

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL PRINCIPAL  
BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 1156/2024

**IN THE MATTER OF:**

News Item titled "Glacial lakes multiply in Himachal Pradesh and Tibet posing a threat to lives and infrastructure downstream" appearing in The Hindu dated 11.08.2024


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Respondent No. 5

Through

Dt.08-07-2025

  
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**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL PRINCIPAL  
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**ORIGINAL APPLICATION NO. 1156/2024**

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News Item titled "Glacial lakes multiply in Himachal Pradesh and Tibet posing a threat to lives and infrastructure downstream" appearing in The Hindu dated 11.08.2024

**REPLY BY WAY OF AFFIDAVIT ON BEHALF OF RESPONDENT NO. 5  
MINISTRY OF JAL SHAKTI.**

Most Respectfully Showeth:

I, Nagendra Kumar Singh, aged about 53 years S/o Late Shri Narayan Singh Rajput working as Executive Engineer, CWC having Office at New Delhi the deponent herein do hereby solemnly affirm and state on oath as under: -

1. That I am competent to file the present Reply affidavit on behalf of Respondent No. 5 i.e. Ministry of Jal Shakti and I am aware of the facts and circumstances of the case based on record.
2. That, I have perused the contents of the above captioned O.A. and I am duly authorized to file the present reply affidavit.
3. That the instant Original Application No. 1156 / 2024 is registered *suo-moto* on the basis of the news item titled "Glacial lakes multiply in Himachal Pradesh and Tibet, posing a threat to lives and infrastructure downstream" appearing in The Hindu dated 11.08.2024. The this Hon'ble Tribunal is considering the issue of reduction of glacier size leading to an increase in moraine-dammed lake in Himachal Pradesh and Trans Himalayan Region of Tibet.



4. That the Hon'ble Tribunal by its order dated 23.04.2025 impleaded the answering respondent as Respondent No. 5 and issued notice and directed to file response by way of affidavit.
5. That it is most respectfully submitted that the Central Water Commission (hereinafter also referred as "CWC") is a technical body under the Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Government of India. It is responsible for initiating, coordinating, and promoting, in consultation with State Governments, schemes related to the control, conservation, and utilization of water resources across India. Its functions include planning and executing projects for flood control, irrigation, navigation, drinking water supply, and hydroelectric power development, as well as conducting necessary investigations and construction activities for such schemes. Following are the functional domains of CWC:

- Basin Planning and Management
- Appraisal of Water Resources Projects
- Establishing Project Hydrology
- Survey & Investigation of Water Resources Projects
- Civil & Structural Design of Water Resources Projects
- Hydro-Mechanical Design of Water Resources Projects
- Monitoring of Water Resources Projects
- Dam Safety
- Flood Forecasting/ Hydrological Observation
- River Management
- Inter-State/ International conflict resolution in Water related Disputes
- Monitoring the River Water Quality



6. That it is further submitted that the Central Water Commission (CWC) and National Institute of Hydrology (hereinafter also referred as "NIH")

are involved in activities related to Glacial Lakes under the Ministry of Jal Shakti. The works done by both these organizations are enumerated below:

**I. The following activities are presently being done by Central Water Commission under the Ministry of Jal Shakti in the area of Glacial Lake Monitoring:**

- i. Central Water Commission presently monitors 902 Glacial Lakes and Water Bodies (GL&WBs) of size greater than 10 Ha included from Glacial Lake Inventory 2011 prepared by NRSC, in the Himalayan Region of Indian River Basins, for the period June to October every year, using remote sensing techniques. High resolution multi-spectral and microwave (SAR) images of Sentinel Satellite at 10 m resolution are processed and analyzed in open- source cloud computing platform using automatic algorithm developed in-house. The monthly monitoring report enables detection of relative change in water spread area of GLs &WBs as well as identifying the GLs &WBs which have expanded substantially during the monitoring month, from a disaster perspective. The monitoring reports are shared with all stakeholders and e-published on CWC website for any time access by the concerned.

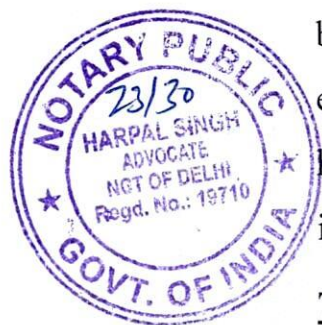
**The abstract of state-wise and basin-wise details of the 902 GLs & WBs being monitored by CWC on monthly basis is furnished below:**

Country/ Area	State/ Union Territory	No of Glacial Lakes				No of Water Bodies				Grand Total
		Indus Basin	Ganga Basin	Brahma- putra Basin	Total	Indus Basin	Ganga Basin	Brahma- putra Basin	Total	
India	Ladakh	15	0	0	15	26	0	0	26	41
	Jammu & Kashmir	15	0	0	15	16	0	0	16	31
	Himachal Pradesh	10	0	0	10	5	0	0	5	15



	Uttarakhand	0	9	0	9	0	6	0	6	15
	Sikkim	0	0	42	42	0	0	1	1	43
	Arunachal Pradesh	0	0	9	9	0	0	25	25	34
	<b>Total</b>	<b>40</b>	<b>9</b>	<b>51</b>	<b>100</b>	<b>47</b>	<b>6</b>	<b>26</b>	<b>79</b>	<b>179</b>
	<b>India Total</b>	<b>100</b>				<b>79</b>				<b>179</b>
<b>Transboundary</b>	China	12	110	187	309	49	19	191	259	568
	Bhutan	0	0	71	71	0	0	11	11	82
	Nepal	0	64	0	64	0	9	0	9	73
	<b>Total</b>	12	174	258	444	49	28	202	279	723
	<b>Transboundary Total</b>	<b>444</b>				<b>279</b>				<b>723</b>
<b>Grand Total</b>		<b>544</b>				<b>358</b>				<b>902</b>

- ii. That the CWC has been carrying out trend analysis on water spread area of 100 Glacial Lakes located in India of size greater than 10 Ha, using the available monthly monitoring data since 2011 with a view to prioritize lakes. The Glacial Lakes depicting increasing trend, no change trend and decreasing trend has been identified state-wise. The state-wise flow path of these 100 Glacial Lakes has been prepared, and locations of major water resource projects & existing CWC Hydrological Observation stations in the vicinity have been mapped, to facilitate visualization of the potential impact in the event of GLOF.



**The results of trend analysis carried out is given below:**

S. No.	State/UT	No. of Glacial Lakes	Increasing Trend	Decreasing Trend	No Change Trend	No Analysis	Dams along the flow path of Glacial Lakes
1	Ladakh	15	4	4	7	0	1
2	Jammu & Kashmir	15	5	4	6	0	10
3	Himachal Pradesh	10	6	1	3	0	23
4	Uttarakhand	9	1	1	5	2	21
5	Sikkim	42	15	10	17	0	8

6	Arunachal Pradesh	9	3	0	6	0	4
	<b>Total</b>	<b>100</b>	<b>34</b>	<b>20</b>	<b>44</b>	<b>2</b>	<b>67</b>

- iii. That the CWC has finalized the Criteria for Risk Indexing of Glacial Lakes offering a structured approach for identifying and ranking Glacial Lakes based on their likelihood of failure and the potential damage they could cause in the event of GLOF. This has been done by evaluating key factors such as the Glacial Lake's size, change in Size of GL, stability of side slope, proximity to other Glacial Lakes as well as considering downstream vulnerabilities like habitation, Infrastructures like dams, bridges etc.

**The criteria were applied to 100 Glacial Lakes located in India and the results are given below:**

Result of criteria application for 100 GLs in India						
S. No.	State	Category				
		Category-1 (S>70)	Category-2 (60-70)	Category-3 (50-60)	Category-4 (S<=50)	Inadequate Data
1	Ladakh	0	0	2	12	1
2	Jammu & Kashmir	0	0	8	7	0
3	Himachal Pradesh	0	4	4	2	0
4	Uttarakhand	0	0	3	4	2
5	Sikkim	1	12	11	18	0
6	Arunachal Pradesh	0	0	1	8	0

- iv. That it is further submitted that the CWC appraises the GLOF reports submitted by project authority and also carry out the study on consultancy basis. Till date, CWC has approved 90 projects including 9 projects on consultancy basis. The GLOF reports submitted by the respective project authorities were approved for 81 projects whereas project reports of 9 projects were prepared by CWC through consultancy. The details are Annexed herewith as **Annexure-I (Colly)**.



## II. Participation of CWC in various committees functioning under NDMA:

- i. Committee on Disaster Risk Reduction (CoDRR), chaired by the HoD of National Disaster Management Authority (NDMA), includes representatives from agencies such as CWC, NRSC, GSI, C-DAC, NIH, DGRE, six IHR States/UTs etc. conducts meeting regularly to address various issues related to Glacial Lakes. NDMA, in collaboration with SDMAs and various agencies, plans expedition to vulnerable Glacial lakes in all the six States/UTs (Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh, Jammu & Kashmir and Ladakh) in the Indian Himalayan Region. Total eight meeting of the committee held so far. CWC has accompanied expedition to 6 high risk Glacial Lakes in the states of Sikkim (2 Nos.), Himachal Pradesh (2 Nos.) and Arunachal Pradesh (2 Nos.)
- ii. National Disaster Management Authority (NDMA) constituted a Project Monitoring Committee (PMC) on 27.08.2024 including members from various agencies such as CWC, NIH, GSI, NRSC, ITBP, NCPOR, CEA etc. The PMC has engaged the Centre for Development of Advanced Computing (C-DAC), Pune, to develop an indigenous GLOF-Early Warning System. This system will feature a comprehensive Glacial Lake Database, Spatial Decision Support System (DSS), GLOF simulation model, Indigenous Sensors, and an alert dissemination Web Application.
- iii. National GLOF Risk Mitigation Program (NGRMP) has been created with an outlay of 150 Cr, for the period from 2021-22 to 2025-26, for GLOF Risk mitigation in four Himalayan states i.e. Arunachal Pradesh, Sikkim, Uttarakhand and Himachal Pradesh. A Technical Advisory Committee (TAC) constituted under Member



(Mitigation), NDMA for regular monitoring and implementation of the program with members from various national agencies viz NESAC, NIH, NRSC, NCPOR, DGRE, IMD, CWC, GSI, C-DAC, NHPC etc.

### III. Activities by National Institute of Hydrology (NIH)

A Centre for Cryosphere and Climate Change Studies (C4S) has been established at National Institute of Hydrology (NIH), Roorkee in May 2023 by the Ministry of Jal Shakti, Department of Water Resources, Ganga Rejuvenation & River Development (MoJS, DoWR, RD&GR). The purpose of creation of this Centre is to have a branch of scientific research that focuses on the study of the interactions between climate and cryosphere and impact on water availability in the **Himalayan** rivers. The focus of the Centre is to study the impact of climate change on water resources of the Indian Himalayan Region (IHR). The Centre is determined to provide best practices by proper mapping of snow, glaciers, glacial lakes and springs in the IHR under the changing climatic conditions and assess water availability by developing knowledge base on the Himalayan cryosphere in coordination with various national institutions and organizations. At present C4S is monitoring six (06) glaciers across Ladakh (Pucche Glacier), Himachal Pradesh (Triloki Glacier) and Uttarakhand (Gangotri, Milam, Doodhganga, Miyali). **Gangotri Glacier** (Bhagirathi), Upper Ganga Basin (Uttarakhand) is the flagship research station of NIH and is being monitored since 1999. A temporary fibre hut at Bhojwasa (~3600 m asl) for long-term monitoring along with a manual gauging site and a conventional meteorological observatory as prescribed by IMD have been established at Bhojwasa (~5 km downstream of the snout, Gaumukh). The conventional observatory is equipped with minimum



& maximum thermometers, dry-bulb & wet-bulb thermometers, hair hygograph, thermograph, sunshine recorder, pan evaporimeter, cup anemometer, wind vane, ordinary rain gauge (ORG) and self-recording rain gauge for continuous observations. Manual observations are taken at 0830, 1130, 1430, 1730 & 2030 hrs during the ablation season (May–October) and precipitation samples are collected from the ORG at 0830 & 1730 hrs for stable isotope studies. An automatic weather station (AWS) was installed in 2009 with sensors for air temperature, relative humidity, barometric pressure, net radiation, albedo, snow depth, wind speed, wind direction and precipitation (tipping bucket). The manual gauge observations are taken at 0830 & 1730 hrs at the gauging site for water level and velocity (floats & current meter) during the ablation season. Samples for sediment transfer (suspended sediment) and stable isotope studies are collected from the river at the same time. NIH is in the process of upgrading the manual gauging site with a radar-based automatic water level & velocity recorder (AWLVR) for continuous discharge measurements throughout the year and also establishing a portable AWS over the glacier surface. Studies for geodetic mass balance with in-situ observations, supra-glacial lakes, surface melting of the Gangotri Glacier have also been initiated since 2024.

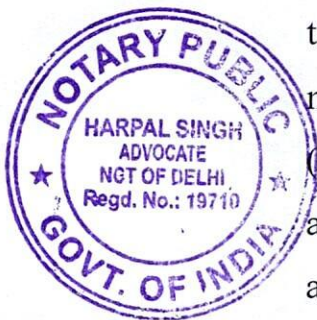


IV. **Pucche Glacier** near Khardungla pass is in the Ganglass catchment, a tributary of Indus and the major source of water for Leh town (Ladakh) is being monitored by the Western Himalayan Regional Centre (WHRC) of NIH since 2010 for in-situ mass balance. Khardung Glacier in Shyok basin is also being monitored for in-situ mass balance. Base camp facilities (fibre hut) at South Pullu N (~4600 m asl) along with a AWS and gauging site with a manual gauge & Automatic Water Level Recorder (AWLR) for continuous

meteorological & discharge observations were established in 2014-2015. An Automatic Weather Station (AWS) is also installed near the accumulation zone (~5300 m asl) of the glacier to understand the microclimatic changes. Remote sensing based and GLOF modelling studies on glaciers & glacial lakes in Jhelum, Zaskar & Shyok basins, permafrost mapping including ground/soil temperature profiling in the surroundings of Pucche and Khardung glaciers have also been carried out.

V. **Milam Glacier** (Gori Ganga basin) is the second-largest glacier in the Kumaon region (Pithoragarh district), Uttarakhand and is being monitored since 2024 for hydro-meteorology, surface accumulation and ablation dynamics, terminus fluctuations, debris and snow cover changes, as well as climate drivers such as absorbing aerosols, temperature variability, and precipitation patterns. A coupled approach, integrating in-situ (ground-based) observations, satellite-based remote sensing, and physically-based modelling is employed to analyse glacier–climate interactions and predict the glacier’s response to ongoing climate change. At present air temperature, relative humidity sensor along with manual wind vane, cup anemometer and ORG are installed near the snout of the glacier. A gauging site with manual staff gauge and AWLR were also established over the meltwater stream.

VI. **Doodhganga & Miyali glaciers** in Bhilangana River basin a tributary of Bhagirathi River have been identified for long-term monitoring in 2024. The meteorological (AWS) and hydrological (AWLVR) observatories in the basin shall be established during the ablation season (May–October) 2025 near Gangi village (~2500 m asl) and near the snout of Doodhganga Glacier (~4500 m asl). The snout position of Doodhganga & Miyali glaciers was marked during



the field expedition in 2024, while a network of mass balance stakes will be established during the visit in 2025. The geodetic mass balance of glaciers within the basin (~36 no.) shall be verified using field observation over the two glaciers. A dangerous glacial lake (Miyali lake) associated with Miyali Glacier was also identified. The lake is categorized in Class B by the NDMA and needs to be monitored as Bhilangana hydropower project is operational in the downstream and several villages are located near the river bed. The evolution of the lake and GLOF modelling has been studied using satellite data and HEC-RAS model. These results will be shared with the hydropower projects, Uttarakhand State Disaster Management Authority (USDMA), National Disaster Management Authority (NDMA) and other stakeholders. It is also planned to study the water availability and impacts of climate change over glaciers and downstream regions in the basin using high-resolution downscaled projections, glaciological and hydrological models like HIGHTHIM, VOLTA, GlabTop2, SNOWMOD, SPHY, VIC, etc.

VII. **Triloki Glacier** in Bhaga River basin (Himachal Pradesh) a tributary of Chenab has also been identified for long-term monitoring. A meteorological (AWS) and hydrological (AWLR) observatory has been established near Yotse village (~3600 m asl) in 2024. Three (03) major glaciers (Triloki, Mulkila & unnamed glacier) contribute to the discharge at the observatory. Geodetic mass balance, snow cover studies etc., will be carried out for the basin to understand the temporal (seasonal) changes and contribution of snowmelt, glacier melt and rainfall in the basin. Some in-situ measurements on the melting of glaciers will also be done to validate the results of geodetic mass balance. These observations will also help validate results from the glaciological & hydrological models like HIGHTHIM, VOLTA, GlabTop2,



SNOWMOD, SPHY, VIC, etc.

- VIII. NIH is also involved with NDMA and State Disaster Management Authority's (SDMA) for bathymetry & monitoring of dangerous glacial lakes, modelling the impact of GLOF in downstream regions, development & deployment of early warning systems and standard operating procedures during GLOF events along with various other organizations.
- IX. NIH is in the process of drafting the National Adaptation Plan (NAP) for water sector with a sub-section on Himalayan Cryosphere which will cover adaptation strategies related to climate change for glaciers and glacial lakes. This document is in final stage for submission to the MoEFCC.
- X. A steering committee on '**Monitoring of Glacier**' has been formed by the MoJS under the Chairmanship of Secretary, MoJS, DoWR, GR & RD which includes members from different ministries and organizations including MoJS, MoES, DST, CWC, CGWB, NRSC, SAC, IIRS, GSI, NCPOR, WIHG, DGRE, NESAC, Sikkim DST, USDMA, etc. NIH is the secretariat of this steering committee. The steering committee is formed to monitor and guide the C4S in coordinating the work being carried out by these ministries and organizations on the Himalayan glaciers. As part of the SC, the following major achievements have been made:
- Identification of gap areas that require focused research and monitoring.
  - Formation of research groups for collaborative work on different aspects of cryosphere.
  - Formation of technical advisory committee for regular coordination, sharing information and regular updating.



- “**NaMoH**” Web Portal is being developed that will have all the information related to cryosphere monitoring, and shall be linked with other such portals like NWIC, NRSC and SAC. The web portal will have all the metadata related to cryosphere observations. The users can upload their data and provide access to other researchers if deemed suitable.
- A ‘**HimSparshh**’ Newsletter has been designed and created that will be publish bi-annually with information on field expeditions, trainings, workshops, conferences, fellowships, vacancies, etc., related to Himalayan cryosphere.

7. That it is most respectfully submitted that the Central Water Commission (CWC) and the National Institute of Hydrology (NIH), under the Ministry of Jal Shakti, are engaged in monitoring and managing glacial lakes and glaciers respectively, in the Indian Himalayan Region. CWC monitors 902 glacial lakes and water bodies larger than 10 hectares across several states and transboundary areas using remote sensing, publishing monthly reports online. It has developed risk indexing criteria for 100 lakes and has approved 90 project-based GLOF (Glacial Lake Outburst Flood) studies. CWC also participates in disaster risk reduction committees under NDMA and oversees the National GLOF Risk Mitigation Program (2021–2026) with a budget of ₹150 crore.

8. That it is further submitted that the NIH, through its Centre for Cryosphere and Climate Change Studies, monitors key glaciers like Gangotri, Pucche, Milam, Doodhganga, Miyali, and Triloki, located in India, conducting hydro-meteorological, sediment, and isotope analyses to assess climate change impacts. NIH collaborates with NDMA and SDMAs on early warning systems and is drafting the National Adaptation Plan for the water sector. A Steering Committee on Glacier



Monitoring, with NIH as secretariat, guides research efforts and maintains the “NaMoH” portal and “HimSparshh” newsletter. CWC conducts project specific GLOF studies critical to assessing and mitigating risks for numerous hydropower projects across India, Nepal, and Bhutan.

9. That the present Reply by way affidavit may kindly be taken on record and into consideration and the Hon’ble Tribunal may pass appropriate order(s), direction(s) as deemed fit and proper under the facts and circumstances of the present case.
10. That the Answering Respondent seeks leave to make additional submissions, if required, during the course of the proceedings as and when directed by this Hon’ble Tribunal.

I Identify the deponent who has Signed / Put T.I. in my presence

08/07/25

**DEPONENT**  
 नामेन्द्र कुमार सिंह / Nagendra Kumar Singh  
 अधिराज्यी अभियंता / Executive Engineer  
 ऊपरी यमुना मण्डल / Upper Yamuna Division  
 केंद्रीय जल आयोग / Central Water Commission  
 नई दिल्ली-110016 / New Delhi-110016

**Verification**

Verified at New Delhi on 08 JUL 2025 that the contents of the above reply affidavit are true and correct to the best of my knowledge and nothing material has been concealed therefrom.



CERTIFIED THAT THE DEPONENT  
 Shri/Smt./Km... Nagendra Kumar Singh  
 S/o, W/o, D/o... Nagendra Singh  
 P/o... Rajput  
 Identified by Shri... Harpal Singh  
 was solemnly affirmed before me at Delhi  
 on..... that the contents of the  
 affidavit which have been read & explained  
 to him are true & correct to his knowledge

08 JUL 2025

08/07/25

**DEPONENT**  
 नामेन्द्र कुमार सिंह / Nagendra Kumar Singh  
 अधिराज्यी अभियंता / Executive Engineer  
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 नई दिल्ली-110016 / New Delhi-110016

## GLOF Studies carried out by CWC

S. No.	Name of Project	State (India) /Country	Year of Approval	GLOF value (cumec)
1	Siang Lower HEP	Arunachal Pradesh	2009	3391
2	Demwe Lower HEP	Arunachal Pradesh	2009	3780
3	Demwe Upper HEP		2009	3989
4	Kalai-I HEP	Arunachal Pradesh	2011	2807
5	Kalai-II HEP		2011	2690
6	Hutang-II HEP		2011	2615
7	Etalin HEP (Tangon limb)	Arunachal Pradesh	2011	2143
8	Etalin HEP (Dri limb)		2011	1170
9	Attunli HEP		2011	2227
10	Nyukcharong Chu HEP	Arunachal Pradesh	2012	1426
11	Rho HEP		2012	1406
12	Raigam HEP	Arunachal Pradesh	2013	889
13	Gimiliang HEP	Arunachal Pradesh	2013	565
14	New Melling HEP	Arunachal Pradesh	2013	1130
15	Mago Chhu HEP		2013	1252
16	Tsachu-I HEP	Arunachal Pradesh	2013	1476
17	Tsachu-I Lower HEP		2013	1453
18	Tsachu-II HEP		2013	1428
19	Tawang-I HEP	Arunachal Pradesh	2012	1378
20	Tawang-II HEP		2012	1368
21	Oju HEP	Arunachal Pradesh	2014/ 2024	2512/ 3664
22	Dibang HEP	Arunachal Pradesh	2016	1719
23	Chhatru HEP	Himachal Pradesh	2013	1410
24	Bursar HEP	J&K	2016	371
25	Kholongchu HEP	Bhutan	2012	2339
26	Chamkharchhu-I HEP	Bhutan	2012	5112
27	Alaknanda HEP	Uttarakhand	2015	1145
28	Goriganga IIIA HEP	Uttarakhand	2017	642
29	Dagmara Multipurpose Project	Bihar	2021	3021
30	Bajoli Holi HEP	Himachal Pradesh	2022	1284
31	Sirkari Bhyol- Rupsiabagar HEP	Uttarakhand	2022	1672
32	Tandi HEP	Himachal Pradesh	2022	1925
33	Rashil HEP		2022	1902
34	Bardang HEP		2022	1801
35	Reoli Dugli HEP		2022	1523
36	Purthi HEP		2022	1349
37	Sach Khas HEP		2022	1331
38	Upper Siang	Arunachal Pradesh	2022	5484
39	West Seti	Nepal	2023	1610
40	Arakot Tuini	Uttarakhand	2023	127
41	Arun 4	Nepal		Comments issued
42	Tiuni Plasu HEP	Uttarakhand		Comments issued

43	Kamala HEP	Arunachal Pradesh	2024	1663
44	Kishanganga Power Station	Jammu & Kashmir	2024	2249
45	Pakal Dul	Jammu & Kashmir	2024	1260
46	Dugar HEP	Himachal Pradesh	2024	2264
47	Kirthai-II	Jammu & Kashmir	2024	2242
48	Kiru HEP	Jammu & Kashmir	2024	2241
49	Kwar HEP	Jammu & Kashmir	2024	2239
50	Dulhasti Power Station	Jammu & Kashmir	2024	2233
51	Ratle HEP	Jammu & Kashmir	2024	2226
52	Sawalkot HEP	Jammu & Kashmir	2024	1668
53	Salal Power Station	Jammu & Kashmir	2024	1624
54	Karcham Wangtoo	Himachal Pradesh		Comments issued
55	Vishnugad Pipalkoti HEP	Uttrakhand		Comments issued
56	Maneri Bhali-I	Uttrakhand		Comments issued
57	Naba	Arunachal Pradesh	2024	3464
58	Nihare	Arunachal Pradesh	2024	3357
59	Nalo	Arunachal Pradesh	2024	3097
60	Dengser	Arunachal Pradesh	2024	2974
61	Anjaw	Arunachal Pradesh	2024	3445
62	Chamera-I	Himachal Pradesh	2025	983
63	Chamera-II	Himachal Pradesh	2025	1706
64	Chamera-III	Himachal Pradesh	2025	337
65	Subansiri Lower	Arunachal Pradesh	2024	765
66	Subansiri Upper	Arunachal Pradesh	2024	1817
67	Parbati-II	Himachal Pradesh	2025	2050
68	Parbati-III	Himachal Pradesh	2025	223
69	Teesta-III	Sikkim	2024	12946
70	Dhauliganga	Uttrakhand	2025	511
71	Rangit-III	Sikkim	2024	1996
72	Rangit-IV	Sikkim	2024	1814
73	SR-6 HEP	Nepal	2024	1103
74	Nimmo Bazgo	Indus Basin	2025	542
75	Teesta-IV	Sikkim	2024	12676
76	Teesta-V	Sikkim	2024	12045
77	Teesta-VI	Sikkim	2024	11157
78	TLDP-III	Sikkim	2024	6717
79	TLDP-IV	Sikkim	2024	6154
80	Chutak	Indus Basin	2024	713
81	Baspa-II	Himachal Pradesh		Comments issued
82	Kurung HEP	Arunachal Pradesh		994
83	Lakhwar Vyasi	Uttrakhand	2024	32
84	Joshiyara Barrage (MB-II)	Uttrakhand	2024	879
85	Tapovan Vishnugad HEP	Uttrakhand	2024	Comments issued
86	Kishau MPP	Uttrakhand	2024	Under examination
87	Dikchu	Sikkim		Under examination
88	Srinagar	Uttrakhand		Under examination
89	Allain Duhangan	Himachal Pradesh		Comments issued
90	Tidong-I	Himachal Pradesh		Comments issued
91	Singoli Bhatwari HEP	Uttrakhand		Under examination
92	Teesta Intermediate HEP	West Bengal		Under examination

93	Ramman Stage-I	West Bengal		Under examination
94	Teesta Lower Dam-I & II HEP	West Bengal		Under examination
95	Teesta Low Dam-V	West Bengal		Under examination
96	Tenga Site	Arunachal Pradesh	2025	77
97	Bichom Site	Arunachal Pradesh	2025	674
98	Baira Siul Power Station	Himachal Pradesh	2025	48
99	Budhil HEP	Himachal Pradesh	2025	121
100	Upper Karnali	Nepal	2025	1957
<p><b>Received-100</b></p> <p><b>Approved-81</b></p>				

**GLOF Studies carried out by CWC through Consultancy Services**

S. No.	Name of Project	State (India) /Country/Year	GLOF value (cumec)
1.	Punatsangchu HEP	Bhutan (2006)	4266
2.	Amochu HEP	Bhutan (2011)	1138
3.	Wangchu HEP	Bhutan (2013)	1741
4.	Arun-III HEP	Nepal (2012)	6830
5.	Bowala Nand Prayag HEP	Uttarakhand	MoWR withheld
6.	Sapta Kosi High Dam Multipurpose Project (SKHDMP) & Sun Kosi Storage cum Diversion Scheme (SSDS)	Nepal (2024)	15910 (Approval under progress)
7.	Kamla Dam Multipurpose Project in Nepal (SKMP)	Nepal (2024)	11748 (Approval under progress)
8.	Heo HEP	Arunachal Pradesh (2025)	820
9.	Tato-I HEP	Arunachal Pradesh (2025)	819
10.	Tato II HEP	Arunachal Pradesh (2025)	813
11.	Naying HEP	Arunachal Pradesh (2025)	785
12.	Hirong HEP	Arunachal Pradesh (2025)	707
<b>Consultancy Received- 12</b>			