Inlet flow meter	1 nos.	Pending
Pump House-3	Pressure indicator	2nos.	Pending
	pressure transmitter	2nos.	Pending
	Inlet flow meter	1nos.	Pending

Babaghat IPS: Supply of Electrical & Instrumentation equipments List

Unit /Location	Items / Description of Work	Total QTY	Supply
Manual coarse screen channel	Ultrasonic Level transmitter	1 nos.	Pending
Wet Well	Pressure indicator	3nos.	Pending
	pressure transmitter	3nos.	Pending
	Inlet flow meter	1nos.	Pending

CSPS: Supply of Electrical & Instrumentation equipments

Unit /Location	Items / Description of Work	Total QTY	Supply
Coarse screen channel (Mechanical)	Level indicating transmitter, 2 Nos.	2nos.	Pending
Wet well	Ultrasonic level transmitter, 1 Nos.	1nos.	Pending
Pump House	Pressure indicator , 7 Nos.	7 nos.	Pending
	pressure transmitter , 7 Nos.	7nos.	Pending
	Inlet flow meter-1nos	1 nos.	Pending
Electrical & Related Works	Transformer 630 KVA -2nos	2 nos.	Completed
	DG set	2 nos.	Pending
	VFD Starter -7 nos	7 nos.	Pending
	Power Distribution board-3 nos.	3 nos.	Pending
	APFC Panel-2 nos	2 nos.	Pending

OTHER ISSUES AND STATUS

SN	Equipment	Status in March 2023	Status in April 2023	Compliance / Remarks
1	Collection Chamber	<ul style="list-style-type: none"> Toe-guard is not Installed. 	<ul style="list-style-type: none"> Toe-guard is not installed. 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
2	Fine screen chamber (Mechanical/Manual)	<ul style="list-style-type: none"> Mechanical Fine Screen no. 1 & 2 are operational but not serving its purpose. Automation System is not installed. 	<ul style="list-style-type: none"> Mechanical Fine Screen no. 1 & 2 are operational but not serving its purpose. Automation System is not installed. 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
3	Grit Chamber	<ul style="list-style-type: none"> Installation of LPBS pending Grit classifier no. 2 not working properly. Grit Mechanism No. 3 torque switch was not in working condition. 	<ul style="list-style-type: none"> Installation of LPBS pending Grit classifier no. 2 not working properly. Grit Mechanism No. 3 torque switch was not in working condition. 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
4	Inlet Flow Meter	<ul style="list-style-type: none"> Flow chart and level scale not installed. 	<ul style="list-style-type: none"> Flow chart and level scale not installed. 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
5	Primary Sedimentation Tank	<ul style="list-style-type: none"> Overflow was observed in PST No. 1 & PST No.2. Scum box rectification Work pending. Installation of LPBS pending. Torque Switch not working properly for PST No.2. PST-1 Torque switch hooter alarm was not working properly. 	<ul style="list-style-type: none"> Overflow was observed in PST No. 1 & PST No.2. Scum box rectification Work pending. Installation of LPBS pending. Torque Switch not working properly for PST No.2. PST-1 Torque switch hooter alarm was not working properly. 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
6	Sludge Thickener Tank	<ul style="list-style-type: none"> Sludge thickener no. 1 is operational but torque switch are not working properly & Thickener no.2 is under renovation 	<ul style="list-style-type: none"> Sludge thickener no. 1 is operational but torque switch are not working properly & Thickener no.2 renovation completed 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974

SN	Equipment	Status in March 2023	Status in April 2023	Compliance / Remarks
7	Blending Tank Agitator	<ul style="list-style-type: none"> Installation of LPBS pending 	<ul style="list-style-type: none"> Installation of LPBS pending 	Refer STC Letter No. 2012 and 1974
8	Aeration Tank	<ul style="list-style-type: none"> Sludge removal work from aeration tank no. 2 is completed and Sludge removal work from aeration tank no. 1 completed and no. 3 in progress. 	<ul style="list-style-type: none"> Sludge removal work from aeration tank no. 3 completed and its operational. 	<ul style="list-style-type: none"> ReferSTC Letter No. 2012 and 1974
9	Return Sludge Pump House	<ul style="list-style-type: none"> Out of 4 pumps only 2 pumps were operational. Renovation work for Pump no. 4 pending. Replacement of valves, NRVs and pipes are pending. Cable tray, LCS Panel, internal electrification work pending. 	<ul style="list-style-type: none"> Out of 4 pumps only 2 pumps were operational. Renovation work for Pump no. 4 pending. Replacement of valves, NRVs and pipes are pending. Cable tray, LCS Panel, internal electrification work pending. 	<ul style="list-style-type: none"> ReferSTC Letter No. 2012 and 1974
10	Treated Effluent Pump House	<ul style="list-style-type: none"> 8 nos. of pumps are found in operation & 1 nos. of pumps was not in working condition and balance 02 nos. is missing since handover. Cable tray, LCS Panel, internal electrification work pending. 	<ul style="list-style-type: none"> 8 nos. of pumps are found in operation & 1 nos. of pumps was not in working condition and balance 02 nos. is missing since handover. Cable tray, LCS Panel, internal electrification work pending. 	<ul style="list-style-type: none"> ReferSTC Letter No. 2012 and 1974
11	Belt Filter Press system	BFP plaster pending.	BFP Painting work pending.	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
12	Supernatant Pumps	<ul style="list-style-type: none"> Supply of pumps & renovation work 	<ul style="list-style-type: none"> Pending 	Refer STC Letter No. 2012 and 1974
13	Sludge Digester	<ul style="list-style-type: none"> Civil renovation work Supply of equipments 	<ul style="list-style-type: none"> Pending Pending 	<ul style="list-style-type: none"> ReferSTC Letter No. 2012 and 1974

SN	Equipment	Status in March 2023	Status in April 2023	Compliance / Remarks
14	Final Sedimentation Tank	<ul style="list-style-type: none"> FST-1 Torque switch is not working. FST-2 Torque switch hooter alarm was not working properly. Overflow was observed in FST-1 	<ul style="list-style-type: none"> FST-1 Torque switch is not working. FST-2 Torque switch hooter alarm was not working properly. Overflow was observed in FST-1. 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
15	New CCT & TEPH	<ul style="list-style-type: none"> TEPH excavation & PCC is completed & footing Reinforcement placed. Wall construction for the TEPH in progress.. 	<ul style="list-style-type: none"> Wall construction for the TEPH-CCT in progress 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
16	Power Backup (DG set & DFG)	All 5 out of 5 Nos. DFG sets are non functional, and only 2 no. 1250 KVA rental DG set are available at site for proper operation of plant during shutdown of Power	<ul style="list-style-type: none"> All 5 out of 5 Nos. DFG sets are non functional, and only 2 no. 1250 KVA rental DG set are available at site for proper operation of plant during shutdown of Power. 	<ul style="list-style-type: none"> Refer STC Letter No. 2012 and 1974
17	RTOLMS	<ul style="list-style-type: none"> Design, drawing still pending 	Submitted	Pending from KRMPL's end
18	Sludge disposal system	<ul style="list-style-type: none"> Mr. Madhav Kumar asked KRMPL to submit the calculation of sludge generation & maintain the daily sludge removal record. NMCG Team directed KRMPL to remove sludge from STP site at the earliest. 	<ul style="list-style-type: none"> Not complied by KRMPL Not complied by KRMPL 	Refer STC Letter No. 2012 and 1974
19	New Laboratory	Established but not functional	Established but not functional	Refer STC Letter No. 2012 and 1974
20	Scrubbing & Flaring System	Civil foundation work done	Installation in progress	Refer STC Letter No. 2012 and 1974
21	Combined Sewage Pumping Station (CSPS)	Pending Civil Work in progress	Pending Civil Work in progress	Refer STC Letter No. 2012 and 1974
22	Substation	HT & LT room civil construction work	Pending	Refer STC Letter No. 2012 and 1974

130MLD STP JAJMAU Site Pictures during renovation period**CCT-TEPH under construction 29.04.2023****HT-LT Panel building under construction 25.04.2023**



Renovation of Aeration 3 is in progress 13.04.2023



Installation of 2 nos of BFP in progress

8. STATUS OF BEP & OTHER DETAILS

Status of BEPs & other detail are given in following table 8.1:

Table 8.1: BEPs and Design & Drawings detail

SN	STP Facility	Design & Drawing Status		Remarks
A	Construction of New STP Facilities			
1.	30 MLD STP Pankha	BEPs: Construction Plan: Structural Design Drawings: Sewer Network : O&M Plan:	Approved Approved All Approved Approved Under Review	Observations on Control philosophy has been sent vide STC letter no. 1923 dated 23.12.2022. KRMPL compliance is pending.
2.	15 MLD STP Unnao	BEPs: Construction Plan: Structural Design Drawings: Sewer Network : O&M Plan:	Approved Approved All Approved Approved Not Submitted	Observations on Control philosophy has been sent vide STC letter no. 1949 dated 08.01.2023. KRMPL compliance is pending.
3.	05 MLD STP Shuklaganj	BEPs: Construction Plan: Structural Design Drawings: Sewer Network : O&M Plan:	Approved Approved All Approved Approved Not Submitted	Observations on Control philosophy has been sent vide STC letter no. 1949 dated 08.01.2023. KRMPL compliance is pending.
B	Rehabilitation and O&M for 15 years			
4.	130 MLD STP Jajmau I	BEPs: Renovation Plan: Structural Design Drawings: O&M Plan:	Approved Approved All Approved Not Submitted	Control Philosophy Under Review.
5.	43 MLD STP Jajmau II	-	-	Maintenance plan and recommended for approval vide PE letter no. 1626 dated 25.05.2022
6.	210 MLD STP Bingawan	-	-	Bypass arrangement design drawing approved vide letter no. 1948 dated 07.01.2022.
7.	42 MLD STP Sajari	-	-	Observations on resubmission of Annual Maintenance Plan of Sajari year-4 has been submitted vide letter no. 1863 dated 09.11.2022.

ANNEXURE

Annexure 1: Milestone Progress of Pankha STP

(Attached Separately)

Annexure 2: Milestone Progress of 15 MLD STP Unnao

(Attached Separately)

Annexure 3: Milestone Progress of 05 MLD STP Shuklaganj

(Attached Separately)

Annexure 4.1: Milestone Progress Report Jajmau 130 MLD

(Attached Separately)

Annexure 4.2: Monthly Activity Report for 130 MLD STP Jajmau

(Attached Separately)

**Annexure 5: Inspection Reports of Pankha, Unnao, Shuklaganj &
Jajmau for April 2023**

Annexure 6: IIT Lab report for April 2023

(Attached Separately)

Annexure 7: Timesheets of Experts

(Attached Separately)

ANNEXURE 8: Monthly Staff Activity – HAM Project Kanpur