

GOVERNMENT OF INDIA
MINISTRY OF POWER
RAJYA SABHA
UNSTARRED QUESTION NO.2372
TO BE ANSWERED ON 16.03.2021

SAFETY OF HYDROELECTRIC POWER PLANTS

2372. SHRI DEREK O' BRIEN:

Will the Minister of **POWER**
be pleased to state:

- (a) the number of hydro-electric power plants (above 25 MW) that are currently operational in the country and at which locations and what environmental clearances were taken for the same;
- (b) when was the last time the studies were conducted on each of these plants for sustainability and ecological impact; and
- (c) whether Government has identified any at-risk plants and notified the relevant States about the same?

A N S W E R

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR POWER, NEW & RENEWABLE ENERGY AND THE MINISTER OF STATE FOR SKILL DEVELOPMENT & ENTREPRENEURSHIP

(SHRI R.K. SINGH)

(a) : As on 11.03.2021, 207 Hydro-Electric Projects (HEPs) (above 25 MW capacity) aggregating to an installed capacity of 46209.20 MW are in operation across the country. Details of these hydro power plants, including their location, are given at **Annexure-I**. All HEPs mentioned at Annex-I were accorded Environmental Clearance by Ministry of Environment, Forest & Climate Change (MoEF&CC) after detailed examination of environmental impact as per applicable laws in this regard.

(b) : Environment Impact Assessment (EIA) / Environment Management Plan (EMP) studies are conducted for Hydro Electric Projects at the time of environmental clearance to study their ecological impacts. Subsequently, concerned hydro companies conduct their own EIA / EMP studies as a voluntary initiative. The list of such studies carried out by Hydro CPSUs is placed at **Annexure-II**.

(c) : Central Electricity Authority (CEA) accords concurrence to Detailed Project Report (DPR) of Hydro Electric Project (HEP) submitted to them after receiving requisite clearances from various appraising groups viz. Central Water Commission (CWC), Geological Survey of India (GSI), Central Soil and Mineral Research Station (CSMRS), CEA etc. These appraising groups examine the technical and structural safety aspects of the project.

However, the Ministry of Jal Shakti, Government of India with assistance from the World Bank is also implementing Dam Rehabilitation and Improvement Project (DRIP) with the project development objectives to improve the safety and performance of selected existing dams and associated appurtenances in a sustainable manner and to strengthen the dam safety institutional set-up in participating States as well as Central level.

**ANNEXURE REFERRED TO IN REPLY TO PART (a) OF UNSTARRED QUESTION NO. 2372 TO
BE ANSWERED IN THE RAJYA SABHA ON 16.03.2021**

DETAILS OF HYDROELECTRIC PROJECTS (ABOVE 25 MW) IN OPERATION ACROSS THE COUNTRY

Sl. No.	Plant Name	Utility Name	State	District	Installed Capacity (MW)
1	BHAKRA (L)	BBMB	HIMACHAL PRADESH	BILASPUR	594
2	BHAKRA (R)		HIMACHAL PRADESH	BILASPUR	785
3	PONG		HIMACHAL PRADESH	KANGRA	396
4	DEHAR		HIMACHAL PRADESH	MANDI	990
5	GANGUWAL		PUNJAB	RUPNAGAR	77.65
6	KOTLA		PUNJAB	RUPNAGAR	77.65
7	BAIRASIUL	NHPC	HIMACHAL PRADESH	CHAMBA	180
8	LOKTAK		MANIPUR	IMPHAL	105
9	SALAL I & II		JAMMU & KASHMIR	REASI	690
10	TANAKPUR		UTTRAKHAND	CHAMPAVAT	94.2
11	CHAMERA-I		HIMACHAL PRADESH	DALHOUSIE	540
12	URI		JAMMU & KASHMIR	BARAMULA	480
13	RANGIT		SIKKIM	GANGTOK	60
14	CHAMERA-II		HIMACHAL PRADESH	CHAMBA	300
15	DHAULIGANGA		UTTARAKHAND	PITHORAGARH	280
16	DULHASTI		JAMMU & KASHMIR	DODA	390
17	TEESTA-V		SIKKIM	EAST SIKKIM	510
18	SEWA-II		JAMMU & KASHMIR	KATHUA	120
19	CHAMERA-III		HIMACHAL PRADESH	CHAMBA	231
20	CHUTAK		JAMMU & KASHMIR	KARGIL	44
21	TLDP-III		WEST BENGAL	DARJEELING	132
22	NIMOO BAZGO		JAMMU & KASHMIR	LEH	45
23	URI-II		JAMMU & KASHMIR	BARAMULLAH	240
24	PARBATI-III		HIMACHAL PRADESH	KULLU	520
25	TLDP-IV		WEST BENGAL	DARJEELING	160
26	TEHRI	THDC	UTTRAKHAND	TEHRI GARHWAL	1000
27	KOTESHWAR		UTTRAKHAND	TEHRI GARHWAL	400
28	NATHPA JHAKRI	SJVN	HIMACHAL PRADESH	SHIMLA	1500
29	RAMPUR		HIMACHAL PRADESH	SHIMLA	412
30	INDIRA SAGAR	NHDC	MADHYA PRADESH	KHANDWA	1000
31	OMKARESHWAR		MADHYA PRADESH	KHANDWA	520
32	MAITHON	DVC	WEST BENGAL	DHANBAD	63.2
33	KHANDONG	NEEPCO	MEGHALAYA	DIMA HASAO	50
34	KOPILI		ASSAM	DIMA HASAO	200
35	DOYANG		NAGALAND	WOKHA	75
36	RANGANADI		AR. PRADESH	LOWER SUBANSIRI	405
37	TUIRIAL		MIZORAM	KOLASIB	60
38	KOLDAM	NTPC	HIMACHAL PRADESH	MANDI	800
39	CHILLA	UJVNL	UTTRAKHAND	HARIDWAR	144
40	KHATIMA		UTTRAKHAND	UDHAM SINGH NAGAR	41.4
41	KHODRI		UTTRAKHAND	DAK PATHAR	120
42	MANERIBHALI-I		UTTRAKHAND	UTTARKASHI	90
43	RAM GANGA		UTTRAKHAND	PAURI GARHWAL	198
44	KULHAL		UTTRAKHAND	DEHRADUN	30
45	CHIBRO		UTTRAKHAND	DEHRADUN	240
46	DHAKRANI		UTTRAKHAND	DEHRADUN	33.75
47	DHALIPUR		UTTRAKHAND	DEHRADUN	51
48	MANERIBHALI-II (DHARASU)		UTTRAKHAND	UTTARKASHI	304

49	LOWER JHELM	JKSPDC	JAMMU & KASHMIR	BARAMULLAH	105
50	UPPER SINDH-II		JAMMU & KASHMIR	GANDERBAL	105
51	BAGLIHAR		JAMMU & KASHMIR	DODA	450
52	BAGLIHAR-II		JAMMU & KASHMIR	DODA	450
53	SHANAN	PSPCL	HIMACHAL PRADESH	MANDI	110
54	RANJIT SAGAR DAM		PUNJAB	PATHANKOT	600
55	ANANDPUR SAHIB I		PUNJAB	RUPNAGAR	67
56	ANANDPUR SAHIB II		PUNJAB	RUPNAGAR	67
57	MUKERIN I		PUNJAB	HOSHIARPUR	45
58	MUKERIN II		PUNJAB	HOSHIARPUR	45
59	MUKERIN III		PUNJAB	HOSHIARPUR	58.5
60	MUKERIN IV		PUNJAB	HOSHIARPUR	58.5
61	GIRI BATA	HPSEB	HIMACHAL PRADESH	SIRMAUR	60
62	SANJAY (BHABA)		HIMACHAL PRADESH	KINNAUR	120
63	BASSI		HIMACHAL PRADESH	MANDI	66
64	LARJI		HIMACHAL PRADESH	KULLU	126
65	SAINJ	HPPCL	HIMACHAL PRADESH	KULLU	100
66	INTEGRATED KASHANG		HIMACHAL PRADESH	KINNAUR	195
67	KUDDU		HIMACHAL PRADESH	SHIMLA	111
68	JAWAHAR SAGAR	RRVUNL	RAJASTHAN	BUNDI	99
69	MAHIBAJAJ SAGAR-I		RAJASTHAN	BANSWARA	50
70	MAHIBAJAJ SAGAR-II		RAJASTHAN	BANSWARA	90
71	R. P. SAGAR		RAJASTHAN	RAWAT BHATA	172
72	RIHAND	UPJVNL	UTTAR PRADESH	SINGRAULI	300
73	KHARA		UTTAR PRADESH	SUNEBHADRA	72
74	OBRA		UTTAR PRADESH	SUNEBHADRA	99
75	MATATILA		UTTAR PRADESH	LALITPUR	30.6
76	UKAI	GSECL	GUJARAT	TAPI	300
77	S. SAROVAR (CHPH)	SSNNL	GUJARAT	NARMADA	250
78	GANDHI SAGAR	MPPGCL	MADHYA PRADESH	MANDSAUR	115
79	PENCH		MADHYA PRADESH	CHINDWARA	160
80	BARGI		MADHYA PRADESH	JABALPUR	90
81	RAJGHAT		MADHYA PRADESH	ASHOK NAGAR	45
82	MADHIKHEDA		MADHYA PRADESH	SHIVPURI	60
83	BAN SAGAR TONS -I		MADHYA PRADESH	SATNA	315
84	BAN SAGAR TONS - II		MADHYA PRADESH	REWA	30
85	BAN SAGAR TONS - III		MADHYA PRADESH	SATNA	60
86	HASDEO BANGO	CSPGCL	CHATTISGARH	KORBA	120
87	VAITARNA	MAHAGENCO	MAHARASHTRA	NASIK	60
88	KOYNA ST-I&II		MAHARASHTRA	PATAN	600
89	KOYNA ST-IV		MAHARASHTRA	SATARA	1000
90	KDPH		MAHARASHTRA	SATARA	36
91	KOYNA ST-III		MAHARASHTRA	RATNAGIRI	320
92	BHIRA TAIL RACE		MAHARASHTRA	RAIGAD	80
93	TILLARI		MAHARASHTRA	KOLHAPUR	60
94	SRISAILAM RIGHT BANK	APGENCO	ANDHRA PRADESH	MAHABUBNAGAR	770
95	LOWER SILERU		ANDHRA PRADESH	KHAMMAM	460
96	UPPER SILERU I & II		ANDHRA PRADESH	VISHAKAPATNAM	240
97	MACHKUND		ODISHA	KORAPUT	114.75
98	TB DAM		KARNATAKA	BELLARI	36
99	HAMPI		KARNATAKA	BELLARI	36
100	NAGARJUNA SAGAR RBC & EXT.		ANDHRA PRADESH	SATRASALA	90
101	NAGARJUNA SAGAR TPD	TSGENCO	ANDHRA PRADESH	GUNTUR	50
102	POCHAMPAD		TELANGANA	NIZAMABAD	36
103	N.J.SAGAR-LBC		TELANGANA	GUNTUR	60

104	PRIYDARSHNI JURALA		TELANGANA	MAHABOOB NAGAR	234
105	LOWER JURALA		TELANGANA	WANPARTHY	240
106	ALIYAR	TANGEDCO	TAMIL NADU	COIMBATORE	60
107	KODAYAR I		TAMIL NADU	KANYAKUMARI	60
108	KODAYAR- II		TAMIL NADU	KANYAKUMARI	40
109	KUNDAH- I		TAMIL NADU	NILGRIS	60
110	KUNDAH-II		TAMIL NADU	NILGRIS	175
111	KUNDAH-III		TAMIL NADU	COIMBATORE	180
112	KUNDAH-IV		TAMIL NADU	COIMBATORE	100
113	KUNDAH V		TAMIL NADU	NILGRIS	40
114	LOWER METTUR PH-I		TAMIL NADU	SALEM	30
115	LOWER METTUR PH-II		TAMIL NADU	SALEM	30
116	LOWER METTUR PH-III		TAMIL NADU	SALEM	30
117	LOWER METTUR PH-IV		TAMIL NADU	SALEM	30
118	METTUR DAM PH		TAMIL NADU	CHAMARAJANAGER	50
119	METTUR TUNNEL		TAMIL NADU	SALEM	200
120	MOYAR		TAMIL NADU	NILGRIS	36
121	PAPANASAM		TAMIL NADU	TIRUNELVELI	32
122	PARSON'S VALLEY		TAMIL NADU	NILGIRIS	30
123	PERIYAR		TAMIL NADU	IDUKKI	161
124	PYKARA		TAMIL NADU	NILGRIS	59.2
125	SARKARPATHY		TAMIL NADU	KOZHICODE	30
126	SHOLAYAR-I		TAMIL NADU	COIMBATORE	70
127	SURULIYAR		TAMIL NADU	TIRUNELVELI	35
128	PYKARA ULTIMATE		TAMIL NADU	NILGIRIS	150
129	BHAWANI KATTALAI (BKB PH-I)		TAMIL NADU	ERODE	30
130	BHAWANI KATTALAI (BKB PH-2)		TAMIL NADU	ERODE	30
131	BHAWANI KATTALAI (BKB PH-3)		TAMIL NADU	ERODE	30
132	IDUKKI	KSEB	KERALA	IDUKKI	780
133	SABARIGIRI		KERALA	PATHANAMTHITTA	300
134	KUTTIYADI		KERALA	KOZHICODE	75
135	KUTTIYADI EXT.		KERALA	KOZHICODE	50
136	KUTTIYADI ADDL.		KERALA	KOZHICODE	100
137	LOWER PERIYAR		KERALA	IDUKKI	180
138	NERIMANGALAM		KERALA	IDUKKI	45
139	IDAMALAYAR		KERALA	ERANAKULAM	75
140	SHOLAYAR		KERALA	COIMBATORE	54
141	PORINGALKUTHU		KERALA	COIMBATORE	32
142	KAKKAD		KERALA	PATHANAMTHITTA	50
143	SENGULAM		KERALA	IDUKKI	48
144	PALLIVASAL		KERALA	IDUKKI	37.5
145	PANNIAR		KERALA	IDUKKI	30
146	LINGANAMAKKI	KPCL	KARNATAKA	SHIMOGA	55
147	SHARAVATHY		KARNATAKA	SHIMOGA	1035
148	MAHATHMA GANDHI (JOG)		KARNATAKA	SHIMOGA	139.2
149	GERUSOPPA POWER		KARNATAKA	UTTARA KANNADA	240
150	SUPA		KARNATAKA	UTTARA KANNADA	100
151	KALINADI		KARNATAKA	UTTARA KANNADA	855
152	KODASALLI		KARNATAKA	UTTARA KANNADA	120
153	KADRA		KARNATAKA	UTTARA KANNADA	150
154	VARAHI		KARNATAKA	UDUPI	460
155	ALMATTI DAM		KARNATAKA	BIJAPUR	290
156	BHADRA		KARNATAKA	CHICKMAGALUR	26
157	GHATAPRABHA		KARNATAKA	BELGAUM	32
158	MUNIRABAD		KARNATAKA	KOPPAL	28
159	SHIVASAMUDRAM		KARNATAKA	MANDYA	42
160	SUBARNAREKHA-I	JUUNL	JHARKHAND	RANCHI	65
161	SUBARNAREKHA-II		JHARKHAND	RANCHI	65

162	UPPER INDRAVATI	OHPC	ORISSA	KALAHANDI	600
163	UPPER KOLAB		ORISSA	KORAPUT	320
164	BALIMELA		ORISSA	MALKANGIRI	510
165	CHIMPLIMA		ORISSA	SAMBALPUR	72
166	RENGALI		ORISSA	ANGUL	250
167	HIRAKUD		ORISSA	SAMBALPUR	275.5
168	JALDHAKA-I	WBSEDCL	WEST BENGAL	JALPAIGURI	36
169	RAMMAM II		WEST BENGAL	DARJEELING	50
170	KARBI LANGPI	APGCL	ASSAM	KARBI ANGLONG	100
171	KYRDEM KULAI	MePGCL	MEGHALAYA	RI-BHOI	60
172	UMIAM ST-I		MEGHALAYA	RI-BHOI	36
173	UMIAM-UMTRU ST-IV		MEGHALAYA	RI-BHOI	60
174	MYNTDU		MEGHALAYA	JAINTIA HILLS	126
175	BASPA-II	HBPCL	HIMACHAL PRADESH	KINNAUR	300
176	KARCHAM WANGTOO		HIMACHAL PRADESH	KINNAUR	1000
177	VISHNUPRAYAG	JPVL	UTTARAKHAND	CHAMOLI	400
178	MALANA	MPCL	HIMACHAL PRADESH	KULLU	86
179	MALANA-II	EPPL	HIMACHAL PRADESH	MALANA	100
180	ALLAIN DUHANGAN	ADHPL	HIMACHAL PRADESH	MANALI	192
181	BUDHIL	GREENKO	HIMACHAL PRADESH	CHAMBA	70
182	BANDARDHARA-II	DODSON LINDBLOM	MAHARASHTRA	MUMBAI	34
183	BHIRA	TEC	MAHARASHTRA	MULSHI DAM	150
184	BHIVPURI		MAHARASHTRA	THOKARWADI LAKE	75
185	KHOPOLI		MAHARASHTRA	LONAVLA, WOLVAHAN & SHIRAWTA LAKE	72
186	CHUJACHEN	GIPL	SIKKIM	EAST SIKKIM	110
187	SRINAGAR	AHPC Ltd.	UTTARAKHAND	PAURI GARHWAL	330
188	JORETHANG LOOP	DEPL	SIKKIM	JORETHANG	96
189	TEESTA URJA III	TUL	SIKKIM	NORTH SIKKIM	1200
190	DIKCHU	SNEHA KINETIC	SIKKIM	EAST SIKKIM	96
191	KISHANGANGA	NHPC	J&K	BANDIPORA	330
192	PULICHINTALA	TSGENCO	TELANGANA	GUNTUR	120
193	CHANJU-I	IA ENERGY	HIMACHAL PRADESH	CHAMBA	36
194	TASHIDING	SHIGA ENERGY	SIKKIM	WEST SIKKIM	97
195	PARE	NEEPCO	ARUNACHAL PRADESH	PAPUM PARE	110
196	KAMENG	NEEPCO	ARUNACHAL PRADESH	WEST KAMENG	600
197	SINGOLI BHATWARI	L&T	UTTARAKHAND	RUDRAPRAYAG	99
198	NEW UMTRU	MePGCL	MEGHALAYA	RI-BHOI	40

199	PANCHET HILL	DVC	JHARKHAND	DHANBAD	80
200	KADANA PSS & EXT.	GSECL	GUJARAT	MAHISAGAR	240
201	S. SAROVAR (RBPH)	SSNNL	GUJARAT	NARMADA	1200
202	GHATGHAR	MAHAGENC O	MAHARASHT RA	AHMEDNAGAR	250
203	N J SAGAR	APGENCO	TELANGANA	GUNTUR	815.6
204	SRISAILAM LBPH	TSGENCO	TELANGANA	MAHABUBNAGAR	900
205	KADAMPARAI	TANGEDCO	TAMIL NADU	COIMBATORE	400
206	PURULIA	WBSEDCL	WEST BENGAL	PURULIA	900
207	BHIRA	TATA	MAHARASHT RA	RAIGAD	150
	Total				46209.2

ANNEXURE REFERRED TO IN REPLY TO PART (b) OF UNSTARRED QUESTION NO. 2372 TO BE ANSWERED IN THE RAJYA SABHA ON 16.03.2021

DETAILS OF THE STUDIES CONDUCTED IN RESPECT OF HYDRO POWER PLANTS OF CPSUs

Sl. No.	Project Name	Utility	Studies for Sustainability and Ecological Impact
1	Kopili (275 MW)	NEEPCO	Dam Break Analysis and Disaster Management Plan has been conducted as per prevailing guidelines through M/s WAPCOS during August, 1998. Study of Aquatic Fauna was done and completed through ZSI during November, 2007. Study on "Inventory of Plant Diversity and Germ Plasm in the impact area" done through BSI during November, 2008.
2	Doyang (75 MW)	NEEPCO	Apart from obtaining Environmental Clearance from Department of Environment, GoI as stated above, Dam Break Analysis and Disaster Management Plan has also been conducted as per prevailing guidelines through IIT, Guwahati in October, 2019.
3	Ranganadi (405 MW)	NEEPCO	Detail Hydrologic Study of Dikrong-Panyor River Basin and its Impact on the Downstream was also conducted through IIT, Guwahati in February, 2012.
4	Tuirial (60 MW)	NEEPCO	Survey of Flora and Fauna in Project Impact Area was undertaken in November, 2016 through Department of Environmental Science, Mizoram University. Dam Break Analysis and Preparation of Inundation Map was also conducted and completed as per prevailing guidelines through NIT, Silchar in January, 2020.
5	Pare (110 MW)	NEEPCO	In addition to the Environmental Clearance obtained based on the Comprehensive EIA/EMP Studies, detail Hydrologic Study of Dikrong-Panyor River Basin and its Impact on the Downstream was also conducted through IIT, Guwahati in February, 2012.
6	Kameng (600 MW)	NEEPCO	Environmental Clearance was obtained based on the Comprehensive EIA/EMP Studies as stated above.
7	Nathpa Jhakri (1500 MW)	SJVN	Environment Impact Assessment studies were conducted in the year 1998-99 for sustainability and ecological impact.
8	Rampur (412 MW)	SJVN	Environment Impact Assessment studies were conducted in the year 2006 for sustainability and ecological impact
9	Tehri (1000MW)	THDC	Environment Clearance vide dated 19-07-1990.
10	Koteshwar (400 MW)	THDC	Studies for Sustainability and Ecological Impacts: 1. Updation of socio Economic Study by ASCI in May, 2009. 2. Post Impoundment Faunal Survey & Analysis by H.N.B. Garhwal University, Uttarakhand in 2009-2011. 3. Post Impoundment Floristic Survey and Analysis by Botanical Survey of India, Oct-2011. 4. Water Quality of Bhagirathi / Ganga River in Himalayan Region by National Environmental Engineering Research Institute in July 2011. 5. Measurement of Methane in Tehri Dam, CSIR-national institute of oceanography, May-2016.
11	Uri (480 MW)	NHPC	Post construction EIA Study conducted in year 2007.
12	Rangit (60 MW)	NHPC	Post construction EIA Study conducted in year 2017.
13	Dhauliganga (289 MW)	NHPC	Post construction EIA Study conducted in year 2018.
14	Teesta-V (510 MW)	NHPC	Post construction EIA Study conducted in year 2019.
