

Annexure-H

Seismic Design Parameters Approved by NCSDP Since 1991

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
1	NathpaJhakri	Himachal Pradesh	Sutlej	Conc. Gravity dam	60.5	31° 56' N/ 77° E	IV	NJPC	α_h for MCE = 0.23g α_h for DBE = $\frac{1}{2}$ of MCE	IV - 03.05.1993
2	Renuka dam	Himachal Pradesh	Giri	Earthen/ rockfill	178	30° 36' N/ 77° 27' E	IV	Himachal State Electricity Board	PGA(h) for MCE = 0.337g PGA(h) for DBE = 0.168g	VI - 20.09.1995
3	Largi	Himachal Pradesh	Beas	Conc. Gravity dam	49	31° 13.5' N/ 77° 14' E	V	Himachal State Electricity Board	PGA(h) for MCE = 0.23g PGA(h) for DBE = 0.115g	VI - 20.09.1995
4	Dhauli Ganga HEP-I	UP	Dhauli Ganga	Rock fill	56	29° 58' 42" N/ 80° 34' 27" E	V	NHPC	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	VI - 20.09.1995
5	Indira (Narmada) Sagar Dam	Madhya Pradesh	Narmada	Concrete gravity Dam	92	22° 17' 00" N/ 76° 28' 00" E	III	M.P Irrigation Department	PGA(h) for DBE = 0.12g	IX - 12.01.2000
6	Kalpong H.E. Project	Andaman & Nicobar	Kalpong	Concrete gravity Dam	31	10° 09' 35" N/ 92° 58' 15" E	V	N.H.P.C	PGA(h) for MCE = 0.39g PGA(h) for DBE = 0.195g	IX - 12.01.2000
7	Greater Shillong Water Supply Scheme.	Meghalaya	Umiew	Concrete gravity Dam	50	25° 26' 42" N/ 91° 46' 15" E	V	-	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	IX - 12.01.2000
8	Tattihalla Augmentation Scheme	Karnataka	Beathi	Earthen Dam	18	15° 01' 15" N/ 74° 53' 20" E	II	Karnataka Power Corp., Bangalore	α_h for DBE = 0.12g α_v for DBE = 0.08g	IX - 12.01.2000
9	Tala H.E. Project	Bhutan	Wangchu	Concrete gravity Dam	91	27° 02' 00" N/ 89° 36' 00" E	-	THEP. Bhutan	As per response spectra given in CWPRS Report no. 3690, march, 2000	X - 15.09.2000
10	Tuirial H.E. Project	Mizoram	Tuirial	Earthen Dam	77	24° 21' 30" N/ 92° 53' 12" E	V	NEEPCO	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	X - 15.09.2000
11	Middle Vaitharna	Maharashtra	Vaitharna	Concrete gravity Dam	102	19° 42' 00" N/ 73° 26' 00" E	III	BMC	PGA(h) for MCE = 0.21g PGA(h) for DBE = 0.105g	XI - 07.06.2001
12	Parbati H.E. P Stage-II	Himachal Pradesh	Parbati	Concrete diversion dam	91	31° 46' 30" N/ 77° 18' 30" E	V	N.H.P.C	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XII - 13.08.2002

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13	Chamera Stage II	Himachal Pradesh	Ravi	Concrete Dam	39	32° 28' 30" N/ 76° 07' 30" E	V	N.H.P.C	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XII - 13.08.2002
14	Teesta Stage-V	Sikkim	Teesta	Concrete gravity Dam	96	27° 23' 08" N/ 88° 30' 20" E	IV	N.H.P.C	PGA(h) for MCE = 0.32g PGA(h) for DBE = 0.16g	XII - 13.08.2002
15	Pagaladiya Dam Project	Assam	Pagaladiya river	Earth fill Dam	28.75	26° 31' 37" N/ 91° 31' 0" E	V	Brahmaputra Board	PGA(h) for MCE = 0.306g PGA(h) for DBE = 0.18g	XIII - 18.12.2003
16	Parbati H.E Project Stage-III	Himachal Pradesh	Saing	Rock fill dam	43	31° 40' N/ 77° 15' E	V	N.H.P.C	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XIII - 18.12.2003
17	Chamera Stage III	Himachal Pradesh	Ravi	Concrete diversion dam	68	32° 30' N/ 76° 12' E	V	N.H.P.C	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XIII - 18.12.2003
18	Kishangan ga H.E. Project	Jammu & Kashmir	Kishan ganga	Concrete gravity Dam	101	34° 39' 0" N/ 74° 45' 08" E	IV	N.H.P.C	PGA(h) for MCE = 0.34g PGA(h) for DBE = 0.17g	XIII - 18.12.2003
19	Sewa HEP – Stage-II	Jammu & Kashmir	Sewa	Concrete gravity Dam	53	32° 40' N/ 75° 53' E	V	N.H.P.C	PGA(h) for MCE = 0.44g PGA(h) for DBE = 0.22g	XIII - 18.12.2003
20	Tungabhadra Dam	Karnataka	Tungabhadra	Masonry dam	49.38	15° 15' 19" N/ 76° 20' 10" E	II	Tungabhadra Dam Board	PGA(h) for MCE = 0.27g PGA(h) for DBE = 0.14g	XIII - 18.12.2003
21	Myntdules ka H.E. Project	Meghalaya	Myntdu	Concrete gravity Dam	59	25° 12' 15" N/ 92° 15' 41" E	V	Meghalaya Elect. Board	PGA(h) for MCE = 0.44g PGA(h) for DBE = 0.22g	XIII - 18.12.2003
22	Rihand H.E. Project	Uttar Pradesh	Rihand	Concrete gravity Dam	91	24° 12' 18" N/ 83° 00' 37" E	III	Irrigation Dept. U.P	PGA(h) for MCE = 0.32g PGA(h) for DBE = 0.171g	XIII - 18.12.2003
23	Teesta low dam Stage-III	West Bengal	Teesta	Barrage	29.5	27° 00' 07.5" N/ 88° 26' 47" E	IV	N.H.P.C	PGA(h) for MCE = 0.33g PGA(h) for DBE = 0.165g	XIII - 18.12.2003
24	Lower Subansiri H.E. Project	Arunachal Pradesh	Subansiri	Concrete gravity Dam	133	27° 33' 15" N/ 94° 15' 30" E	V	N.H.P.C	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XIV - 29.04.2004
25	Kol dam	Himachal Pradesh	Sutlej	Rock fill Dam	163	31° 23' N/ 76° 52' E	V	N.T.P.C	PGA(h) for MCE = 0.19g PGA(h) for DBE = 0.095g	XV - 24.02.2005
26	Upper Beda Project	Madhya Pradesh	Beda (Tribu. of Narmada)	Earthen Dam	23.93	21° 45' 00" N/ 75° 58' 50" E	III	Narmada Devel. Madhya Pradesh	PGA(h) for MCE = 0.238g PGA(h) for DBE = ½ of MCE	XV - 24.02.2005
27	Kutni Feeder Reservoir Project	Madhya Pradesh	Kutni (Trib. of Ken)	Earth & Masonry Dam	30.36	24° 56' 32" N/ 79° 56' 54" E	II	Govt. Of Madhya Pradesh	PGA(h) for MCE = 0.13g PGA(h) for DBE = ½ of MCE	XV - 24.02.2005
28	Lower Goi Project	Madhya Pradesh	Goi (Tributary of Narmada)	Earthen Dam	43.8	21° 54' 30" N/ 74° 55' 30" E	III	Narmada Development, Madhya Pradesh	PGA(h) for MCE = 0.2473g PGA(h) for DBE = ½ of MCE	XV - 24.02.2005

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29	Teesta low dams Stage-IV	West Bengal	Teesta	Concrete gravity Dam	45	26° 54' 22"N/ 88° 28' 34"E	IV	N.H.P.C	PGA(h) for MCE = 0.44g PGA(h) for DBE = 0.22g	XV - 24.02.2005
30	Shahpurkandi H.E. Project	Punjab	Ravi	Concrete gravity Dam	54.5	32° 23' 55"N/ 75° 40' 48"E	IV	Irrigation Works, Punjab	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XVI - 27.10.2006
31	Koteshwar	Uttarakhand	Bhagirathi	Concrete gravity Dam	97.5	30° 16' 00" N/ 78° 30' 00"E	IV	Tehri Hydro Development Corporation Ltd..	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XVI - 27.10.2006
32	Indira Sagar (Polavaram H.E. Project)	Andhra Pradesh	Godavari	Earth cum Rock fill Dam	33	81° 46' 00"N/ 17° 13' 00"E	IV	Irrigation Dept. Andhra Pradesh	PGA(h) for MCE = 0.16g PGA(h) for DBE = 0.08g	XVII - 06.03.2007
33	Siang Middle (Siyom) Project	Arunachal Pradesh	Siyom	Concrete face rock fill Dam	154	28° 29' 12"N/ 94° 39' 51"E	V	N.H.P.C	PGA(h) for MCE = 0.45g PGA(h) for DBE = 0.225g	XVII - 06.03.2007
34 a)	Kameng H.E. Project	Arunachal Pradesh	Bishom	Concrete gravity Dam	75	27° 57' 30"N/ 92° 37' 39"E	V	NEEPCO Ltd.	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.155g	XVII - 06.03.2007
b)	Kameng H.E. Project	Arunachal Pradesh	Tenga	Concrete gravity Dam	27	27° 13' 46"N/ 92° 40' 07"E	V	NEEPCO Ltd.	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.155g	XVII - 06.03.2007
35	Karcham Wangtoo HEP	Himachal Pradesh	Sutlej	Concrete gravity Dam	98	31° 50' N/ 78° 17' E	IV	Jaiprakash Industries Ltd.	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XVII - 06.03.2007
36	URI-II H.E. Project	Jammu & Kashmir	Jhelum	Concrete gravity Dam	52	36° 06' N/ 73° 58' E	IV	N.H.P.C	PGA(h) for MCE = 0.39g PGA(h) for DBE = 0.20g	XVII - 06.03.2007
37	Nimoo Bazgo H.E. Project	Jammu & Kashmir	Indus	Concrete gravity Dam	57	33° 12' 55"N/ 77° 11' 07"E	IV	N.H.P.C	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XVII - 06.03.2007
38	Omkareshwar H.E. Project	Madhya Pradesh	Narmada	Concrete gravity Dam	73.12	22° 14' 25"N/ 76° 09' 45"E	III	Jaiprakash Industries Ltd.	PGA(h) for MCE = 0.20g PGA(h) for DBE = 0.10g	XVII - 06.03.2007
39	Loharinagar Pala H.E. Project	Uttarakhand	Bhagirathi	Barrage	15	30° 58' 00"N/ 78° 42' 00"E	V	N.T.P.C	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XVII - 06.03.2007

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40	Tapovan Vishnugad HEP	Uttarkhand	Dhauliganga	Barrage	25	30° 29' 30"N/ 79° 37' 30"E	IV	N.T.P.C	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XVII - 06.03.2007
41	Malana H.E. Project Stage-II	Himachal Pradesh	Malana	Concrete Dam	51	32°05' N/ 77°16'E	IV	Everest Power Private Ltd.	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XVIII - 05.07.2007
42	Chutak H.E. Project	Jammu & Kashmir	Suru	Barrage	15	34° 27' 00"N/ 76° 05'E	IV	N.H.P.C	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XVIII - 05.07.2007
43	Chuzachen HEP	Sikkim (Two gravity dams)	Rangpo Chu	Concrete Dam	48	27° 12' 14"N/ 88° 39' 59"E	IV	Gati Infrastructures Ltd. New Delhi	PGA(h) for MCE = 0.40g PGA(h) for DBE = 0.20g	XVIII - 05.07.2007
			Rongli Chu	Concrete Dam	41	27° 14' 30"N/ 88° 42' 46"E		Gati Infrastructures Ltd. New Delhi		
44	Kotlibhel HEP-1A	Uttarkhand	Baghirathi	Concrete Dam	82.5	30° 10' 34" N/ 78° 35' 26"E	IV	N.H.P.C	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XVIII - 05.07.2007
45	Kotlibhel HEP-1B	Uttarkhand	Alaknanda	Concrete Dam	70.5	30° 09' 01" N/ 78° 30' 02"E	IV	N.H.P.C	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XVIII - 05.07.2007
46	Kotlibhel HEP-Stage-II	Uttarkhand	Ganga	Concrete Dam	58.6	30° 04' 05" N/ 78° 30' 02"E	IV	N.H.P.C	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XVIII - 05.07.2007
47	Pala Maneri H.E. Project	Uttarkhand	Bhagirathi	Concrete gravity Dam	74	30° 50' 25"N/ 78° 37'44"E	IV	Uttaranchal JalVidyut Nigam Ltd.	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XVIII - 05.07.2007
48	Tail Pond Dam	Andhra Pradesh	Krishna	Concrete Dam	29.5	16° 38' N/ 79° 29'E	III	APGENCO	PGA(h) for MCE = 0.185g PGA(h) for DBE = 0.092g	XIX - 11.04.2008
49	K.L. Rao (Pulichinthala) Sagar	Andhra Pradesh	Krishna	Concrete Dam	42.24	16°46' 14 N/ 80° 03' 33"E	III	A.P.Govt.	PGA(h) for MCE = 0.18g PGA(h) for DBE = 0.09g	XIX - 11.04.2008
50	Dhankari Dam	Andaman & Nicobar	Dhankari Nallah	Concrete Dam	32.25	11° 32' 30" N/ 92° 40' 0"E	V	N.H.P.C	PGA(h) for MCE = 0.51g PGA(h) for DBE = 0.255g	XIX - 11.04.2008

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51	Budhil H.E. Project	Himachal Pradesh	Budhil Stream	Concrete Dam	61.5	32°26'48"N/ 76°33'26"E	IV	LANCO Green Power Ltd.	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XIX - 11.04.2008
52	Kelo Project	Chattisgarh	Kelo	Earthen Dam	24.22	21°57'00"N/ 83°23'20"E	II	Chattisgarh State Govt.	PGA(h) for MCE = 0.199g PGA(h) for DBE = 0.0995g	XIX - 11.04.2008
				Masonry /concrete spill way	16				For DBE cond: $\alpha_h=0.119$, $\alpha_v=0.079$ (for Masonry portion) & $\alpha_h=0.093$, $\alpha_v=0.062$ (for Earthen portion)	
53	Upper Narmada Project	Madhya Pradesh	Narmada	Earthen Dam	30.64	22°51'50"N/ 81°23'20"E	III	Govt. Of M.P	PGA(h) for MCE = 0.144g PGA(h) for DBE = 0.072g	XIX - 11.04.2008
54	Pench Diversion Project	Madhya Pradesh	Pench	Earthen Dam	41	22°07'10"N/ 79°10'25"E	III	Govt. Of M.P	PGA(h) for MCE = 0.199g PGA(h) for DBE = 0.0995g	XIX - 11.04.2008
55	Rangit H.E. Project Stage IV	Sikkim	Rangit	Concrete Dam	44	27°13'10"N/ 88°18'10"E	IV	Jal Power Corporation Ltd.	PGA(h) for MCE = 0.457g PGA(h) for DBE = 0.228g	XIX - 11.04.2008
56	Teesta H.E. Project Stage III	Sikkim	Teesta	Concrete faced rock fill dam	60	27°35'50"N/ 88°39'30"E	IV	Erudite Engineers Pvt. Ltd.	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XIX - 11.04.2008
57	Vishnugad Pippalkoti H.E. Project	Uttarkhand	Alaknanda	Conc. Dam	45	30°31'00"N/ 79°29'37"E	IV	Tehri Hydro Dev. Corporation Ltd..	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XIX - 11.04.2008
58	Singoli Bhatwari H.E. Project	Uttarkhand	Mandakini	Barrage	22	30°30'17"N/ 79°05'22"E	IV	L&T Ltd.	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XIX - 11.04.2008
59	Vyasi. H.E. Project	Uttarkhand	Yamuna	Concrete dam	86	30°31'00"N/ 77°53'00"E	IV	N.H.P.C	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XIX - 11.04.2008
60	Lata Tapovan H.E. Project	Uttarkhand	Dauli ganga	Barrage	16	30°31'30"N/ 79°43'30"E	V	N.T.P.C	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XIX - 11.04.2008
61	Pakal Dul (Drangdhuran) H.E. Project	Jammu & Kashmir	Marsudar (Tributary of Chenab)	Concrete faced rock fill dam	167	33°27'30"N/ 75°48'50"E	IV	N.H.P.C	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XX - 23.09.2008

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62	Mankulam H.E. Project 40MW	Kerala	Mela cherry	Concrete Dam	50	10°07' 19" N/ 76°55' 21"E	III	KSEB	PGA(h) for MCE = 0.199g PGA(h) for DBE = 0.0995g	XX - 23.09.2008
63	Alaknanda	Uttarakhand	Alaknanda	Barrage	20	30°43.4' N/ 79°29.7'E	IV	GMR Hydro Power Gen. Pvt Ltd.	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XX - 23.09.2008
64	Shrinagar H.E. Project	Uttarkhand	Alaknanda	Concrete Dam	90	30°14'N/ 78°50'E	IV	AHPCL.	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XX - 23.09.2008
65	Sapta Kosi Dam Sun Kosi dam Chhatra barrage Sun Kosi PH Kamala dam & Chisapani barrage	Nepal	Sapta Kosi Sun Kosi Sapta kosi Sun Kosi Kamla	Rock fill dam Concdam Barrage PH Rockfill & barrage	269 48.9 - - 51	26°53' 29"N/ 87°10' 14"E; 27° 06'15" N/ 86° 28'25" E; 26° 50'07" N / 87° 08'41"E 26° 53'52" N / 86°12'54 E	-	JPO-SKSKI, Nepal	mean PGA(h) = 0.43g mean PGA(v) = 0.34g mean PGA(h) = 0.41g mean PGA(v) = 0.29g mean PGA(h) = 0.37g mean PGA(v) = 0.27g mean PGA(h) = 0.39g mean PGA(v) = 0.26g mean PGA(h) = 0.33g mean PGA(v) = 0.23g	XXI - 08.09.2009
66	Bhairon Ghati H.E. Project	Uttarkhand	Baghirathi	Barrage	22	31°01'51"N/ 78°42'51.9E	IV	UJVNL	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XXI - 08.09.2009
67	Teesta H.E. Project Stage-VI	Sikkim	Teesta	Barrage	23.5	27°14' 42"N/ 88°29' 15"E	IV	Lanco Energy Pvt. Ltd.	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XXI - 08.09.2009
68	Dikrong/ Pare H.E. Project	Arunachal Pradesh	Dikrong	Concrete Diversion Dam	61	27°14' 13"N/ 93°48' 56"E	V	NEEPCO	PGA(h) for MCE = 0.33g PGA(h) for DBE = 0.17g	XXI - 08.09.2009
69	Rammam H.E. Project Stage-III	West Bengal	Rammam	Barrage	20	27°08'N/ 88°10'E	IV	N.T.P.C	PGA(h) for MCE = 0.38g PGA(h) for DBE = 0.19g	XXI - 08.09.2009
70	Teesta H.E. Project Stage IV	Sikkim	Teesta	Concrete Dam	108.3	27°29'13"N/ 88°31' 22"E	IV	N.H.P.C	PGA(h) for MCE = 0.36g PGA(h) for DBE = 0.18g	XXI - 08.09.2009
71	Jamrani Multi Purpose Project	Uttarakhand	Gola	Roller compacted concrete Dam	130	29°16'15"N/ 79°36' 36"E	IV	Irrigation Deptt. Uttarakhand	PGA(h) for MCE = 0.31g PGA(h) for DBE = 0.16g	XXI - 08.09.2009

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72	Ken-Betwa link project (Makodia dam)	Madhya Pradesh	Betwa	Earth dam with concrete spill way	27	23° 14' 05" N / 77° 41' 00" E	II	NWDA	PGA(h) for MCE = 0.08g PGA(h) for DBE = 0.04g	XXI - 08.09.2009
73	Ken-Betwa (Daudhan dam)	Madhya Pradesh	Ken	Earth & Concrete Dam	77	24° 36' 51" N / 79° 50' 30" E	II	NWDA	PGA(h) for MCE = 0.11g PGA(h) for DBE = 0.06g	XXI - 08.09.2009
74	Dibang HEP	Arunachal Pradesh	Dibang	Concrete Dam	288	28° 20' 7" N / 95° 46' 38" E	V	NHPC	PGA (h) for DBE = 0.19g α_h for DBE = 0.282 α_v for DBE = 0.188	23 rd - 20.11.2012
75	Lower Siang HEP	Arunachal Pradesh	Siang	Concrete Dam	85	28° 09' 8.8" N / 95° 14' 00" E	V	JAYPEE Ventures Pvt. Ltd	PGA (h) for DBE = 0.18g α_h for DBE = 0.238 α_v for DBE = 0.159	23 rd - 20.11.2012
76	Panan HEP	Arunachal Pradesh	Talongo hu / Rangyo ugchu	Concrete Dam	101	27° 33' 30" N / 88° 26' 27" E	V	Himgiri Hydro Energy	PGA (h) for DBE = 0.18g α_h for DBE = 0.276 α_v for DBE = 0.184	23 rd - 20.11.2012
77	Rampur HEP	Himachal Pradesh	Satluj	Power House	-	31° 24' 00" N / 77° 35' 40" E	IV	SJVNL	PGA (h) for MCE = 0.31g PGA (h) for DBE = 0.16g α_h for DBE = 0.14 α_v for DBE = 0.09 (for Power House)	23 rd - 20.11.2012
78	Gundia HEP	Karnataka	Gundia	Composite Dam	87	12° 47' 09" N / 75° 40' 10" E	II	KPCL	PGA (h) for DBE = 0.114g α_h for DBE = 0.15 (for Conc. dam); α_h for DBE = 0.11 (for Earth dam); α_v for DBE = 2/3 rd of α_h	23 rd - 20.11.2012
79	Mangdechhu HEP	Bhutan	Mangdechhu	Concrete Dam	56	27° 28' 49" N / 90° 29' 41" E	-	NHPC	PGA (h) for DBE = 0.18g α_h for DBE = 0.354 α_v for DBE = 0.236	23 rd - 20.11.2012
80	Phata Byung HEP	Uttarakhand	Mandakini	Concrete Dam	26	30° 37' 35" N / 79° 00' 28" E	IV	LANCO Pvt. Ltd.	PGA (h) for DBE = 0.18g α_h for DBE = 0.255 α_v for DBE = 0.17	23 rd - 20.11.2012
81	Jelam Tanak HEP	Uttarakhand	Dhaulti Ganga	Barrage	28	30° 37' 35.4" N / 79° 49' 39.5" E	IV	THDC India Ltd.	PGA (h) for DBE = 0.18g α_h for DBE = 0.288 α_v for DBE = 0.192	23 rd - 20.11.2012
82	Sainj HEP	Himachal Pradesh	Sainj	Barrage	24.5	31° 46' 51" N / 77° 24' 35" E	V	HPPC Ltd.	PGA (h) for DBE = 0.16g α_h for DBE = 0.224 α_v for DBE = 0.149	23 rd - 20.11.2012

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
83	Kutehr HEP	Himachal Pradesh	Ravi	Barrage	27	32° 20' 52"N/ 76° 31' 58"E	V	JSW Energy Ltd.	PGA (h) for DBE = 0.16g α_h for DBE = 0.232 α_v for DBE = 0.155	23 rd - 20.11.2012
84	Bajoli Holi HEP	Himachal Pradesh	Ravi	Concrete Dam	66	32° 16' 46"N/ 76° 40' 36"E	V	GMR Hydro Power Pvt. Ltd.	PGA (h) for DBE = 0.16g α_h for DBE = 0.213 α_v for DBE = 0.142	23 rd - 20.11.2012
85	Nyamjang Chhu HEP	Arunachal Pradesh	Nyamjang Chhu	Barrage	11.2	27° 43' 06"N/ 91° 43' 37"E	V	Bhilwara Energy Ltd	PGA (h) for DBE = 0.18g α_h for DBE = 0.288 α_v for DBE = 0.192	23 rd - 20.11.2012
86	Sissiri HEP	Arunachal Pradesh	Sissiri	Roller Compacted Conc. dam	145.5	28° 16' 10"N/ 95° 33' 10"E	V	SSH Pvt. Ltd.	PGA (h) for DBE = 0.18g α_h for DBE = 0.27 α_v for DBE = 0.18	23 rd - 20.11.2012
87	Hirong HEP	Arunachal Pradesh	Siyom	Concrete Dam	133.5	28° 37' 36.8"N/ 94° 22' 53"E	V	Jaypee Arunachal Power Ltd	PGA (h) for DBE = 0.18g α_h for DBE = 0.229 α_v for DBE = 0.153	23 rd - 20.11.2012
88	Kiru HEP	J&K	Chenab	Concrete Dam	140	33° 20' 37"N/ 75° 57' 34"E	IV	NHPC	PGA (h) for DBE = 0.16g α_h for DBE = 0.26 α_v for DBE = 0.17	23 rd - 20.11.2012
89	Demwe Lower HEP	Arunachal Pradesh	Lohit	Concrete Dam	163.02	27° 52' 48"N/ 96° 22' 39"E	V	Athena Demwe Power Ltd.	PGA (h) for MCE = 0.38g PGA (h) for DBE = 0.19g PGA (v) = 2/3 rd of PGA (h) α_h for DBE = 0.28 α_v for DBE = 0.18	23 rd - 20.11.2012
90	Bowala Nand Prayag HEP	Uttarakhand	Alaknanda	Barrage	12	30° 24.4' N/ 79° 22.8' E	IV	UJVN Limited	PGA (h) for MCE = 0.36g PGA (h) for DBE = 0.18g PGA (v) = 2/3 rd of PGA (h) α_h for DBE = 0.18 α_v for DBE = 0.12	23 rd - 20.11.2012
91	Par-Tapi-Narmada Link project (7 dams)	Gujarat & Maharashtra					II	NWDA	-	23 rd - 20.11.2012

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
(i)	Jheri Dam	Maharashtra	Par	Composite	36.5 (C) 76 (E)	20° 22' 25"N/ 73° 25' 51"E	II	"	<u>MCE Cond:</u> PGA (h) = 0.17g; PGA (v) = 0.15g <u>DBE Cond:</u> PGA (h) = 0.09g; PGA (v) = 0.08g α_h for Conc = 0.09 α_h for Earthen = 0.02 α_v for Conc = 0.09 α_v for Earthen = 0.01	23 rd - 20.11.2012
(ii)	Mohankav chali dam	Gujarat	Par	Composite	70.6 (Conc) 70.0 (Earthen)	20° 22' 48"N/ 73° 19' 20"E	II	"	<u>MCE Cond:</u> PGA (h) = 0.17g; PGA (v) = 0.15g <u>DBE Cond:</u> PGA (h) = 0.09g; PGA (v) = 0.08g α_h for Conc = 0.09 α_h for Earthen = 0.02g α_v for Conc = 0.09 α_v for Earthen = 0.01	23 rd - 20.11.2012
(iii)	Paikhed dam	Gujarat	Par	Composite	90.9 (Conc) 57.4 (Earthen)	20° 27' 42"N/ 73° 23' 37"E	II	NWDA	<u>MCE Cond:</u> PGA (h) = 0.17g; PGA (v) = 0.15g <u>DBE Cond:</u> PGA (h) = 0.09g; PGA (v) = 0.08g α_h for Conc = 0.09 α_h for Earthen = 0.02 α_v for Conc = 0.08 α_v for Earthen = 0.02	23 rd - 20.11.2012
(iv)	Chasmandava dam	Gujarat	Tan	Composite	35.4 (Conc) 51.0 (Earthen)	20° 37' 02 N/ 73° 22' 36"E	II	"	<u>MCE Cond:</u> PGA (h) = 0.17g; PGA (v) = 0.14g <u>DBE Cond:</u> PGA (h) = 0.08g; PGA (v) = 0.07g α_h for Conc = 0.09 α_h for Earthen = 0.03 α_v for Conc = 0.08 α_v for Earthen = 0.02	23 rd - 20.11.2012

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
(v)	Chikkar dam	Gujarat	Ambica	Composite	29.90 (Conc) 60.0 (Earthen)	20° 42' 00 N/ 73° 30' 50"E	II	"	<u>MCE Cond:</u> PGA (h) = 0.17g; PGA (v) = 0.14g <u>DBE Cond:</u> PGA (h) = 0.08g; PGA (v) = 0.07g α_h for Conc = 0.08 α_h for Earthen = 0.02 α_v for Conc = 0.08 α_v for Earthen = 0.02	23 rd - 20.11.2012
(vi)	Dabdar dam	Gujarat	Kapari	Composite	62.40 (Conc) 51.4 (Earthen)	20° 48' 58 N/ 73° 32' 05"E	II	"	<u>MCE Cond:</u> PGA (h) = 0.17g; PGA (v) = 0.14g <u>DBE Cond:</u> PGA (h) = 0.08g; PGA (v) = 0.07g α_h for Conc = 0.10 α_h for Earthen = 0.03 α_v for Conc = 0.09 α_v for Earthen = 0.02	23 rd - 20.11.2012
(vii)	Kelwan dam	Gujarat	Purna	Composite	62.40 (Conc) 50.1 (Earthen)	20° 55' 30 N/ 73° 32' 00"E	II	NWDA	<u>MCE Cond:</u> PGA (h) = 0.17g; PGA (v) = 0.14g <u>DBE Cond:</u> PGA (h) = 0.08g; PGA (v) = 0.07g α_h for Conc = 0.10 α_h for Earthen = 0.03 α_v for Conc = 0.09 α_v for Earthen = 0.02	23 rd - 20.11.2012
92	Damangan ga-Pinjal link Project	Gujarat & Maharashtra					III	NWDA		23 rd - 20.11.2012
(i)	Bhugad Dam	Gujarat & Maharashtra	Damanga	Composite	68.63 (Conc.) 68.63 (Earthen)	20° 12' 48" N/ 73° 17' 37" E	III	"	<u>MCE Cond:</u> PGA (h) = 0.18g; PGA (v) = 0.16g <u>DBE Cond:</u> PGA (h) = 0.08g; PGA (v) = 0.07g α_h for Conc = 0.09 α_h for Earthen = 0.02 α_v for Conc = 0.09 α_v for Earthen = 0.02	23 rd - 20.11.2012

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
(ii)	Khargihill dam	Maharashtra	Vagh	Composite	75.62 (Conc) 75.62 (Earthen)	20° 05' 24 "N/ 76° 16' 57"E	III	"	<u>MCE Cond:</u> PGA (h) = 0.18g; PGA (v) = 0.16g <u>DBE Cond:</u> PGA (h) = 0.08g; PGA (v) = 0.07g α_h for Conc = 0.18 α_h for Earthen = 0.04 α_v for Conc = 0.17 α_v for Earthen = 0.03	23 rd - 20.11.2012
93	Tato-II HEP	Arunachal Pradesh	Siyom	Concrete Dam	155	28° 32' 4.5"N / 94° 23' 57.2"E	V	Tato Hydro Power Ltd	<u>MCE Cond:</u> PGA (h) = 0.44g PGA (v) = 0.36g <u>DBE Cond:</u> PGA (h) = 0.21g PGA (v) = 0.17g α_h = 0.26 α_v = 0.21	23 rd - 20.11.2012
94	Lower Orr Dam Project	Madhya Pradesh	Orr	Composite	41.84 (Conc) 32.085 (Earthen)	24° 50' 50"N/ 78° 05' 55"E	II	NWDA	<u>MCE Cond:</u> PGA (h) = 0.11g; PGA (v) = 0.09g <u>DBE Cond:</u> PGA (h) = 0.05g; PGA (v) = 0.04g α_h for Conc = 0.06 α_h for Earthen = 0.03 α_v for Conc = 0.05 α_v for Earthen = 0.02	23 rd - 20.11.2012
95	Dagmara HEP	Bihar	Kosi	Barrage	11	26° 20' N/ 86° 44' 9.1"E	IV	Bihar State Hydro-electricity Power Corp.	<u>MCE Cond:</u> PGA (h) = 0.39g PGA (v) = 0.25g <u>DBE Cond:</u> PGA (h) = 0.20g PGA (v) = 0.12g α_h for conc. portion = 0.11 α_v for conc. portion = 0.07 α_h for Earthen dam = 0.16 α_v for Earthen dam = 0.11	23 rd - 20.11.2012

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
96	Tiuni-Plasu HEP	Uttarakhand	Tons	Barrage	36.30	30°57'02"N/ 77°51'20"E	IV	Irrigation Deptt., Govt. of Uttarakhand	MCE Cond: PGA (h) = 0.47g PGA (v) = 0.35g DBE Cond: PGA (h) = 0.27g PGA (v) = 0.20g $\alpha_h = 0.27$ $\alpha_v = 0.20$	23 rd - 20.11.2012
97	Halon Project	Madhya Pradesh	Halon	Composite	35	22°22'30"N/ 80°47'30"E	III	NVDA	$\alpha_h = 0.12$ $\alpha_v = 0.08$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2013
98	Rupsia-bagar Khasiabara H.E. Project	Uttarakhand	Gori-ganga	Concrete Dam	62	30°9'56.45"N/ 80°15'11.2"E	IV	N.T.P.C. Limited	$\alpha_h = 0.16$ $\alpha_v = 0.11$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2013
99	Dikhu H.E. Project	Nagaland	Dikhu	Rockfilled	112	26°39'34"N/ 94°47'00"E	V	Manu Energy Systems (P) Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2013
100	Rongnichu HE Project	Sikkim	Rongnichu	Barrage	15.5	27°16'6.86"N/ 88°35'20.06"E	IV	Madhya Bharat Power Corp. Ltd.	$\alpha_h = 0.21$ $\alpha_v = 0.14$	25 th 28.06.2013 & 08.07.2013
101	Gongri HE Project	Arunachal Pradesh	Gongri	Barrage	29	27°20'22"N/ 92°19'13"E	V	Dirang Energy Pvt. Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2013
102	Ratle HE Project	Jammu & Kashmir	Chenab	Concrete Dam	133	33°10'43"N/ 75°48'26"E	IV	GVK Ratle HEP Pvt. Ltd.	$\alpha_h = 0.16$ $\alpha_v = 0.11$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2013
103	Rangit-II H.E. Project	Sikkim	Rimbi	Concrete Dam	40	27°18'47.44"N / 88°10'27.77"E	IV	Sikkim Hydro Power Ventures limited	$\alpha_h = 0.16$ $\alpha_v = 0.11$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2013
104	Thana Plaun HEP	Himachal Pradesh	Beas	Concrete Dam	106.7	33°49'49"N/ 76°47'31"E	V	HPPCL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2023

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
105	Shongtong -Karcham HEP	Himachal Pradesh	Satluj	Barrage	22	31°32' 30"N/ 78°16'50"E	IV	HPPCL	$\alpha_h = 0.21$ $\alpha_v = 0.14$	25 th 28.06.2013 & 08.07.2013
106	Miyar HEP	Himachal Pradesh	MiyarN alla	Barrage	27	32°46' 08"N/ 76°42'27"E	IV	Miyar Hydro Electric Power Company Limited	$\alpha_h = 0.16$ $\alpha_v = 0.11$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2013
107	Nyukcharong Chu HEP	Arunachal Pradesh	Nyukchar ong Chu	Barrage	22	27°38' 21.3"N/ 92°0' 20.9"E	V	SEW Nyukcha rong Chu Power Corporation Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	25 th 28.06.2013 & 08.07.2013 And 26 th 11.12.2013
108	Dhaulasidh HE Project	Himachal Pradesh	Beas	Concrete Dam	70.75	31°48'23.1"N/ 76°26'30"E	V	SJVN Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	26 th 11.12.2013
109	Chamkarchu (stage-I) HE Project	Bhutan	Chamkar chhu	Concrete Dam	108	27°10' 20.87"N/ 90 °56'24.89"E	-	NHPC Limited.	$\alpha_h = 0.24$ $\alpha_v = 0.16$	26 th 11.12.2013
110	Seli H.E. Project,	Himachal Pradesh	Chenab	Concrete Dam	123	32°45'36"N/ 76°35'25"E	IV	Seli HEP limited	$\alpha_h = 0.17$ $\alpha_v = 0.11$	26 th 11.12.2013
111	Kynshi-I HE Project,	Meghalaya	Kynshi	Concrete Dam	58.10	25°26'46.808" /91°12'44.832"E	V	Athena Kynshi Power Pvt. Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	26 th 11.12.2013
112	Devsari HE Project,	Uttarakhand	Pinder	Concrete Dam	65	30°2'35"N- 30°7' 30"N / 79°34'17"E- 79°35'00"E	V	SJVN Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	26 th 11.12.2013
113	Sach Khas HE Project,	Himachal Pradesh	Chenab	Concrete Dam	90	32.967°N / 76.424°E	IV	L&T Himachal Hydropower Limited	$\alpha_h = 0.16$ $\alpha_v = 0.11$	26 th 11.12.2 013
114	Mohanpu ra major multi purpose project	Madhya Pradesh	Newaj	Composite	35.71m (Earthen) 47.9m (Conc.).	23°57' 54"N/ 76°46'37"E	II	Water Resources Department Madhya Pradesh	$\alpha_h = 0.06$ $\alpha_v = 0.04$	27 th 23.06.2014
115	Reoli Dugli HEP	Himachal Pradesh	Chenab	Concrete Dam	79m	32.803°N/ 76.424°E	IV	L&T Himachal Hydropower Ltd	$\alpha_h = 0.16$ $\alpha_v = 0.11$	27 th 23.06.2014

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
116	Dugar HEP	Himachal Pradesh	Chenab	Concrete Dam	128m	33°07'12.89"N/ 76°21'13.77"E	IV	Dugar Hydro Power Ltd.	$\alpha_h = 0.17$ $\alpha_v = 0.11$	27 th 23.06.2014
117	Attunli HEP	Arunachal Pradesh	Dibang	Concrete dam	85m	28°40'01"N/ 96°07'01"E	V	Attunli HEP Company Ltd.	$\alpha_h = 0.24$ $\alpha_v = 0.16$	27 th 23.06.2014
118	Lower Kopili HEP	Assam	Kopili	Concrete dam	70.13 m	25°40'N / 92°47'E	V	Assam Power GC Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
119	Etalin HEP	Arunachal Pradesh	Dri and Tangon	Concrete dam	101.5 (Dri) 80.0 (Tangon)	28°42'24"N / 95°51' 52"E (Dri Dam Site) 28°39'18"N / 96°00'07"E (Tangon Dam)	V	Etalin HEPCL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
120	Naying HEP	Arunachal Pradesh	Siyom	Concrete dam	138m	28°31'10"N / 94°30' 25"E	V	Naying DSC Power Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
121	P V Narasimha Rao Kanthana pally Sujala Sravanthi Project	Telangana State	Godavari	Barrage (with Left & right earth dam)	28.2 m - Barrage 15.5 m – Earth dam	18°27'40.22"N / 80°24' 35.24"E	III	SEW-Rithwik Joint Venture	$\alpha_h = 0.12$ (for both concrete and earthen portion) $\alpha_v = 0.08$ (for both concrete and earthen portion)	28 th 09.01.2015
122	Mawphu HE Project (Stage-II)	Meghalaya	Umiew	Concrete dam	51m	25° 19'27"N / 91° 38'08"E	V	NEEPCO Ltd.	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
123	Arun-3 HEP	Nepal	Arun	Concrete dam	70m	27° 30'00"N / 87° 12'00"E	V	SJVN Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
124	Wangchu HEP	Bhutan	Wangchu	Concrete dam	134m	26°48'52"N / 89°37' 57"E	V	SJVN Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
125	Luhri HE Project	Himachal Pradesh	Satluj	Concrete dam	86m	31° 19'00"N / 77° 22'00"E	V	SJVN Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
126	Kalai-II HEP	Arunachal Pradesh	Lohit	Concrete dam	198m	27°54'20"N /96°48' 16"E	V	Kalai Power Pvt Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
127	Heo HE Project	Arunachal Pradesh	Yarjep	Barrage	16m	28°32'20"N /94°16' 31"E	V	Heo Hydro Power Pvt. Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
128	Pauk HE Project	Arunachal Pradesh	Yarjep	Concrete dam	105m	28°33'37.58"N /94°13'56.25"E	V	Pauk Hydro Power Pvt. Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
129	Kamala (Subansiri Middle) HEP	Arunachal Pradesh	Kamla	Concrete dam	216m	27°46'18"N /93°59'19"E	V	Kamala HEPCL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	28 th 09.01.2015
130	Tawang-Stage-I HEP	Arunachal Pradesh	Tawang Chu	Barrage	26m	27°35' 20"N /91°59' 3"E	V	NHPC Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	30 th 15.09.2015
131	Tawang-Stage-II HEP	Arunachal Pradesh	Tawang Chu	Barrage	28m	27°32' 48"N /91°49' 57"E	V	NHPC Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	30 th 15.09.2015
132	Loktak Down Stream HEP	Manipur	Liemat ak	Concrete Dam	30m	24°43'52.61"N /93°35' 7.62"E	V	NHPC Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	30 th 15.09.2015
133	Sawalkot HEP	J&K	Chenab	Roller Compact ed Concrete Dam	193m	33°11' N / 75°06' E	IV	JKSPDCL	$\alpha_h = 0.16$ $\alpha_v = 0.11$	30 th 15.09.2015
134	Lakhwar Multi-Purpose Project	Uttarakhand	Yamuna	Concrete Dam	204m	30°31'03"N /77°56' 58"E	IV	UJVN Limited	$\alpha_h = 0.16$ $\alpha_v = 0.11$	30 th 15.09.2015
135	Turga Pumped Storage Project	West Bengal	Turga Nala	Upper dam – Rockfill Lower Dam - Concrete Dam	Upper dam – 59.5 m Lower dam – 59 m	23°11'50.5"N /86°03'50.7"E	III	WAPCOS Limited	$\alpha_h = 0.12$ $\alpha_v = 0.08$	30 th 15.09.2015
136	Chango Yangthang HEP	Himachal Pradesh	Spiti	Concrete Dam	47m	31°55'35"N /78° 35'50"E	IV	Chango Yangthang Hydro Power Limited	$\alpha_h = 0.16$ $\alpha_v = 0.11$	30 th 15.09.2015

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
137	Tagurshit HEP	Arunachal Pradesh	Tagurs hit	Concrete Dam	50.5m	28°29'49.75"N /94°24'53.85"E	V	L&T Arunachal Hydropower Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	30 th 15.09.2015
138	Kholong chhu HEP	Bhutan	Kholon gchhu	Concrete Dam	95m	27° 30'32"N /91°31'10"E	V	SJVN Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	30 th 15.09.2015
139	Punatsan gchhu-I HE Project	Bhutan	Punats angchhu	Concrete Dam	130m	27°24'21"N /89° 54'45"E	V	WAPCOS Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	30 th 15.09.2015
140	Punatsan gchhu-II HE Project	Bhutan	Punats angchhu	Concrete Dam	86m	27°18'44.11"N /89°57'13.8"E	V	WAPCOS Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	30 th 15.09.2015
141	Phanchung HEP	Arunachal Pradesh	Pachi	Barrage	18.3m	27° 30'55.7"N /93°04' 6.9"E	V	PACHI Hydro Power Project Limited	$\alpha_h = 0.24$ $\alpha_v = 0.16$	31 st 23.06.2016
142	Morand Dam Project	Madhya Pradesh	Morand	Main Earthen dam and a composite saddle dam with spillway	Main dam (Earth en dam) – ht 47.03 m; Saddle dam (Earth en dam – ht 21.51 m	22°19'23.02"N /77°28'43.30"E	III	Narmada Valley Development Authority	$\alpha_h = 0.12$ $\alpha_v = 0.08$	31 st 23.06.2016
143	Ganjal Dam Project	Madhya Pradesh	Ganjal	Composite dam with concrete spillway	42.567 m	22°13'47.27"N /77°19'50.58"E	III	Narmada Valley Development Authority	$\alpha_h = 0.12$ $\alpha_v = 0.08$	31 st 23.06.2016
142	Kwar HEP	J&K	Chenab	Concrete dam	109m	33°21'01"N /75°53' 39"E	IV	Chenab Valley Power Projects Pvt. Ltd.	$\alpha_h = 0.16$ $\alpha_v = 0.11$	31 st 23.06.2016
143	New Ganderbal HEP	J&K	Sind	Barrage	11.5m	34°16'21.89"N /74°52'27.23"E	V	JKSPDC	$\alpha_h = 0.24$ $\alpha_v = 0.16$	31 st 23.06.2016

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
144	Kirthai HEP (Stage-I)	J&K	Chenab	Combined Roller Compact ed Concrete	165m	33°15'33"N /76°10' 10"E	IV	JKSPDC	$\alpha_h = 0.18$ $\alpha_v = 0.12$	31 st 23.06.2016
145	Hiramandalam Reservoir of B.R.R. Vamsadhara Project, Phase-II of Stg-II	Andhra Pradesh	Vamsadhara	Earthen Dam	42.74 m	18°40'00"N /83° 57'00"E	II	Water Resources Deptt,	$\alpha_h = 0.06$ $\alpha_v = 0.04$	31 st 23.06.2016
146	Nand Prayag Langasu HEP	Uttarakhand	Alaknanda	Barrage	14.6m (river bed)	30°19'43"N /79°18'28"E	V	UJVNL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	31 st 23.06.2016
147	Luhri HEP (Stage-I)	Himachal Pradesh	Satluj	Concrete Dam	80m	31° 19'00"N /77° 22'00"E	V	SJVNL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	31 st 23.06.2016
148	Bunakha HEP	Bhutan	Wangchu	Concrete Dam	188m	27° 08'00"N /89° 32'33"E	V	THDC Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	31 st 23.06.2016
149	Sankosh HEP	Bhutan	Sankosh	Roller Compact ed Concrete (RCC) Dam	235m	26° 46'41"N /89° 55'55"E	V	THDC Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	31 st 23.06.2016
150	Umngot HEP	Meghalaya	Umngot	Concrete Dam	111m	25° 21'38"N /92° 06'45"E	V	MePGCL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	31 st 23.06.2016
151	Pancheshwar Multi-purpose Project	India-Nepal	Mahakali	Rock-fill dam	315m	29°25'N / 80° 14'E	V	WAPCOS Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	31 st 23.06.2016
152	Tamanthi HEP	Myanmar	Chindwin	Earthfill dam	74m	25° 07' 30"N /95° 02'30"E	V	NHPC Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	32 nd 12.07.2017
153	Goriganga -III A HEP	Uttarakhand	Goriganga	Barrage	30.1m	30° 02'44"N /80°18'25"E	V	NHPC Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	32 nd 12.07.2017

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
154	Bursar Project	J&K	Marus udar	Concrete dam	289m	33°30'38"N /75°47'06"E	IV	NHPC Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	32 nd 12.07.2017
155	Naitwar Mori HEP	Uttarakhand	Tons	Barrage	30.5m	31°03'35"N /78°05'43"E	IV	SJVN Ltd	$\alpha_h = 0.22$ $\alpha_v = 0.15$	32 nd 12.07.2017
156	Nafra HEP	Arunachal Pradesh	Bichom	Rockfill Dam /conc. spillway	40m	27°21'15.71"N /92°33'56.66"E	V	SEW Nafra Power Corporation Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	32 nd 12.07.2017
157	Kulsi Multi-purpose Project	Assam	Kulsi	Concrete Dam	62m	25°50'19"N /91°21'20"E	V	Brahmaputra Board	$\alpha_h = 0.24$ $\alpha_v = 0.16$	32 nd 12.07.2017
158	Chhatru HEP	Himachal Pradesh	Chandra	Weir	10m	32°18'18.3"N /77°25'18.3"E	IV	DCM Sriram Infrastructure Ltd	$\alpha_h = 0.18$ $\alpha_v = 0.12$	32 nd 12.07.2017
159	Parnai HEP	J&K	Suran	Barrage	11m	33°36'42.8"N /74°21'17.73"E	IV	JKSPDC Ltd	$\alpha_h = 0.21$ $\alpha_v = 0.14$	32 nd 12.07.2017
160	Rupaligad Re-regulating Dam	India-Nepal	Mahakali	Concrete dam	95m	29°16'55"N /80°18'20"E	V	WAPCOS Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	32 nd 12.07.2017
161	Lower Kalnai HEP	J&K	Kalnai Nallah	Concrete dam	49m	33°08'06"N /75°45'30"E	IV	JKSDDC Ltd	$\alpha_h = 0.16$ $\alpha_v = 0.11$	32 nd 12.07.2017
162	Mago Chu HEP	Arunachal Pradesh	Mago Chu	Barrage	20.5m	27°37'43.62"N /92°02'17.55"E	V	SEW Mago Chu Power Corporation Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	32 nd 12.07.2017
163	New Melling HEP	Arunachal Pradesh	Mago Chu	Barrage	22m	27°38'25.9"N /92°04'29.7"E	V	SEW New Melling Power Corporation Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	32 nd 12.07.2017
164	Nakthan HEP	Himachal Pradesh	Parbati & Tosh	Barrage	15 m (Parbati Barrage) 17 m (Tosh Barrage)	31.993°N /77.530°E- (Parbati) 32.048°N /77.493°E – (Tosh)	IV	HPPCL	$\alpha_h = 0.23$ $\alpha_v = 0.15$	32 nd 12.07.2017

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
165	Talong Londa HEP	Arunachal Pradesh	Kameng	Concrete Gravity Dam	104m	27° 28'55"N /93° 01'50"E	V	GMR Londa HEP Ltd.	$\alpha_h = 0.24$ $\alpha_v = 0.16$	33 rd 25.04.2018
166	Noa-Dihing Multipurpose Project	Arunachal Pradesh	Noa-Dihing	Rock Fill Dam	57m	27° 30'N /96° 14'E	V	Brahmputra Board	$\alpha_h = 0.24$ $\alpha_v = 0.16$	33 rd 25.04.2018
167	Sirkari Bhyol Rupsiabagar HEP	Uttarakhand	Goriganga	Barrage	12m	30° 11'1.5"N /80° 14'05"E	V	UJVNL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	33 rd 25.04.2018
168	Rho HEP	Arunachal Pradesh	Tawang Chu	Barrage	26m	27°36'50.4"N /92°00'19.4"E	V	SEW Rho Power Corp. Ltd	$\alpha_h = 0.24$ $\alpha_v = 0.16$	34 th 26.02.2019
169	Sunni Dam HEP	Himachal Pradesh	Satluj	Concrete Gravity Dam	83m	31° 14'57"N /77° 12'39"E	V	SJVNL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	34 th 26.02.2019
170	Song River Drinking Water Project	Uttarakhand	Song	Concrete Gravity Dam	148.25m	30° 18'08"N /78° 11'30"E	V	Uttarakhand Irrigation Dept	$\alpha_h = 0.18$ $\alpha_v = 0.12$	34 th 26.02.2019
171	Myntdu-Leska Stage-II HEP	Meghalaya	Myntdu	Concrete Gravity Dam	49m	25° 13'45"N /92° 13'45"E	V	MePGL	$\alpha_h = 0.24$ $\alpha_v = 0.16$	34 th 26.02.2019
172	Jakhol Sankari HEP	Uttarakhand	Supin	Barrage	17m	31° 07'06"N /78° 14'06"E	V	SJVNL	$\alpha_h = 0.28$ $\alpha_v = 0.18$	35 th 19.06.2019
173	Ujh Multipurpose Project	Jammu & Kashmir	Ujh	Concrete Faced Rockfill Dam	116m	32° 33'48"N /75° 29'16"E	IV	JKSPDC	$\alpha_h = 0.22$ $\alpha_v = 0.15$	35 th 19.06.2019
174	Gargai Dam Project	Maharashtra	Gargai	Concrete Gravity Dam	69m	19° 42'04"N /73° 07'15"E	III	CE, Water Supply Project	$\alpha_h = 0.18$ $\alpha_v = 0.12$	35 th 19.06.2019
175	Phina Singh Medium Irrigation Project	Himachal Pradesh	Chakki	Concrete Gravity Dam	22m	32° 24'04"N /79° 59'12"E	IV	HPI & PH Div, HP	$\alpha_h = 0.19$ $\alpha_v = 0.13$	35 th 19.06.2019
176	Parwan Irrigation Project	Rajasthan	Parwan	Concrete Gravity Dam	38m	24° 37'23"N /76° 31'13"E	II	WRD, Rajasthan	$\alpha_h = 0.10$ $\alpha_v = 0.067$	35 th 19.06.2019

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
177	Navnera Barrage Project	Rajasthan	Kali Sindh	Barrage	26m	25° 29'03"N / 76° 18'58"E	II	WRD, Rajasthan	$\alpha_h = 0.10$ $\alpha_v = 0.067$	35 th 19.06.2019
178	Batti sha Nallah Irrigation project	Rajasthan	Battish a Nallah	Concrete Gravity Dam	31.7m	24° 30'43"N / 72° 52'32"E	III	WRD, Rajasthan	$\alpha_h = 0.12$ $\alpha_v = 0.08$	35 th 19.06.2019
179	Pinnapura m Pumped Storage Project	Andhra Pradesh	Off stream closed loop PSP	Rock fill Dam	Upper: 40m Lower: 38m	Upper: 15°36'24"N / 78°15' 14" E Lower: 15°37'27"N / 78°15' 31" E	II	Greenko Energies Private Limited	$\alpha_h = 0.06$ $\alpha_v = 0.04$	36 th 07.08.2020
180	Isarda Dam Drinking Water Project	District Tonk, Rajasthan	Banas	Composite Dam	33.2m	26°06' 30"N / 76°00'30"E	II	IDWP, Rajasthan	$\alpha_h = 0.09$ $\alpha_v = 0.06$	Considered in 36 th 07.08.2020. However, cleared in 2021 after compliance of observations of the committee.
181	Chitravathi Pump Storage Project	Andhra Pradesh	Chitravathi	Rock fill Embankment	Upper: 53m	14° 34' 26.93"N / 77° 56' 2.6" E	II	New & Renewable Energy Development Corporation of Andhra Pradesh Ltd.	$\alpha_h = 0.06$ $\alpha_v = 0.04$	37 th 10.03.2023
182	Kadana Dam	Gujarat	Mahisagar	Earthen & Masonry	66m	23.31 ° N / 73.83 ° E	III	State Water Data Centre Gandhinagar	$\alpha_h = 0.12$ $\alpha_v = 0.08$	37 th 10.03.2023

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
183	MP 30	Madhya Pradesh	Standalone	Asphalt face rockfill Embankment	Upper Dam: 35m	24°31'6.89"N / 75°30'56.12"E	II	Greenko MP01 IREP Private Limited	$\alpha_h = 0.06$ $\alpha_v = 0.04$	Considered in 37th Meeting (10.03.2023). Cleared in 2023
184	Bhadbhut Barrage Project	Gujarat	Narmada	Barrage	33.2m	21°39'21.297"N / 72°48'3.136"E	III	Narmada Water Resources Water Supply & Kalpasar Department	$\alpha_h = 0.12$ $\alpha_v = 0.08$	Considered in 37th Meeting (10.03.2023). Cleared in 2023
185	Kirthai HEP Stage-II	Jammu & Kashmir	Chenab	Concrete Gravity Dam	121m	33°18'41"N / 76°04'37"E	IV	Chenab Valley Power project Pvt. Ltd	$\alpha_h = 0.198$ $\alpha_v = 0.132$	38 th 10.05.2024
186	Simsang Dam	Meghalaya	Simsang	Concrete Gravity Dam	61m	25°28'29"N / 90°41'39"E	V	Brahmaputra Board	$\alpha_h = 0.273$ $\alpha_v = 0.182$	38 th 10.05.2024
187	Conventional Barrage Project	Gujarat	Tapi	Barrage	-	21.164° N / 72.761° E	III	Unique Construction	$\alpha_h = 0.12$ $\alpha_v = 0.08$	38 th 10.05.2024
188	Singanama la PSP	Andhra Pradesh	Off-stream PSP	Rockfill Dam (both Upper & Lower)	Upper: 54m Lower: 34m	Upper: 14.853°N / 77.695° E Lower: 14.847° N / 77.718° E	II	M/s New & Renewable Energy Development Corporation	$\alpha_h = 0.08$ (upper) $\alpha_h = 0.08$ (lower) $\alpha_v = 0.06$ (upper) $\alpha_v = 0.06$ (lower)	38 th 10.05.2024
189	Bhawali Pumped Storage Project	Maharashtra	Dharna & Ullhas	Upper-composite dam Lower-Concrete dam	-	Upper: 19.36° N / 73.35° E Lower: 19.34° N / 73.35° E	III	Tata Power Company Ltd	$\alpha_h = 0.1$ (upper) $\alpha_h = 0.09$ (lower) $\alpha_v = 0.07$ (upper) $\alpha_v = 0.06$ (lower)	38 th 10.05.2024

Sl. No	Name of Project	State	River	Dam Type	Dam Height (m)	Latitude/ Longitude (Approx.)	Seismic Zone	Project Authority	Recommended Seismic design parameters	NCSDP meeting reference (No. & Date)
190	Bhivpuri Pumped Storage Project	Maharashtra	Off-stream PSP	Geomembrane Face Rockfill Dam	28m	18.943° N / 73.444° E	III	Tata Power Company Ltd	$\alpha_h = 0.12$ $\alpha_v = 0.08$	38 th 10.05.2024 (Approved for Lower Reservoir)

Abbreviation used

MCE	- Maximum Credible Earthquake;
DBE	- Design Basis Earthquake;
PGA(h)	- Peak Ground Acceleration (horizontal component);
PGA(v)	- Peak Ground Acceleration (vertical component)
α_h	- Horizontal Seismic Design Co-efficient;
α_v	- Vertical Seismic Design Co-efficient