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ऊपरी गंगा बेसिन संगठन
Upper Ganga Basin Organisation

गंगा नदी में न्यूनतम पर्यावरणीय प्रवाह का कार्यान्वयन
(उन्नाव तक)

IMPLEMENTATION OF MINIMUM ENVIRONMENTAL FLOWS IN RIVER GANGA
(Up to Unnao)



स्थिति रिपोर्ट / Status Report
(अक्टूबर - दिसंबर, 2024) / (Oct - Dec, 2024)

जनवरी / January, 2025

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कार्यकारी सारांश

भारत सरकार ने 9 अक्टूबर, 2018 की राजपत्र अधिसूचना के माध्यम से गंगा नदी के लिए न्यूनतम पर्यावरणीय प्रवाह को अधिसूचित किया है जिसे गंगा नदी पर विभिन्न स्थानों पर बनाए रखा जाना है। यह आदेश ऊपरी गंगा नदी बेसिन पर लागू होता है, जो उद्गम ग्लेशियरों से शुरू हो कर प्रमुख सहायक नदियों के संगम से होते हुए अंततः देवप्रयाग व हरिद्वार तक और गंगा नदी की मुख्य धारा पर उत्तर प्रदेश के उन्नाव जिले तक है। सीडब्ल्यूसी को वांछित ई-प्रवाह के परियोजना प्राधिकरण द्वारा अनुपालन की निगरानी की जिम्मेदारी सौंपी गई है। 1 जनवरी, 2019 से यूजीबीओ, सीडब्ल्यूसी द्वारा ई-प्रवाह की निगरानी की जा रही है।

वर्तमान निगरानी रिपोर्ट **चतुर्थ तिमाही यानी अक्टूबर से दिसंबर, 2024** के दौरान ई-प्रवाह की अनुपालन स्थिति को दर्शाती है। परियोजनाओं से किए गए रिलीज और अन्य प्रासंगिक डेटा ई-मेल के माध्यम से सीडब्ल्यूसी को प्रेषित किया जाता है। अधिकांश परियोजनाओं में रियल टाइम डेटा अधिग्रहण प्रणाली स्थापित की गई है और शेष परियोजना अधिकारियों से SCADA/RTDAS की स्थापना और प्रति घंटा डेटा की वास्तविक समय उपलब्धता के लिए जल्द से जल्द सीडब्ल्यूसी डेटा सर्वर के साथ उनके एकीकरण के लिए अनुरोध किया जा रहा है। इस तिमाही में, **श्रीनगर एचईपी ने पूरे तिमाही एवं पशूलोक बराज ने 4 दिन के लिए ई-फ्लो का अनुपालन नहीं किया है।**

पिछली 4 तिमाही में ई-प्रवाह मानदंडों के अनुपालन की स्थिति इस प्रकार है -

क्र० सं०	परियोजना का नाम	अनुपालन की स्थिति			
		जनवरी-मार्च 2024	अप्रैल-जून 2024	जुलाई-सितंबर 2024	अक्टूबर-दिसंबर 2024
1	मनेरी भाली फेज I	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया
2	मनेरी भाली फेज II	05 दिन छोड़कर अनुपालन किया गया	33 दिन के लिए अनुपालन नहीं किया गया	4 दिन के लिए अनुपालन नहीं किया गया	अनुपालन किया गया
3	टिहरी-कोटेश्वर एचईपी	अनुपालन किया गया	27 दिन के लिए अनुपालन नहीं किया गया	6 दिन के लिए अनुपालन नहीं किया गया	अनुपालन किया गया
4	विष्णुप्रयाग एचईपी	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया
5	सिंगोली भटवारी एचईपी	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया
6	श्रीनगर एचईपी	पूरी तिमाही के दौरान अनुपालन नहीं	पूरी तिमाही के दौरान अनुपालन नहीं	26 दिन के लिए अनुपालन नहीं किया गया	पूरे त्रैमास में अनुपालन नहीं किया गया
7	पशूलोक बराज	अनुपालन किया गया	3 दिन छोड़ कर अनुपालन किया गया	अनुपालन किया गया	4 दिन के लिए अनुपालन नहीं किया गया
8	भीमोगड़ा बराज	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया
9	चौधरी चरण सिंह मध्य गंगा बराज	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया
10	नरोरा बराज	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया
11	लव कुश बराज	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया	अनुपालन किया गया

EXECUTIVE SUMMARY

The Government of India vide Gazette Notification dated 9th October, 2018, has notified the minimum environmental flows for River Ganga that has to be maintained at various locations on the river. The order applies to the Upper Ganga River Basin starting from originating glaciers and through respective confluences of its head tributaries finally meeting at Deoprayag up to Haridwar and the main stem of River Ganga up to Unnao district of Uttar Pradesh. CWC has been entrusted the responsibility of monitoring the compliance by project authorities on maintenance of desired e-flows. Monitoring of e-flows is being carried by UGBO, CWC since 1st January, 2019.

The current monitoring report covers the compliance status of e-flows during the **4th quarter i.e., from October to December, 2024**. The releases made from the projects and other relevant data is transmitted to CWC through e-mail. Most of the projects have installed real time data acquisition system and remaining project authorities are being requested for installation of SCADA/RTDAS and their integration with CWC Data server at the earliest for real time availability of hourly data. **In this quarter, Srinagar HEP for the entire quarter and Pashulok Barrage for 4 days did not comply with e-flow.**

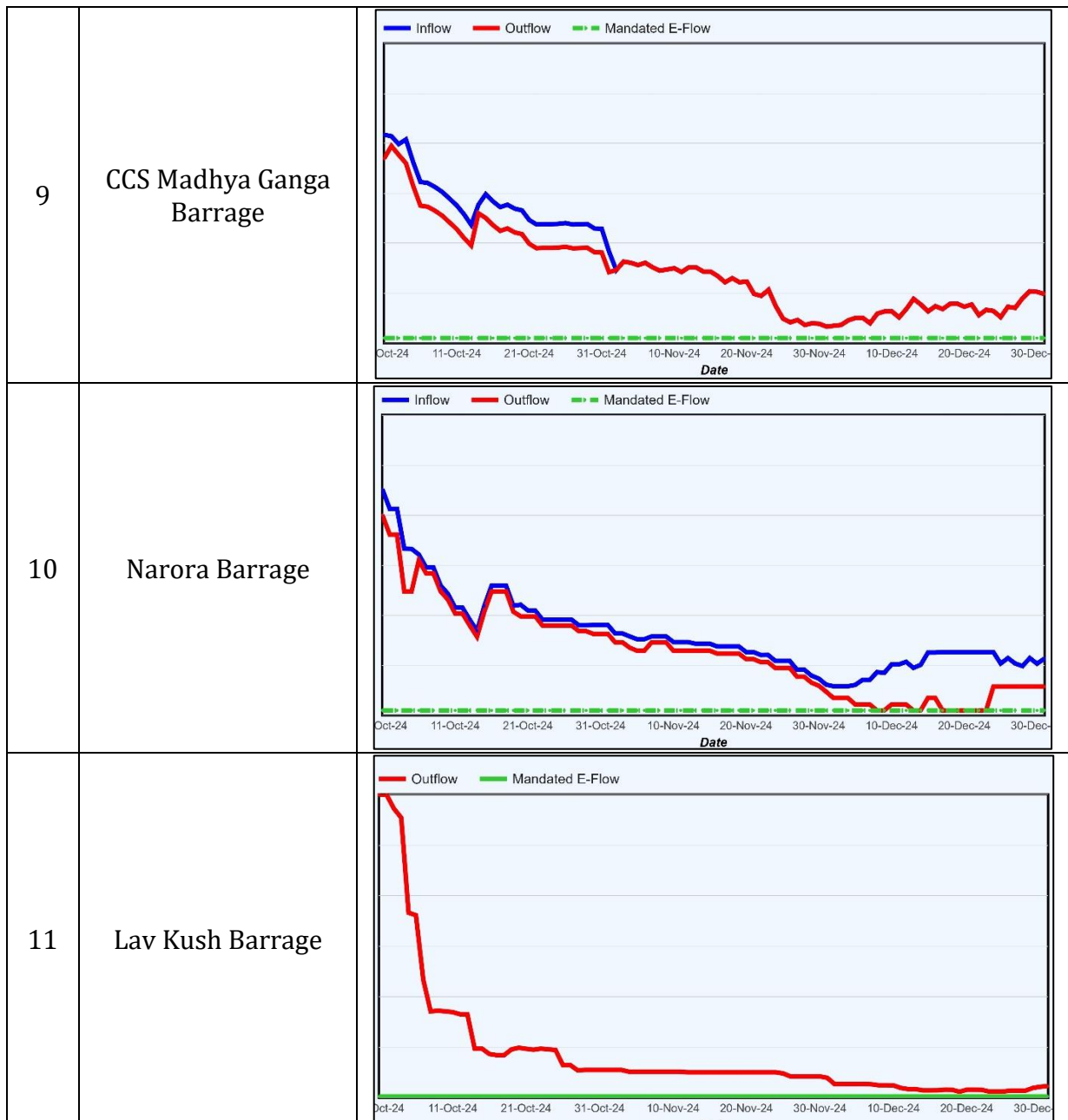
Status of compliance with the e-flow norms during last 04 quarters is as below:

S N	Project Name	Status of Compliance			
		Jan-Mar 2024	Apr-Jun 2024	Jul-Sept 2024	Oct-Dec 2024
1	Maneri Bhali Phase I	Complied	Complied	Complied	Complied
2	Maneri Bhali Phase II	Complied except for 05 days	Not complied for 33 days	Not complied for 4 days	Complied
3	Tehri-Koteswar Dam	Complied	Not Complied for 27 days	Not complied for 6 days	Complied
4	Vishnuprayag HEP	Complied	Complied	Complied	Complied
5	Singoli Bhatwari HEP	Complied	Complied	Complied	Complied
6	Srinagar Dam	Not complied for whole quarter	Not complied for whole quarter	Not complied for 26 days	Not complied for whole quarter
7	Pashulok Barrage	Complied	Complied except for 3 days	Complied	Not complied for 4 days
8	Bhimgoda Barrage	Complied	Complied	Complied	Complied
9	CCS Madhya Ganga Barrage	Complied	Complied	Complied	Complied
10	Narora Barrage	Complied	Complied	Complied	Complied
11	Lav Kush Barrage	Complied	Complied	Complied	Complied

Graphs showing status E-Flow Compliance during this quarter

S N	Project Name	Graphs
1	Maneri Bhali Phase I	This graph for Maneri Bhali Phase I shows Inflow (blue solid line) starting at approximately 100 units in early October and decreasing to about 20 units by late December. Outflow (red solid line) and Mandated E-Flow (green dashed line) remain consistently low, near zero, throughout the quarter.
2	Maneri Bhali Phase II	This graph for Maneri Bhali Phase II shows Inflow (blue solid line) starting at approximately 100 units in early October and decreasing to about 20 units by late December. Outflow (red solid line) and Mandated E-Flow (green dashed line) remain consistently low, near zero, throughout the quarter.
3	Tehri-Koteswar Dam	This graph for Tehri-Koteswar Dam shows Tehri Inflow (blue solid line) decreasing from approximately 100 units in early October to about 20 units by late December. Koteswar Outflow (red solid line) starts around 50 units, fluctuates, and then shows a significant increase, peaking at approximately 80 units in late December. Mandated E-Flow (green dashed line) remains low, near zero, throughout the quarter.
4	Vishnuprayag HEP	This graph for Vishnuprayag HEP shows Inflow (blue solid line) starting at approximately 100 units in early October and decreasing to about 20 units by late December. Outflow (red solid line) and Mandated E-Flow (green dashed line) remain consistently low, near zero, throughout the quarter.

5	Singoli Bhatwari HEP	Line graph for Singoli Bhatwari HEP. The x-axis represents the date from October 2024 to December 2024. The y-axis represents flow. The blue solid line (Inflow) starts at a high level and decreases steadily over the period. The red solid line (Outflow) and the green dashed line (Mandated E-Flow) are lower and relatively stable, with a slight downward trend.
6	Srinagar Dam	Line graph for Srinagar Dam. The x-axis represents the date from October 2024 to December 2024. The y-axis represents flow. The blue solid line (Inflow) starts at a high level and decreases with significant fluctuations. The red solid line (Outflow) and the green dashed line (Mandated E-Flow) are very low and stable throughout the period.
7	Pashulok Barrage	Line graph for Pashulok Barrage. The x-axis represents the date from October 2024 to December 2024. The y-axis represents flow. The blue solid line (Inflow) starts at a high level and decreases with fluctuations. The red solid line (Outflow) and the green dashed line (Mandated E-Flow) are low and stable, with a small peak in outflow around November 2024.
8	Bhimgoda Barrage	Line graph for Bhimgoda Barrage. The x-axis represents the date from October 2024 to December 2024. The y-axis represents flow. The blue solid line (Inflow) starts at a high level and decreases with fluctuations. The red solid line (Outflow) and the green dashed line (Mandated E-Flow) are low and stable, with a small peak in outflow around November 2024.



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1.0 BACKGROUND

Ecological needs of the river have been recognized as one of the uses of water in the National Water Policy (2012). In the Preamble of the policy, it is mentioned that '*water is essential for sustenance of eco-system, and therefore, minimum ecological needs should be given due consideration*'. Clause 3.3 specifies that "*A portion of river flows should be kept aside to meet ecological needs ensuring that the low and high releases are proportional to the natural flow regime, including base flow contribution in the low flow season through regulated ground water uses*".

Government of India, vide Gazette Notification dated 9th October, 2018, has notified the minimum environmental flows for River Ganga that has to be maintained at various locations on the river. Environmental flows are the acceptable flow regimes that are required to maintain a river in the desired environmental state or predetermined state. The maintenance of minimum e-flow in the river would not only ensure sustenance of aquatic life but also go a long way in ensuring its *Aviralta* or continuous flow in the river. It will ensure that the river has at least the minimum required environmental flow of water even after the river flow gets diverted by projects and structures for purposes like irrigation, hydropower, domestic and industrial use etc.

The above order will apply to the upper Ganga River Basin starting from originating glaciers and through respective confluences of its head tributaries finally meeting at Devprayag up to Haridwar and the main stem of River Ganga up to Unnao district of Uttar Pradesh. The compliance of minimum environmental flow is applicable to all existing, under-construction and future projects. The existing projects which did not meet the norms had to ensure that the desired environmental flow norms were complied with w.e.f 15th December, 2019. The mini and micro projects which do not alter the flow characteristics of the river or stream significantly are exempted from these environmental flows.

The flow conditions in these river reaches shall be monitored at hourly intervals from time to time. The Central Water Commission has been entrusted the responsibility for supervision, monitoring, regulation of flows and reporting of necessary information to the appropriate authority as and when required and also take emergent decisions about the water storage norms in case of any emergency.

The concerned project developers or authorities will have to install automatic data acquisition and data transmission facilities at appropriate locations at project sites within six months. The Central Government through National Mission for Clean Ganga may direct release of additional water in the river Ganga to meet special demand as and when required.

2.0 GANGA PHYSIOGRAPHY

The Ganga River basin is the largest river basin in India in terms of catchment area, constituting 26% of the country's land mass (861,404 sq. km) and supporting about half a billion populations. The drainage area of the basin lies in 11 states covering Uttarakhand, Uttar Pradesh, Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Rajasthan, West Bengal, Haryana, Himachal Pradesh and the Union Territory of Delhi. It traverses a course of 2525 km before flowing into the Bay of Bengal. It has a large number of tributaries joining it during this journey. The main physical sub-divisions are the Northern Mountains, the Gangetic Plains and the Central Highlands. Northern Mountains comprises the Himalayan ranges including their foot hills. The Gangetic plains, situated between the Himalayas and the Deccan plateau and covering most of the basin, are ideally suited for intensive cultivation. The culturable area of Ganga basin is about 57.96 Mha which is about 29.5% of the total culturable area of the country.

In the monitoring reach of river Ganga up to Unnao, there are many manmade interventions utilizing the water for various developmental needs such as drinking water, irrigation, hydro power etc. These projects impact the natural flows in the river. In upper Ganga basin up to Haridwar, there are a number hydro-electric project. Most of these projects are run-of-the river (ROR) projects except Tehri which is a major storage project having gross storage of 3.54 BCM and live storage 2.615 BCM. At Haridwar, Ganga opens to the Gangetic Plains, where Bhimgoda barrage diverts a large quantity of its waters into the Upper Ganga Canal and Eastern Ganga Canal, to provide water for irrigation and other consumptive uses. Further, about 76 km downstream of Haridwar, in Bijnor district, another barrage (Chaudhary Charan Singh Barrage) diverts water into the Madhya Ganga Canal but only during monsoon months. At Narora, there is further diversion of water into the Lower Ganga Canal from Narora barrage, about 155 km downstream of Chaudhary Charan Singh Barrage. Further downstream from the barrage at Kanpur, Ganga water is being diverted to meet the drinking water requirements of Kanpur town.

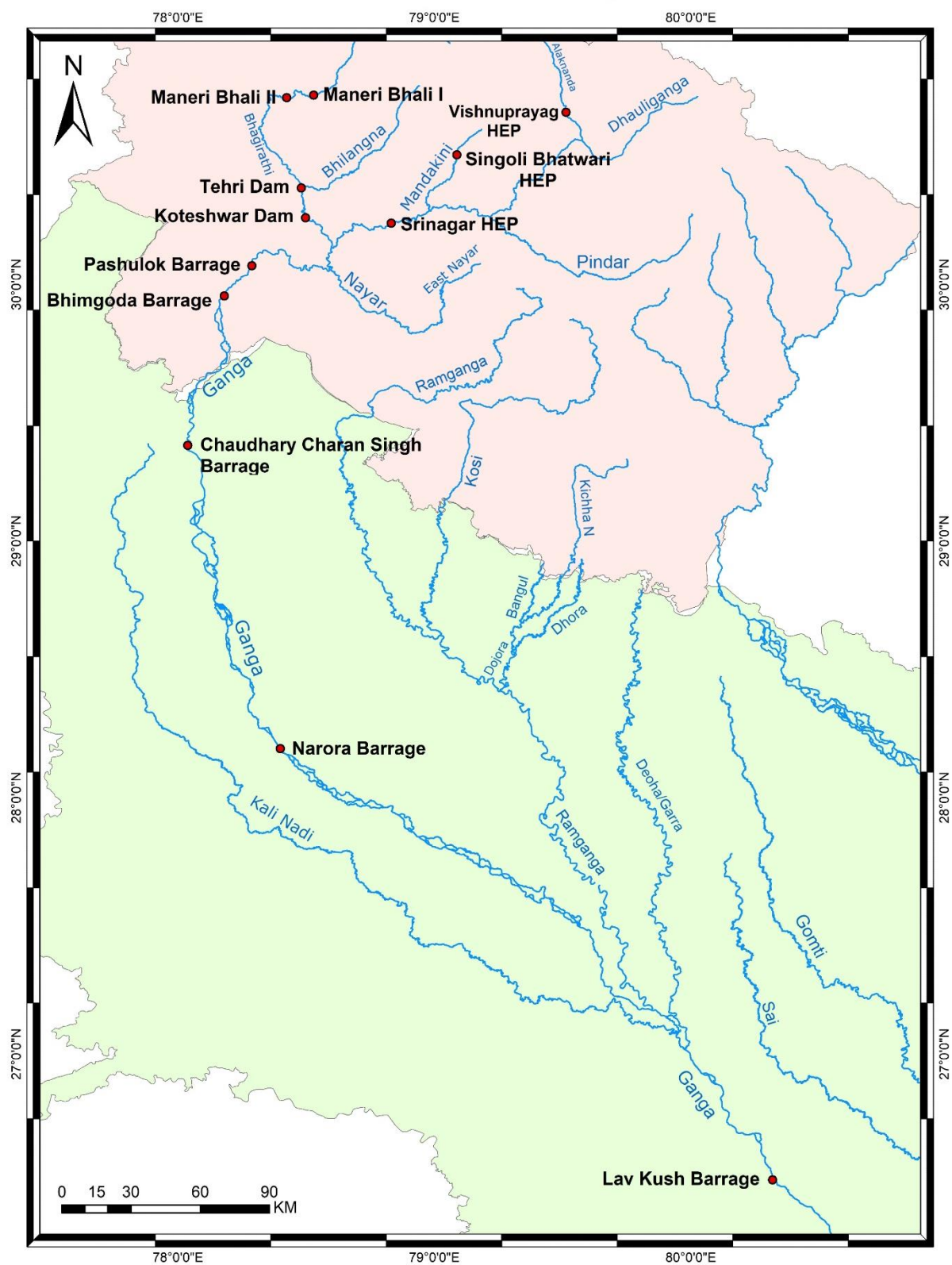


Figure 1. Map showing key Projects in Ganga Basin Up to Unnao

3.0 MINIMUM E-FLOWS NORMS

The e-flows notified by the Government of India Vide Gazette Notification dated 9th October, 2018 are as follows:

3.1 Upper Ganga River Basin Stretch starting from originating glaciers and through respective confluences finally meeting at Devprayag up to Haridwar:

Table 1- E-flow Norms for Projects in Upper Ganga Basin up to Haridwar

Sl No	Season	Months	(%) Percentage of Monthly Average Flow observed during each of preceding 10-daily period
1	Dry	November to March	20
2	Lean	October, April and May	25
3	High Flow	June to September	30*#

*# 30% of monthly flow of High flow season.

3.2 Stretch of main stem of River Ganga from Haridwar, Uttarakhand to Unnao, Uttar Pradesh

Table 2- E-flow Norms for Projects in Main Ganga Stem from Haridwar to Unnao

Sl. No.	Location of Barrage	Minimum flow releases Immediately downstream of Barrages (<i>In Cumecs</i>) Non-Monsoon (October to May)	Minimum flow releases immediately downstream of barrages (<i>In Cumecs</i>) Monsoon (June to September)
1	Bhimgoda (Haridwar)	36	57
2	Bijnor	24	48
3	Narora	24	48
4	Kanpur	24	48

3.3 New Standard Operating Procedures for implementation/monitoring of minimum environmental flows in River Ganga

The new Standard Operating Procedures (SOP) for implementation/monitoring of minimum environmental flows in River Ganga was approved by National Mission for Clean Ganga (NMCG) vide letter F. No. 5/46/2017-Hyd (NE) dated 24.01.2020. Accordingly, the e-flow for monsoon season i.e., June to September has been calculated as per new SOP.

During June to September (Monsoon Period)

Looking the high variability in the flows during monsoon period, the mandated e-flows for this period shall comprise of two components:

(i) e-flows corresponding to Baseline Inflows

30 percent of the 10-daily average of baseline inflows is considered as baseline e-flows for corresponding 10 daily periods. The baseline inflows at a given project location may be assessed based on fitted trend line (10 per moving average) on lower envelope of past 10 years' inflow at the project location. As baseline inflows shall be available with degree of reliability, the e-flows corresponding to baseline inflows would be **Mandated e-flow** release as per target for each ten-daily period.

(ii) e-flows Corresponding to Flood Fluxes

As flood fluxes are stochastic in nature, e-flows corresponding to flood fluxes may be released any time during the month preferably at the time of high flood wave(s). The project authorities shall be at liberty to release the E-flows corresponding to flood fluxes at any time during the month. However, the quantum of e-flow component from flood fluxes should be adequate so as to meet overall target of e-flows (30 percent of gross inflows during the month including baseline e-flows).

To analyze the compliance/ non-compliance status during the month, the volume of water as outflow has to be more than 30% of gross volume of water received as inflow. The mandated base-flow is represented in green color and the **Desired e-flow** (30 percent of gross inflows) is represented in violet color in the graph under the '*Current status of e-flow monitoring*'.

4.0 PROJECTS UNDER MONITORING

In upper Ganga River basin upstream of Haridwar, river valley projects are largely non-consumptive and are mainly used for hydro power generation. Few minor projects are also being used for irrigation and drinking water purposes. From Haridwar onwards beginning with Bhimgoda Barrage, projects are being used for water diversion for irrigation, domestic and industrial uses.

The key projects in Ganga up to Unnao are listed below:

Table 3: Key projects on River Ganga up to Unnao

S. No	Name of Project	River/Tributary	District/State	Remarks
Projects on Alaknanda and its tributaries				
1.	Vishnuprayag HEP (400 MW)	Ganga/Alaknanda	Chamoli/Uttarakhand	SCADA system installed & operational
2.	Vishnugad Peepal Koti HEP (444 MW)	Ganga/Alaknanda	Chamoli/Uttarakhand	Under construction
3.	Srinagar HEP (330 MW)	Ganga/Alaknanda	Pauri Garhwal /Uttarakhand	-
4.	Tapovan Vishnuprayag HEP (520 MW)	Ganga/Alaknanda/Dhauliganga	Chamoli/Uttarakhand	Under construction
5.	Singoli Bhatwari HEP (99 MW)	Ganga/Alaknanda/Mandakini	Rudraprayag/Uttarakhand	SCADA system installed & operational
Projects on Bhagirathi and its tributaries				
1.	Maneri Bhali Phase-I HEP (90 MW)	Ganga/Bhagirathi	Uttarkashi/Uttarakhand	SCADA system installed and Operational
2.	Maneri Bhali Phase-II HEP (304 MW)	Ganga/Bhagirathi	Uttarkashi/Uttarakhand	SCADA system installed & operational
3.	Tehri HEP (1000 MW)	Ganga/Bhagirathi	Tehri Garhwal/Uttarakhand	SCADA system not installed
4.	Koteshwar HEP (400 MW)	Ganga/Bhagirathi	Tehri Garhwal/Uttarakhand	SCADA system not installed
9.	Tehri Pump Storage Plant (1000 MW)	Ganga/Bhagirathi	Tehri Garhwal/Uttarakhand	Under construction
Projects on Ganga Main Stream				
1.	Pashulok Barrage, Rishikesh (Chilla HEP, 143 MW)	Ganga	Rishikesh/Uttarak hand	SCADA system installed & operational
2.	Bhimgoda Barrage (Irrigation)	Ganga	Haridwar/Uttarak hand	SCADA system installed but

S. No	Name of Project	River/Tributary	District/State	Remarks
				presently not operational.
3.	Chaudhary Charan Singh Barrage (Irrigation)	Ganga	Bijnor/Uttar Pradesh	SCADA system installed and operational
4.	Narora Barrage (Irrigation & Industrial)	Ganga	Narora/Uttar Pradesh	SCADA system installed and operational
5.	Lav Kush Barrage (Drinking Water)	Ganga	Kanpur/Uttar Pradesh	-

Considering the extent of modifications of flows by the projects, following projects are being monitored presently for implementation of E-flows w.e.f. 1st January, 2019:

Table 4: List of Projects being monitored presently

Sl. No.	Name of the Project	Agency
1.	Maneri Bhali Stage-I	UJVNL
2.	Maneri Bhali Stage –II	UJVNL
3.	Tehri – Koteswar Dam	THDCIL
4.	Vishnuprayag HEP	JPVL
5.	Srinagar HEP	GVK
6.	Singoli Bhatwari HEP	ReNew Jal Urja Ltd
7.	Pashulok Barrage/ Chilla HEP	UJVNL
8.	Bhimgoda Barrage	UP Irrigation & WRD
9.	Chaudhary Charan Singh Barrage	UP Irrigation & WRD
10.	Narora Barrage	UP Irrigation & WRD
11.	Lav Kush Barrage	UP Irrigation & WRD

Table 5: Length of river stretch below the diversion at the project for which e-flow has been mandated

S No.	Name of project	River/ Tributary	Location of e-flow observation station	District/ State	Length of river stretch in km	Remarks
1	Vishnuprayag HEP	Ganga/ Alaknanda	U/s - Badrinath D/s- Lambagad	Chamoli/ Uttarakhand	18.5	River Dhauliganga joins Alaknanda at 14 km d/s of Vishnuprayag barrage.
2	Singoli Bhatwari HEP	Ganga/ Alaknanda/ Mandakini	U/s- Vidyapeeth D/s- Kund	Rudraprayag/ Uttarakhand	13.8	Small nallas joins river Mandakini.
3	Srinagar HEP	Ganga/ Alaknanda	U/s- Rudraprayag D/s- Chauras	Pauri Garhwal/ Uttarakhand	6.8	No river joins river Alaknanda in this reach.
4	Maneri Bhali-I HEP	Ganga/ Bhagirathi	U/s- Maneri D/s- Hina Market	Uttarkashi/ Uttarakhand	13	River Asi Ganga joins river Bhagirathi at 9 Km d/s of Maneri Bhali Phase I Dam.
5	Maneri Bhali-II HEP	Ganga/ Bhagirathi	U/s-Uttarkashi D/s- Manera	Uttarkashi/ Uttarakhand	28	River Dusk joins River Bhagirathi at 26.5 Km d/s of Maneri Bhali Phase II dam.
6	Tehri+ Koteswar HEP	Ganga/ Bhagirathi	U/s - WL Sensor at Tehri D/s- Koteswar	Tehri Garhwal/ Uttarakhand	NA	Outflow from TRT of Tehri dam joins Koteswar reservoir.
7	Pashulok Barrage	Ganga	U/s - Rishikesh D/s- WL Sensor in Chilla Canal	Dehradun/ Uttarakhand	15.3	River Satyanarayan joins river Ganga.
8	Bhimgoda Barrage	Ganga	U/s- Dhudiaban (G), Haridwar D/S- Chandi Bridge, Haridwar	Haridwar/ Uttarakhand	NA	River Solani joins river Ganga before Chaudhary Charan Singh Barrage.
9	Chaudhary Charan Singh Barrage	Ganga	U/s - Chandi Bridge, Haridwar D/s- Basantpur	Bijnor/Uttar Pradesh	NA	-
10	Narora Barrage	Ganga	U/s - Anupshahar D/s- Narora (G)	Aligarh/Uttar Pradesh	NA	-
11	Lav Kush Barrage	Ganga	U/s - Ankinghat D/s- Kanpur	Kanpur/Uttar Pradesh	NA	-

5.0 DATA COLLECTION NETWORK AND TRANSMISSION STATUS

Table 6: Status of data collection network and transmission system at projects

Sl. No.	Name of the Project	Agency	Data Collection Network	Data Transmission system
1.	Maneri Bhali Stage-I	UJVNL	Automatic sensors	Through email. API development under process
2.	Maneri Bhali Stage -II	UJVNL	Automatic sensors	Through email. API development under process
3.	Tehri- Koteswar Dam	THDC	Manual	Through email.
4.	Vishnuprayag HEP	JPVL	Automatic sensors	Through email and API.
5.	Singoli Bhatwari HEP	ReNew Jal Urja Ltd	Automatic sensors	Through email and API.
6.	Pashulok Barrage/ Chilla HEP	UJVNL	Automatic sensors	Through email. API development under process.
7.	Chaudhary Charan Singh Barrage	UP Irrigation	Automatic sensors	Through email. API development under process
8.	Srinagar HEP	GVK	Automatic sensors	Through email.
9.	Bhimgoda Barrage	UP Irrigation	Automatic sensors	Through email. API development under process
10.	Narora Barrage	UP Irrigation	Automatic sensors	Through email. Also, the data is viewable at http://www.upidautomation.in/bips/haridwar/Home.aspx API development under process
11.	Lav Kush Barrage	UP Irrigation	Manual	Through email

5.1 Data Transmission Status

The flow data is being received from all the Projects being monitored. Few Projects are not sending the flow data on hourly basis. The matrix showing the status of data transmission from the Project Authorities to CWC for the current quarter is attached as **Annexure I**. Maneri Bhali I, Maneri Bhali II, Pashulok Barrage, Vishnuprayag, Singoli Bhatwari, CCS, Narora and Bhimgoda Barrage have installed data acquisition system. Requests have been made with the project authorities for integration of the system with CWC server for real time monitoring/retrieval of data. Presently, data of Vishnuprayag & Singoli Bhatwari is being received through API.

6.0 CURRENT STATUS OF IMPLEMENTATION OF MINIMUM E-FLOWS

Project wise status of Inflow Vs Outflow Vs Stipulated environmental flows is given below:

6.1 MANERI BHALI PHASE-I

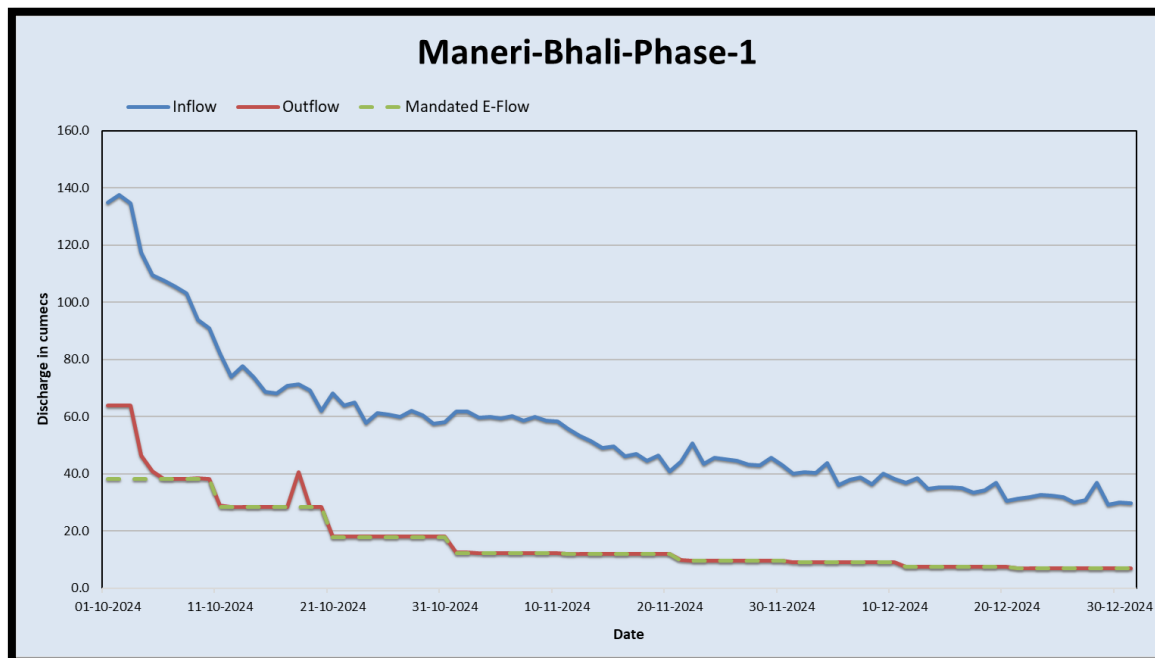


Figure 2: Graphs showing status of implementation of E-Flow at Maneri Bhali-I Project.

The project was **in compliance** with the e-flow norms for whole quarter.

6.2 MANERI BHALI PHASE-II

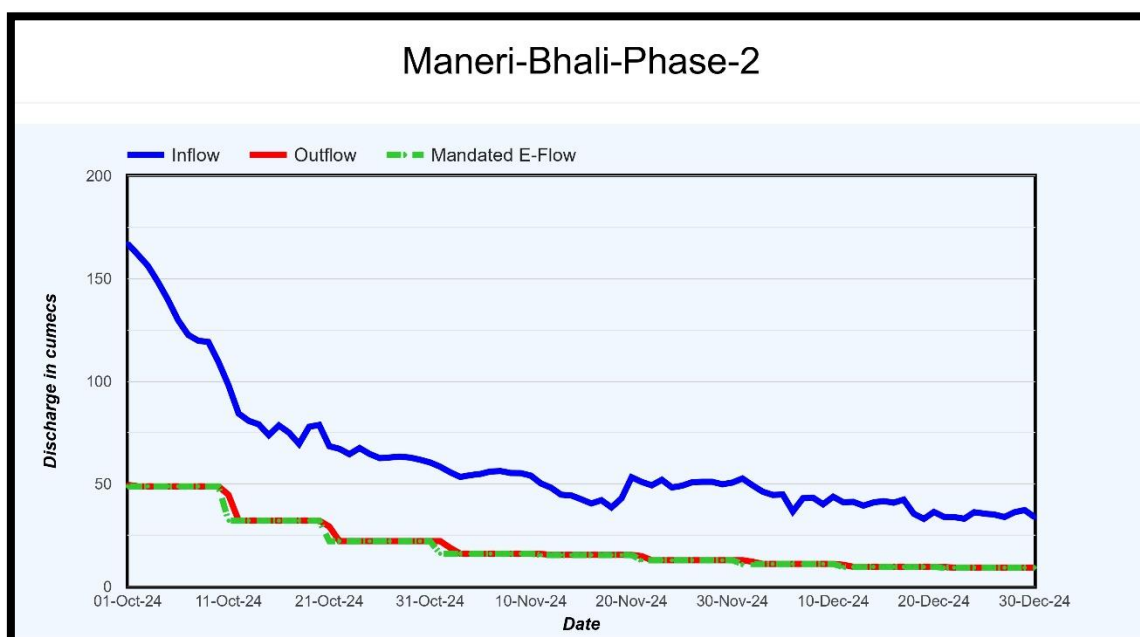


Figure 3: Graphs showing status of implementation of E-Flow at Maneri Bhali- II

The project was **in compliance** with the e-flow norms for whole quarter.

6.3 TEHRI - KOTESHWAR DAM

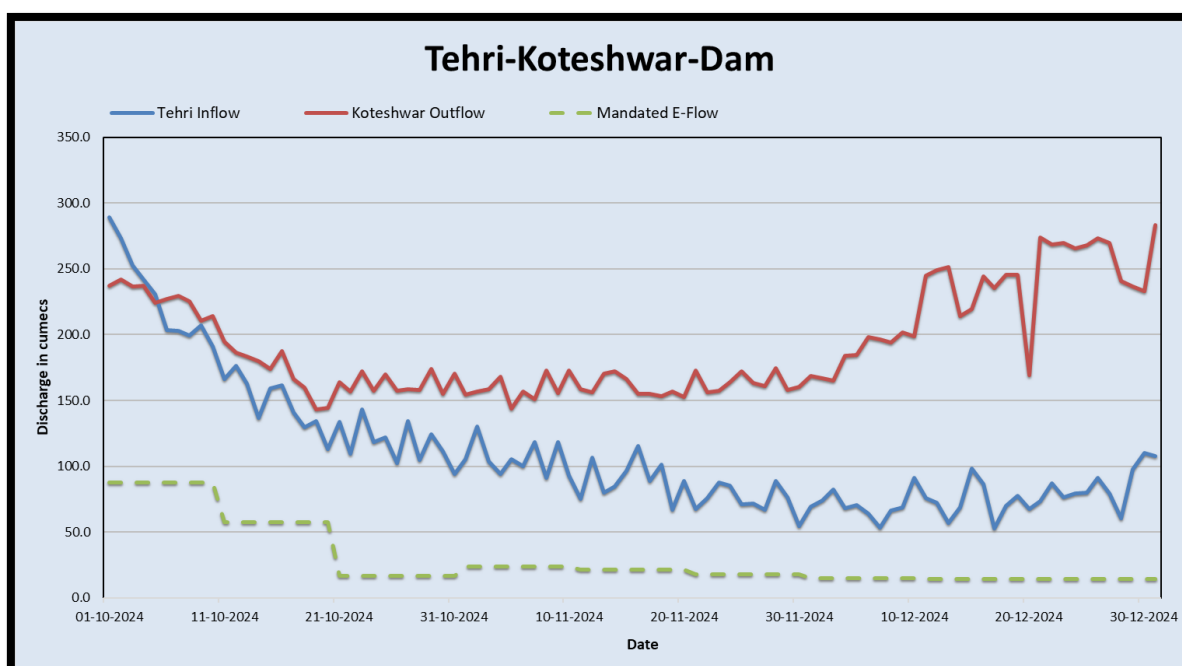


Figure 4: Graphs showing status of implementation of E-Flow at Tehri – Koteswar

The project was **in compliance** with the e-flow norms for whole quarter.

6.4 VISHNUPRAYAG HEP

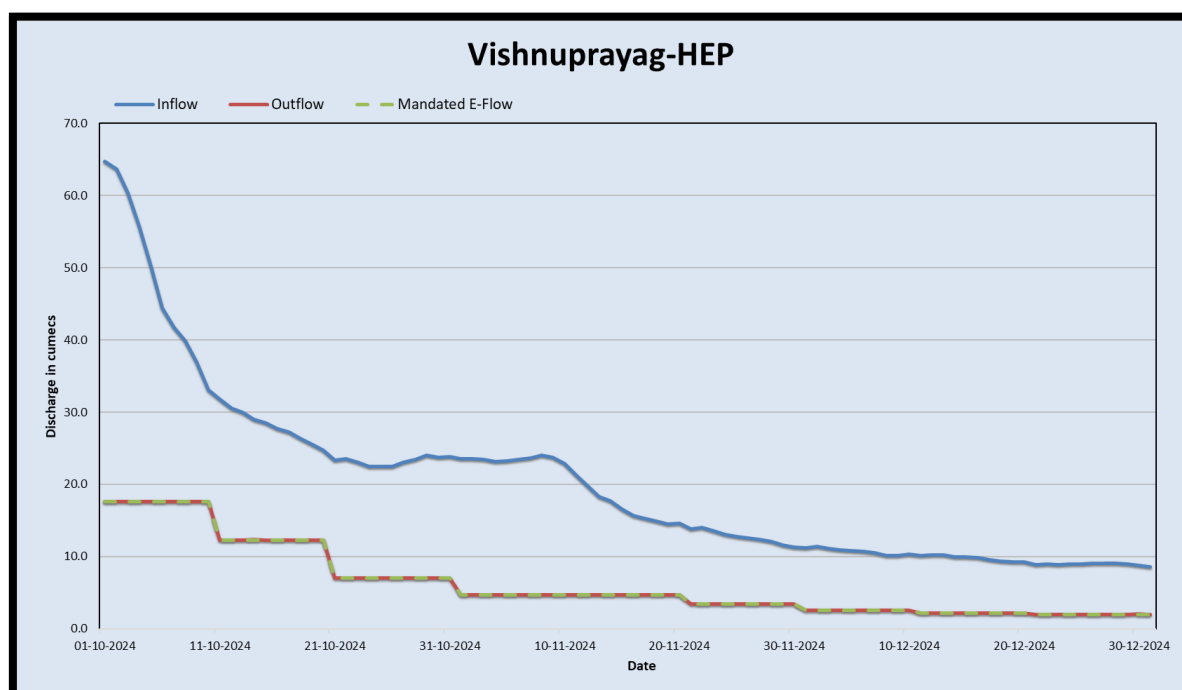


Figure 5: Graphs showing status of implementation of E-Flow at Vishnuprayag HEP

The project was **in compliance** with the e-flow norms for the whole quarter.

6.5 SINGOLI BHATWARI

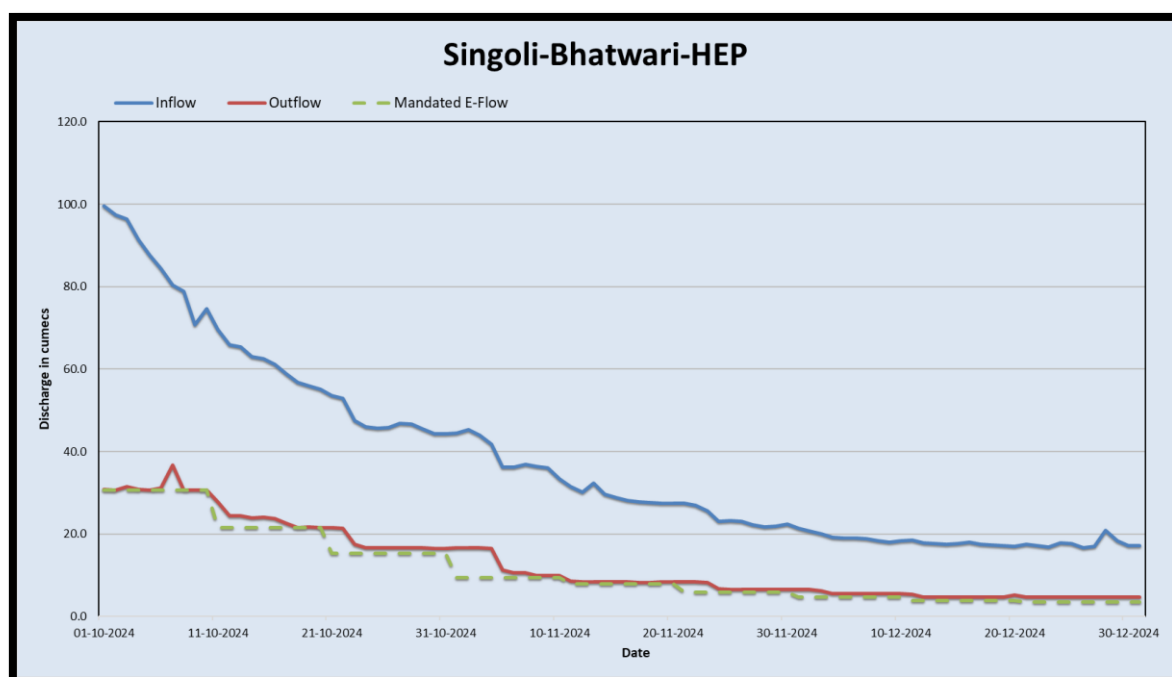


Figure 6: Graphs showing status of implementation of E-Flow at Singoli Bhatwari HEP

The project was **in compliance** with the e-flow norms for the whole quarter.

6.6 SRINAGAR HEP

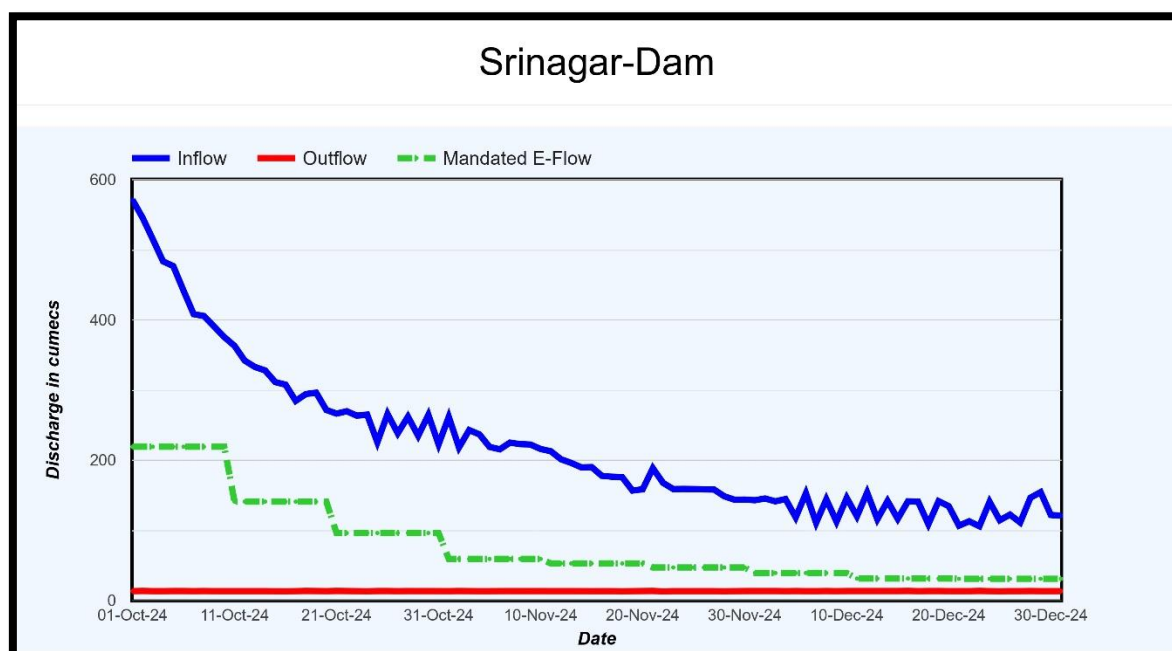


Figure 7: Graphs showing status of implementation of E-Flow at Srinagar HEP

The project was in **non-compliance** with the e-flow norms for whole quarter with **average percentage variation of 66%**. Division office had informed the project of their non-compliance through email.

6.7 PASHULOK BARRAGE

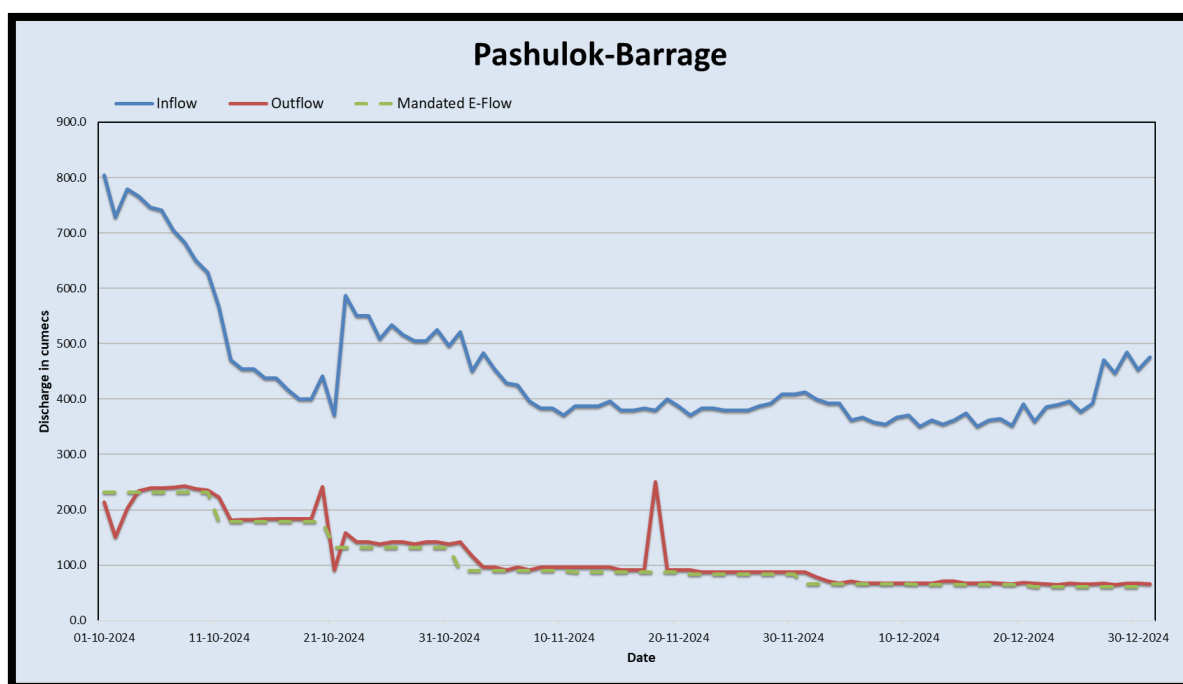


Figure 8: Graphs showing status of implementation of E-Flow at Pashulok Barrage

The project is **in compliance** with the e-flow norms for whole quarter **except for 04 days** in month of October with average percentage variation of **21.5%**.

6.8 BHIMGODA BARRAGE

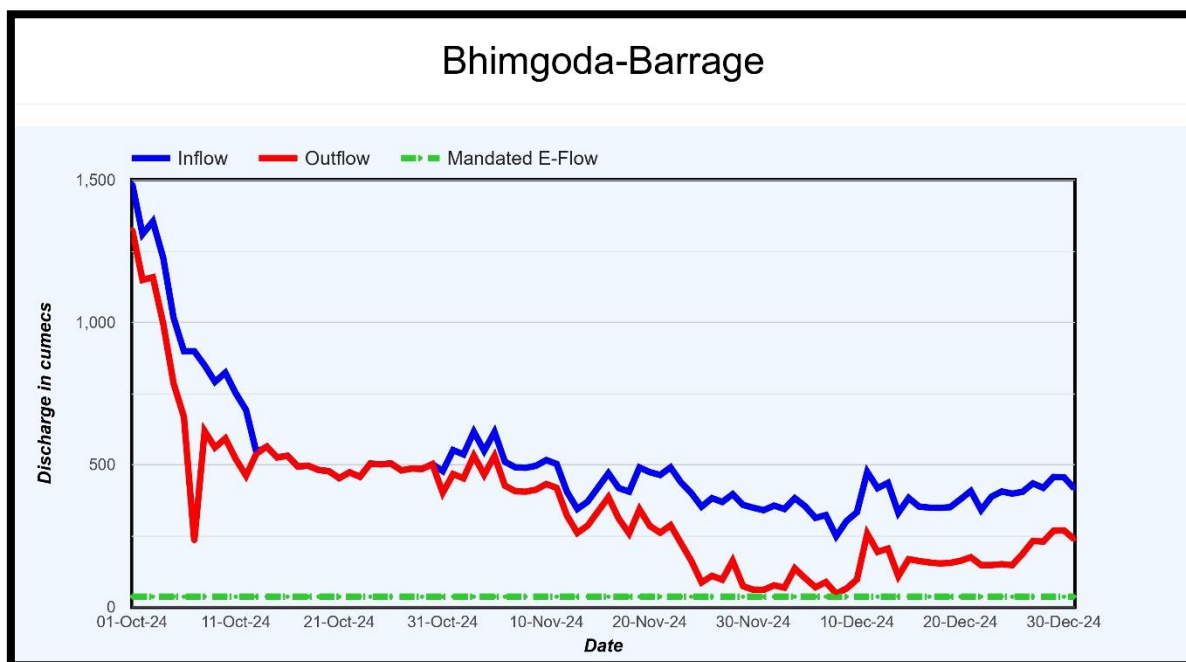


Figure 9: Graph showing status of implementation of E-Flow at Bhimgoda Barrage

The project is **in compliance** with the e-flow norms for the whole quarter.

6.9 CHAUDHARY CHARAN SINGH BARRAGE

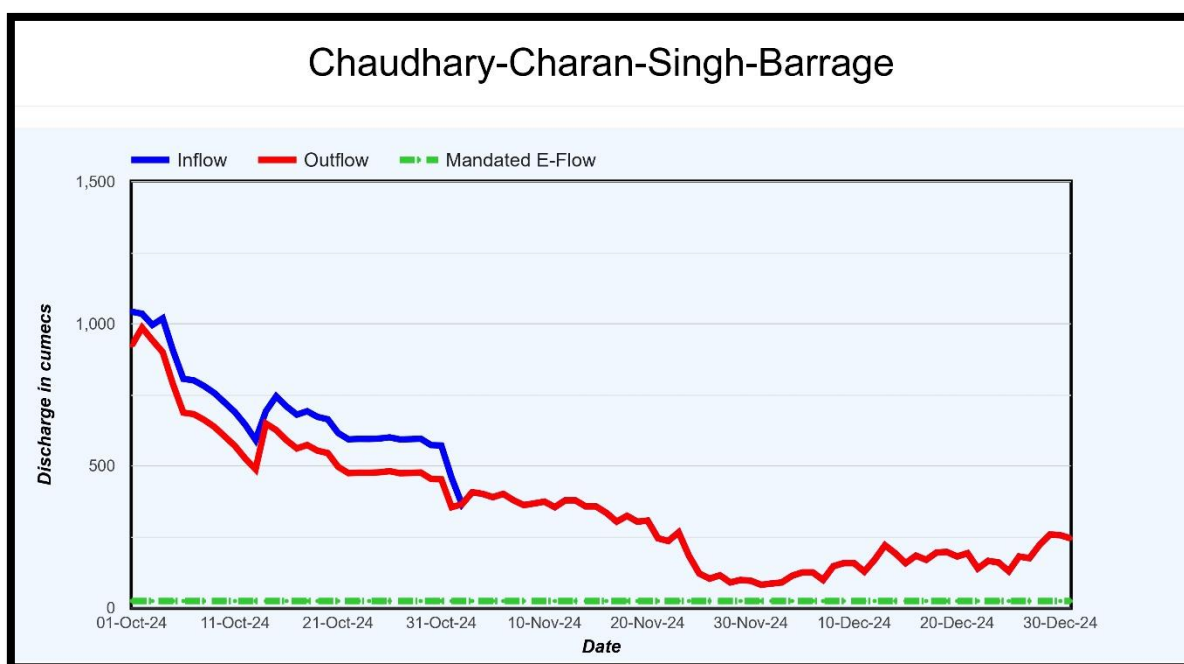


Figure 10: Graph showing status of implementation of E-Flow at Chaudhary Charan Singh Barrage

The inflow and outflow during the major period are same. The project was **in compliance** with the e-flow norms.

6.10 NARORA BARRAGE

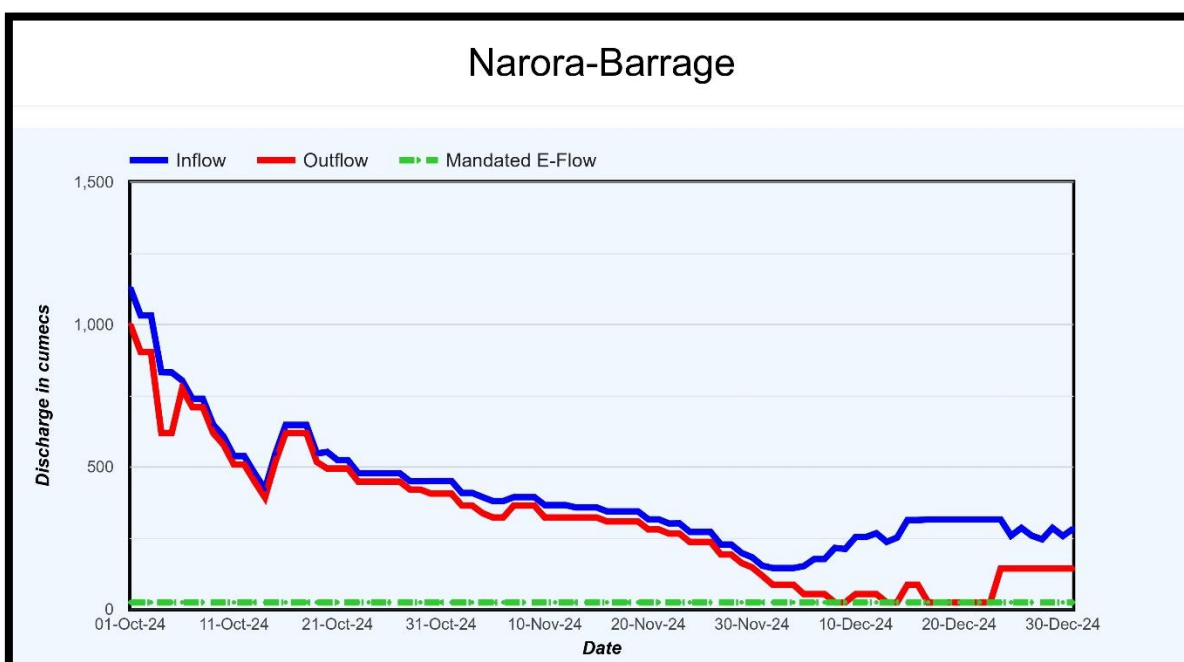


Figure 11: Graph showing status of implementation of E-Flow at Narora Barrage

The project is **in compliance** with the e-flow norms for the whole quarter.

6.11 LAV KUSH BARRAGE

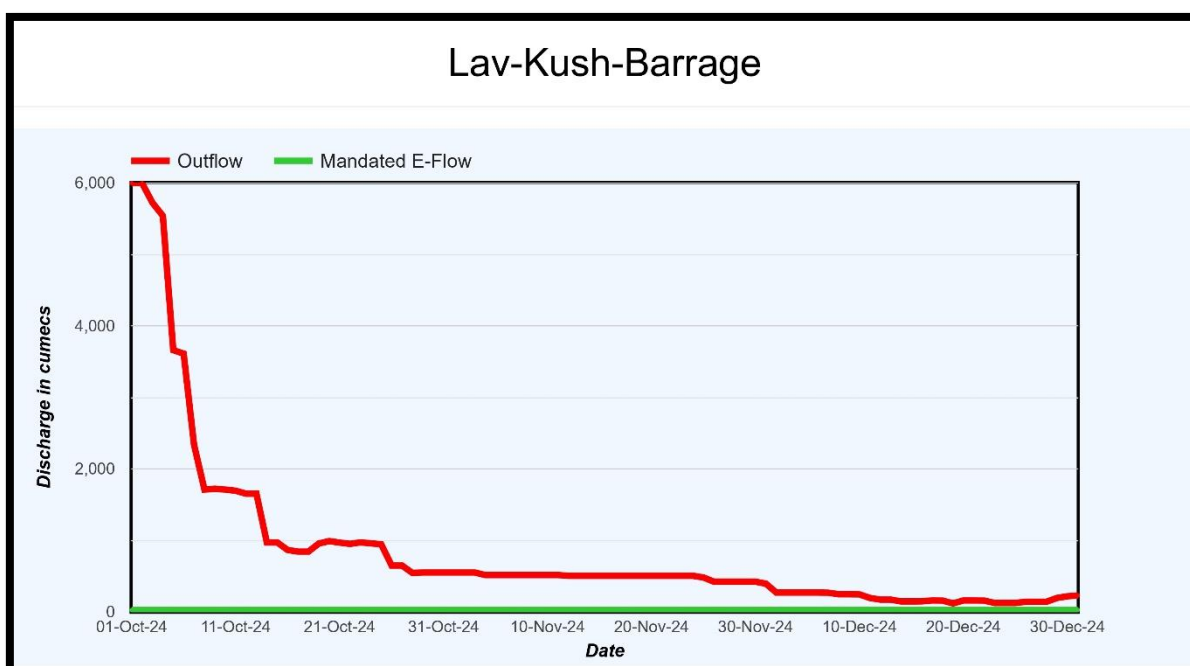


Figure 12: Graph showing status of implementation of E-Flow at Lav Kush Barrage Project.

The project does not provide inflow data. However, the barrage only utilizes small portion of the inflow for drinking water supply and remaining is released as outflow. The project was **in compliance** with the e-flow norms.

7.0 CONCLUSIONS

7.1 Most of the projects have now installed real time data acquisition system and some are under upgradation. The current data through functional SCADA system can be viewed through the online link provided by the project authorities. However, due to absence of the integration of the project SCADA/RTDAS with the CWC server/system the data cannot be saved/retrieved except for Vishnuprayag & Singoli Bhatwari HEP whose data is being fetched through API. Further the format of the data available through the online link is different for different projects. The project authorities are being pursued for installation of SCADA/RTDAS (wherever not installed) as well as sharing of API for the same and its integration with CWC server.

7.2 Based on the data supplied by project authorities, the status of compliance for each project is summarized in the Table on next page.

S N	Project Name	Status of Compliance
1	Maneri Bhali Phase I	Complied
2	Maneri Bhali Phase II	Complied
3	Tehri-Koteswar Dam	Complied
4	Vishnuprayag HEP	Complied
5	Singoli Bhatwari HEP	Complied
6	Srinagar Dam	Not complied for whole quarter
7	Pashulok Barrage	Not complied for 4 days
8	Bhimgoda Barrage	Complied
9	Chaudhary Charan Singh Madhya Ganga Barrage	Complied
10	Narora Barrage	Complied
11	Lav Kush Barrage	Complied

Annexure I

Data Transmission Status Matrix

Project Name	Maneri Bhal-1	Maneri Bhal-2	Koteswar Dam	Tehri Dam	Vishnuprayag HEP	Singoli Bhatwari	Srinagar HEP	Pashulok Barrage	Bhimgoda Barrage	CCS Barrage	Narora Barrage	Lav-Kush Barrage
01-10-2024	B	A	B	B	A	A	A	A	B	B	A	B
02-10-2024	A	A	B	B	A	A	A	A	A	B	A	B
03-10-2024	B	A	B	B	A	A	A	A	A	B	A	B
04-10-2024	A	A	B	B	A	A	B	A	A	B	A	B
05-10-2024	A	A	B	B	A	A	B	A	B	B	A	B
06-10-2024	B	B	B	B	A	A	B	A	B	B	A	B
07-10-2024	A	A	B	B	A	A	A	A	B	B	A	B
08-10-2024	A	A	B	B	A	A	A	A	B	B	A	B
09-10-2024	A	A	B	B	A	A	A	A	B	B	A	B
10-10-2024	B	A	B	B	A	A	A	A	B	B	A	B
11-10-2024	A	A	B	B	A	A	B	A	A	B	A	B
12-10-2024	A	A	B	B	A	A	A	A	B	B	A	B
13-10-2024	B	B	B	B	A	A	B	A	B	B	A	B
14-10-2024	A	A	B	B	A	A	A	A	A	B	A	B
15-10-2024	B	B	B	B	A	A	A	A	A	B	A	B
16-10-2024	B	B	B	B	A	A	A	A	B	B	A	B
17-10-2024	A	A	B	B	A	A	A	A	A	B	A	B
18-10-2024	B	A	B	B	A	A	A	A	A	B	A	B
19-10-2024	A	A	B	B	A	A	A	A	A	B	A	B
20-10-2024	B	B	B	B	A	A	B	A	B	B	A	B
21-10-2024	A	A	B	B	A	A	A	A	A	B	A	B
22-10-2024	B	B	B	B	A	A	A	A	A	B	A	B
23-10-2024	B	A	A	A	A	A	A	A	A	B	A	B
24-10-2024	A	B	B	B	A	A	B	A	A	B	A	B
25-10-2024	B	A	B	B	A	A	A	A	B	B	A	B
26-10-2024	B	A	B	B	A	A	A	A	B	B	A	B
27-10-2024	B	B	B	B	B	A	B	A	B	B	A	B
28-10-2024	A	B	B	B	A	A	A	A	A	A	A	B
29-10-2024	B	A	B	B	A	A	A	A	A	B	A	B
30-10-2024	B	A	A	A	A	A	A	A	A	B	A	B
31-10-2024	A	A	A	A	A	A	A	A	A	B	A	B
01-11-2024	B	A	B	B	A	A	B	A	A	B	A	B
02-11-2024	A	A	B	B	A	A	A	A	A	B	A	B
03-11-2024	B	B	B	B	A	A	B	A	B	B	A	B
04-11-2024	B	A	B	B	A	A	A	A	A	B	A	B
05-11-2024	B	A	B	B	A	A	A	A	A	B	A	B
06-11-2024	B	A	A	A	A	A	A	A	A	B	A	B
07-11-2024	B	A	B	B	A	A	A	A	B	A	A	B
08-11-2024	A	A	A	A	A	A	A	A	A	B	A	B
09-11-2024	B	B	B	B	A	A	A	A	B	B	A	B
10-11-2024	B	B	B	B	B	A	B	A	B	B	A	B
11-11-2024	A	A	B	B	A	A	A	A	A	A	A	B
12-11-2024	B	A	B	B	A	A	A	A	A	A	A	B
13-11-2024	B	A	B	B	A	A	A	A	B	A	A	B
14-11-2024	B	B	B	B	B	A	B	B	B	B	A	B
15-11-2024	A	A	A	A	A	A	A	A	A	A	A	B
16-11-2024	B	A	B	B	A	A	A	A	A	A	A	B
17-11-2024	B	B	B	B	A	A	B	A	B	B	A	B
18-11-2024	B	B	A	A	A	A	B	A	B	B	A	B
19-11-2024	B	A	B	B	A	A	A	A	B	A	A	B
20-11-2024	B	A	A	A	A	A	A	A	A	A	A	B
21-11-2024	A	A	B	B	A	A	A	A	A	B	A	B
22-11-2024	B	A	B	B	A	A	A	A	A	A	A	B
23-11-2024	B	A	B	B	A	A	A	A	A	B	A	B
24-11-2024	B	B	B	B	B	A	B	A	B	B	A	B
25-11-2024	B	B	B	B	B	A	A	A	B	B	A	B
26-11-2024	A	A	B	B	A	A	A	A	A	A	A	B
27-11-2024	B	A	A	A	A	A	A	A	A	B	A	B
28-11-2024	B	A	A	A	A	A	A	A	A	A	A	B
29-11-2024	A	A	A	A	A	A	A	A	A	B	A	B
30-11-2024	B	A	B	B	A	A	A	A	B	A	A	B
01-12-2024	A	A	B	B	B	A	B	A	A	B	A	B
02-12-2024	A	A	B	B	A	A	A	A	A	B	A	B

03-12-2024	B	A	B	B	A	A	A	A	A	B	A	B
04-12-2024	A	A	B	B	A	A	A	A	B	B	A	B
05-12-2024	B	A	A	A	A	A	A	A	A	A	A	B
06-12-2024	A	A	B	B	A	A	A	A	B	B	A	B
07-12-2024	B	A	B	B	A	A	A	B	B	A	A	B
08-12-2024	B	A	B	B	A	A	B	A	A	B	A	B
09-12-2024	B	A	B	B	A	A	A	A	A	A	A	B
10-12-2024	B	A	B	B	A	A	A	A	B	B	A	B
11-12-2024	A	A	A	A	A	A	A	A	A	B	A	B
12-12-2024	B	A	B	B	A	A	A	A	B	A	A	B
13-12-2024	A	A	B	B	A	A	A	A	A	B	A	B
14-12-2024	B	B	B	B	A	A	A	A	B	B	A	B
15-12-2024	B	B	B	B	B	A	B	A	B	B	A	B
16-12-2024	B	B	A	A	A	A	A	A	B	B	A	B
17-12-2024	B	B	B	B	B	A	B	A	B	A	A	B
18-12-2024	B	A	B	B	A	A	A	A	A	B	A	B
19-12-2024	B	A	B	B	A	A	A	A	B	A	A	B
20-12-2024	A	A	A	A	A	A	A	A	A	B	A	B
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27-12-2024	B	A	A	A	A	A	A	A	A	B	A	B
28-12-2024	A	A	B	B	A	A	A	A	B	B	A	B
29-12-2024	B	B	B	B	B	A	A	A	B	B	A	B
30-12-2024	A	A	B	B	A	A	A	A	B	B	A	B
31-12-2024	A	A	A	A	A	A	A	A	B	A	A	B

A	Hourly flow data received timely
B	Hourly flow data received late
C	No data received