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Government of India  
Central Water Commission  
Foundation Engineering Directorate

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Room No.712, Sewa Bhavan,  
R.K.Puram, New Delhi-110066

Dated the 26 March, 1992

To

Subject:- Minutes of the Second meeting of the National  
Committee on Seismic Design Parameters(NCSDP)  
for River Valley Projects on 6.3.1992 in  
Central Water Commission

Sir,

Please find enclosed the minutes of the  
Second meeting of the National Committee on Seismic  
Design parameters for River Valley Projects held on  
6.3.1992 at New Delhi.

Yours faithfully,

V.R. SASTRY  
( V.R. SASTRY )  
DIRECTOR(FED)

Encls: as above.

28/3/92

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Minutes of the Second Meeting of the National  
Committee on Seismic Design Parameters (NCSDP)  
for River Valley Projects held on 6.3.1992 in  
Central Water Commission, New Delhi.

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1. Opening remarks

The 2nd meeting of the National Committee on Seismic Design Parameters (NCSDP) for River Valley Projects was held in Central Water Commission, New Delhi, on 6.3.1992 under the Chairmanship of Shri A.B.Joshi, Member (D&R), CWC. List of Members, special invitees, project officials and others present during the meeting is at Annexure I. The Chairman welcomed the members, special invitees and other participants to the meeting and took up the Agenda for consideration.

2. Confirmation of the minutes of the 1st meeting held on 14.11.1991

The NGRI has issued a letter dated 10.12.91 suggesting the incorporation of a paragraph in the minutes. This pertains to the exchange of observational data and studies on the Uttarkashi earthquake of 20.10.91 between the concerned organisations which was accepted. The revised minutes incorporating these changes is at Annexure II.

3. Renuka Dam Project (HP)

The Committee noted that no representative from GSI was present. Member Secretary of the Committee has been asked to note that whenever a project is discussed, the presence of concerned member from GSI to explain the various geological and geotectonic features is essential.

Members opined that considering the height of the earth & rockfill dam of 185 m, the tectonic information supplied is too inadequate for any discussion. Information like macrotectonic maps, lineament tectonic map, photo-geological maps were not supplied. The project authorities were advised to make a site specific seismic parameter study through reputed agencies and place before the Committee.

4. Srinagar Hydroelectric Project (UE)

The proposed dam is 85 m high straight concrete gravity dam located in Alakananda river about 6 km u/s of Srinagar town in U.P. 360 cumecs of water will be diverted into a 9.75 m dia tunnel about 800 m long followed by a power house channel 4 km long. A surface power house located on the right bank of Alakananda river will have an installation of  $4 \times 50 = 200$  MW.

The project was earlier discussed in the 18th meeting on 30.12.83 and a horizontal seismic coefficient of 0.16 g was recommended for preliminary designs using pseudo static analysis procedures pending detailed studies.

During the meeting the representative of the Srinagar Project handed over 3 sets each of the report dated December 1990 of DEQUOR studies for seismic parameters for the design of the dam and a report dated March 1992 containing replies to the questionnaire of Committee to suggest the coefficient (for power house portion only). As it was not possible for the members to go through the reports during the course of the meeting, it was decided to postpone the discussion to the next meeting. Project authorities were requested to supply 7 more sets for each of the reports to the Member Secretary to facilitate circulation, in advance, to members before the next meeting.

The Project representative explained that the Project is being placed before the Committee only for recommending seismic coefficient for power house designs, and clarified that the seismic parameters for the dam design were already evolved by DEQUOR who were their consultants.

A general review of the regional and site specific seismo-tectonic feature indicates that Srinagar thrust was traversing upstream of the Project site and also close to power house location (separating dam and power house).

The DBQUOR representatives felt that a review of the site specific design parameters determined earlier may be warranted; this was in view of the fact that additional strong motion data are available with the Uttarkashi Earthquake dated 20 October 1991. Considering the closebyness of active fault system that has apparent movement, a review may be necessary before a decision is possible on seismic parameters.

The representative from WING felt that the recent observations of Survey of India may be useful in this regard.

The representative of SOI made a presentation of the results of geodetic measurements conducted by them across Srinagar thrust near Dharasu, Uttarkashi. These results indicated horizontal movements and vertical subsidence confirming the activity of the thrust. The SOI desired to know if the studies are of use and interest to the Committee. The Committee endorsed that they were very useful and hence SOI continue the studies.

The Committee will reconsider this case when the project authorities revised the study through their consultants and desired to take up the case, when the representative of GSI is also present.

5. Uttarkashi Earthquake of 20.10.1991

The CWC provided a draft for consideration by the NCSDP on the above vis-a-vis the seismic design parameters for Tehri Dam. The note which is annexed (Annexure III) was introduced by Shri M.Gopalakrishnan, Director, CWC.

Chairman in his remarks informed that the note circulated was only a draft and is open for amendment based on the suggestions of the members of the NCSDP. The CWC would incorporate the views of the members and the amended version can be transmitted to the Government so as to save time.

Deliberating on the note, the participants from Department of Earthquake Engineering, University of Roorkee, pointed out that while all other agencies submitted their reports in good faith and thereby ensuring a free dissemination of the information, the GSI has not done so. They were also absent from the meeting. This view was reflected by other participants like WING, IMD, etc. Commenting on the note that was circulated, Professor Agrawal felt that it would be desirable to bring out the information regarding design safety aspects. This was endorsed by Shri B.L. Jatana, THDC. Professor Chandrasekaran suggested that while the draft note was generally in order, it would be worthwhile to wait for the report from GSI to ensure that the points indicated by them are not missed. Dr.Chatterjee expressed that the note should clearly indicate that the magnitude of the earthquake as a bodywave magnitude.

6. The meeting ended with a vote of thanks to the Chair.

LIST OF PARTICIPANTS OF THE 2ND MEETING OF  
NCSP ON 6.3.92

MEMBERS

1. Shri A.B. Joshi  
Member(D&R)  
Central Water Commission  
Sewa Bhavan, R.K.Puram,  
NEW DELHI-110066.
2. Dr. P.N.Agrawal  
Head  
Deptt.of Earthquake Engineering  
University of Roorkee  
ROORKEE-247667.
3. Dr. S.N.Chatterjee  
Director(Seismology)  
India Meteorological Deptt.  
Mausam Bhavan, Lodi Road  
NEW DELHI-110003.
4. Col. B.C.Roy,  
Director  
Geodetic & Research Branch  
Survey of India  
Post Box No.77  
DEHRADUN-248001.
5. Shri M.G.Joshi  
Chief Engineer(DSO)  
Central Water Commission  
Sewa Bhavan,  
NEW DELHI.
6. Shri V.R. Sastry  
Member-Secretary and  
Director  
C.W.C.  
NEW DELHI

SPECIAL INVITEES AND OTHER PARTICIPANTS

7. Shri B.L. Jatana  
Executive Director  
Tehri Hydro Development Corporation  
RISHIKESH (U.P)
8. Dr. Surendra Kumar  
Seismo Tectonic Group  
Wadia Institute of Himalayan Geology  
33, Gen.Mahadeo Singh Road  
DEHRADUN-248001.

9. Shri B.B.Raj  
Senior Manager  
Tehri Hydro Development Corporation  
NEW DELHI.
10. Shri Vinod Prakash  
Chief Engineer(Ganga Valley)  
U.P.Irrigation Deptt.  
Yamuna Colony  
DEHRADUN.
11. Shri A.E.Chandrasekheran  
Professor, DEQVR  
ROORKEE.
12. Shri I.D. Gupta  
Chief Research Officer  
Central Water & Power Research Station  
P.C.Khadakwasla Research Station  
PUNE - 411024.
13. Shri M.Gopalakrishnan  
Director, Embankment(N&W), CWC  
Sewa Bhavan, NEW DELHI.
14. Shri S.S.Debas  
Executive Engineer(Designs)  
Himachal Pradesh State  
Electricity Board,  
SUNDER NAGAR (H.P)
15. Shri P.K. Jain  
Executive Engineer  
Srinagar Niman Mandal-3  
Camp Yamuna Colony  
DEHRADUN - 248001.
16. Shri N.L. Hasiya  
Officer Incharge  
Seismotectonic Cell, SOI  
Geodetic & Research Branch  
DEHRADUN
17. Shri R.S.Dattatreya  
Meteorologist  
IMD, NEW DELHI.
18. Shri V.N. Kakpanjar  
Deputy Director  
P.E.Directorates, CWC  
NEW DELHI.