

Minutes of the twenty fourth meeting of National Committee on Dam Safety (NCDS) held in CWC, New Delhi on 27.01.2003.

The twenty fourth meeting of the National Committee on Dam Safety (NCDS) was held on 27th January 2003 at Sewa Bhawan, R K Puram, New Delhi office of Central Water Commission, under the Chairmanship of Shri R.Jayaseelan, Chairman, CWC & NCDS.

The list of officers/representatives of various States/Organizations who attended the meeting is given at Annex I.

At the outset the Chairman welcomed the members & representatives of the States / Organizations participating in the meeting. While emphasizing the importance of dam safety in our country, he reiterated the importance of enacting a Dam Safety Legislation. In this connection he stated that comments offered by some of States on the draft circulated earlier were discussed briefly in the 23rd meeting but no further States/Organizations sent their suggestions. The modified draft legislation prepared by CWC on the basis of the comments/suggestions received is approved by Ministry of Water Resources (Government of India) and copies are being circulated during the meeting for transmitting the same to their State Secretaries, Irrigation/ Water Resources for passing resolutions in their State legislatures. All the members were requested to go through the draft legislation and further comments/clarifications, if any required, may be communicated by 15th March 2003.

Chairman also emphasized the importance of periodical inspection of dams. He gave the example of Chukka Hydel Project which has completed about sixteen years, but is now facing some Dam Safety problems in the absence of proper periodical inspections and taking remedial measures in time for the deficiencies. They have now realized the importance of such inspections. He also pointed out the importance of instrumentation on dams and other important structures and requested all the members to give a feed back on this regularly. He also asked members to express their views/experiences on each of the agenda which will create opportunities for utilizing such experiences by all whenever required.

On the request of the Chairman, all the participants introduced themselves and thereafter Chief Engineer, DSO (Member Secretary of the Committee) was asked to take up the agenda items.

Before the agenda items were taken up Shri H.S. Bedi from Ranjit Sagar Dam Design Organization, who attended as a special invitee requested for membership of his organization in the Committee. The

Chief Engineer (DSO) informed that only one member from each State can be a member of the Committee and the said member from the State has to represent for all the dams in the State. The Chief Engineer, KAD, Irrigation, Punjab has already been nominated a member of the Committee representing Punjab Government, Shri H.S.Bedi was asked to take up with his Government in case any change is required.

Thereafter the item wise deliberations were taken up and are as follows :

24.1.0 Confirmation of the minutes of the 23rd meeting of NCDS

Draft Minutes of the 23rd meeting were sent to all the members of NCDS and State Dam Safety Organizations/Cells vide CWC letter No.3/19/ NCDS/ 2002/DSM/ 337-86 dated 9.5.2002. The minutes of the 23rd meeting as circulated were confirmed. Some comments received in response had been incorporated in the 24th meeting agenda notes and circulated to the committee members for confirmation. Chairman suggested to record such comments separately and to read out the same in the meeting for information of the members in future.

24.2.0 Information on proposed Dam Safety Assurance & Rehabilitation Project (DSARP) Phase II.

24.2.1 Chief Engineer (DSO) explained the present position of the DSAR Project Phase II proposal. In the earlier proposal, only 12 States which were represented in the Committee were included. Now the proposal has been modified and 15 States have been included in the modified proposal. Letters have been sent to all participating States for keeping provision in their respective State Xth five year plan on the basis of DSP II proposal already sent by them. However confirmation from most of the States is yet to be received. Further, all the States were requested to give details of works related to Disaster Management and Emergency Action Plans carried out in their states. They were also requested to provide an estimate of the expenditure involved for preparing EAP for dams in their states. These details were requested to be supplied at the earliest as the information is to be included in the proposal for DSARP II which is in the final stage.

Chief Engineer (DSO) informed that there are two proposals for Xth five year plan. One is the World Bank assisted project explained above while another Centrally sponsored Plan Scheme has been prepared for assisting State Governments in implementing Dam Safety works in their states. This scheme is also being processed separately. The member from Karnataka state informed that Karnataka Govt. is not interested in seeking funds either from World Bank or Centrally sponsored Plan Scheme for Dam Safety purpose in the State. Chief Engineer (DSO) informed that provision from the two schemes for Karnataka would be deleted and State Government should confirm the same. Member from Tamil Nadu wanted to know the time frame by when the schemes may be implemented. Chief Engineer (DSO) informed that the schemes are expected to be ready some time in the next financial year.

24.3.0 Review of National Scenario

24.3.1 The State representatives were requested to apprise the committee of fresh cases where any type of fresh incidents relating to sudden damage/accident has occurred on the dams. The following cases were discussed:

24.3.2 Member from Madhya Pradesh reported that repair work of Jamunia dam has already been started. The repair work will be completed before the monsoon 2003. There were no other incidents in Madhya Pradesh.

24.3.3 Member from UP informed that work in Maudhaha dam in UP as per CWC suggestions is almost completed. However the seepage in the drainage gallery of the dam is continuing. Regarding inspection by CWC expert, it was stated that the basic data requested for by CWC may be sent for analysis before inspection.

In the case of Rihand and Matatila dams, it was reported that separate committees are in existence to oversee the safety problems of the dams.

24.3.4 The member from Orissa reported that treatment of cavities in Hirakud dam is under process and will be completed soon.

- 24.3.5 Regarding Thoriyali dam in Gujarat, member from Gujarat informed that temporary repair work has been done. For permanent repair, tender has been floated.

Further, regarding earthquake affected dams in Gujarat, he reported that as per recommendations of the State DSRP, 27 dams in Kutch and 3 dams in Saurashtra region have been re-designed and the work will be completed before June 2003.

- 24.3.6 The State of Maharashtra reported failure of whole left Head regulator of Saudaghar dam in Ratnagiri (District) in July 2002 and Andhra Pradesh reported breach of Right Head regulator of Sathnala Project in Adilabad (District) in Sept. 2002. Necessary remedial measures have been taken. The members of both the States admitted that the incidents were not reported to CWC when the same occurred. Chief Engineer (DSO) requested all members to report such incidents to DSO, CWC immediately, without fail in future.

- 24.3.7 No other fresh cases or damage due to flood, earthquake or other reasons were reported from the States/Organizations.

24.4.0 Progress on implementation of the recommendations of the "Report on Dam Safety Procedures"

- 24.4.1 The representatives of States/Organizations were requested to send their comments/suggestions based on their experiences on the "Report on Dam Safety Procedures (1986)" and "Guidelines for Safety Inspection of Dams (1987)" for revision of the two as requested by Director (DSM) vide his letter no. 3/19/NCDS/HS/DSM/2001/597-626 dated 28.8.2002. The members were informed that, as the two documents are more than 15-16 years old, it is proposed to revise them in the light of experience gained over the years.

- 24.4.2 The representative from Maharashtra submitted an updated report of the work done under "Report on Dam Safety Procedures". It was informed to the members that suggestions/comments on the provisions contained in the two publications are required for revising the same incorporating the latest techniques.

Chairman suggested that while considering revision of the two, the provisions proposed in the draft Dam Safety

Legislation may be kept in view. He requested all the States/Organizations to send their comments/suggestions by the end of March 2003, as updating of the guidelines by incorporating the latest information/ techniques is very essential.

Thereafter, Chief Engineer (DSO) requested all the members from the States/Organizations to intimate the position of Dam Safety works in their respective States / Organizations.

Although most of the States informed that all the major dams in their states are quite safe and not in any imminent danger, yet, lack of funds was the main bottleneck for carrying out even the minor repairs required and for implementation of Dam Safety procedures such as preparation of documents, safety review of dams, Emergency Action and Disaster Management Plans, repair work of dams etc. Chairman emphasized that the members should convince their Governments on the importance of dam safety, ignoring of which may affect the economy and prosperity of the State in case of any major mishap. The state should be impressed upon to provide enough funds for Dam Safety activities in the yearly budget allotment. CWC is also trying for assistance from World Bank as well as from Central plan funds for the purpose.

24.5.0 Dam Safety Legislation

- 24.5.1 The draft Dam Safety Legislation – 2002 as approved by the Ministry of Water Resources was circulated to all members of the participating States along with a letter addressed to the Secretaries of Irrigation/Water Resources of the States for enacting necessary legislation in their respective legislative assemblies/councils. They were requested to go through the draft legislation and intimate if any further clarifications are required on it by 15th March 2003. All the States agreed to act quickly considering the importance of Dam safety.

24.6.0 Preparation of emergency action plans and inundation maps for downstream area

- 24.6.1 The State/Organization representatives were requested to apprise the committee on the progress made in the

preparation of Emergency Action Plan (EAP)/ Inundation maps.

- 24.6.2.1 No significant progress has been made on this item since the last meeting.

Besides funds problems, the members from the State of Tamil Nadu and BBMB informed regarding encroachments of the land in the downstream areas for domestic and agricultural purposes, and difficulties in acquiring the land. Chairman suggested sorting out such problems through their State Governments emphasizing the need for Disaster Management Programme and Emergency Action Plans. In this context he requested BBMB and Punjab to coordinate and sort out the problems and start the work. DVC also agreed to request Jharkhand and Bihar States for their cooperation.

24.7.0 Preparation of Data Books, Completion Reports, Operation & Maintenance Manuals

The State/Organization representatives were requested to apprise the committee on the progress of this work.

No significant progress was reported by any State on preparation of the three important documents since last meeting, particularly in respect of completion reports and O&M manuals.

- 24.7.1 The State-wise position in respect of data books to be prepared for dams of National Importance is given below (some dams are added as per Register of Large dams – 2002) :

1.	Andhra Pradesh	3 dams out of 4 NI dams [Somasila is a N.I. dam]
2.	Karnataka	11 out of 12 NI dams
3.	Maharashtra	4 dams out of 5 NI dams [Totaladoh (Pench Hydel) is a N.I. dam]
4.	Rajasthan	1 dam out of 2 NI dams [Mahi Bajaj Sagar is a N.I. dam]
5.	Uttar Pradesh	4 dams out of 5 NI dams [Jamrani is a N.I. dam while Ramganga Dam is

		also under the control of Uttar Pradesh]
6.	Chhattisgarh	Nil out of one NI dam
7.	Jharkhand (DVC)	2 dams out of 3 National Importance dams [Tenughat is a NI dam]

Other States/Organizations have already completed the work.

24.7.2 Member from Karnataka suggested that Data Books of dams under construction can be prepared as per the availability of completion drawings only. Further, all Data books need to be updated as and when major rehabilitation works are carried out on the dams.

24.7.3 Chairman emphasized the importance of preparation of completion reports of the projects. During safety review of dam, such type of document provides vital information. He requested States/Organizations to prepare the same, giving priority in the first phase to dams of NI.

Completion Reports are available for all the dams including NI dams under Uttar Pradesh and B.B.M.B.

24.7.4 O&M manual is available with Tamil Nadu, Uttar Pradesh, BBMB, DVC and Kerala State Electricity Board. No O&M manuals are also available with Bihar, Karnataka, Kerala (Irrigation) and West Bengal. No information is received from Chhattisgarh, Jharkhand and Uttaranchal. The other States have initiated the works, but not completed for all the dams.

The States who have yet to complete the work were requested to take up and complete the same as early as possible.

24.8.0 Periodical inspection of dams and report on dam safety activities in the States

24.8.1 It was emphasized that this is a routine inspection for proper maintenance of the dams. All the large dams must be inspected twice in a year i.e. pre- & post- monsoon and a consolidated report for both the inspections should be prepared. The State/Organization representatives were

requested to apprise the committee on the progress of preparation of the report.

24.8.2 The status of preparation of reports of periodical inspection of dams as reported by State Governments is as follows :

Andhra Pradesh	-	2001-2002
Bihar	-	2001-2002.
Karnataka	-	1999-2000
Madhya Pradesh	-	2001-2002
Maharashtra	-	2000 -2001
Orissa	-	2000 -2001
Rajasthan	-	2000-2001
Tamil Nadu	-	2001 -2002
Uttar Pradesh	-	2001-2002
BBMB	-	2000-2001

The State of Tamil Nadu reported that as the North East monsoon is predominant in the State and continues upto December / January, the State would not be able to submit the report for year to year basis but spanning for two years and hence the next report would be prepared for 2002-2003 instead of the year 2002.

Regarding the other States, no report for 2000-2001 or 2001-2002 has been received from Kerala (Irrigation), Gujarat, West Bengal, NHPC, DVC, KSEB and from the new members of Punjab, Chhattisgarh, Jharkhand and Uttaranchal. Although the copy of the inspection report was submitted by NHPC, the consolidated report as a bound document with all necessary details is yet to be received.

All the States/Organizations were requested to submit a consolidated report (both pre- and post-monsoon of the year 2002 and the State of Tamil Nadu for 2002-2003) for all the dams properly bound by April 2003 in the prescribed proforma as circulated. Performance of meteorological and dam instruments are also to be included in the report.

24.9.0 Safety review of large dams (once in ten years)

24.9.1 The State/Organization representatives were requested to apprise the committee regarding the safety review of dams once in ten years by an independent DSR Panel.

24.9.2 The status of progress made on formation of DSR Panels and safety review of dams reported in the meeting by States/Organizations is given below:

Andhra Pradesh	-	5 State Dam Safety inspection teams have been constituted. Inspection under progress.
Bihar	-	DSRP formed. As per the new set up of the State, safety review report prepared for 18 dams.
Gujarat	-	Reconstitution of DSRP is under process.
Karnataka		In addition to the existing DSRP two more DSRP proposed to the Govt.
Kerala (Irrigation)		Expert Committee constituted in September 2000. No progress reported. Members from all the disciplines are to be included in the DSRP.
Maharashtra	-	Set up 6 regional committees which are affected due to creation of Irrigation Development Corporations (basin wise). As per the present situation new committees are to be formed.
Madhya Pradesh	-	Panel of experts constituted. As per the re-organization after bifurcation of the State, 22 dams of the categories are in the State. 18 dams inspected.
Orissa	-	Approval for DSRP awaited from Govt. of Orissa.
Rajasthan	-	DSRP constituted in September 2002
Tamil Nadu	-	Approval for DSRP awaited from Government of Tamil Nadu.
Uttar Pradesh	-	DSRP to be formed. A Committee has been formed for distressed dams. Separate Committee formed for Matatila and Rihand dams.

West Bengal	-	DSRP to be formed.
Chhattisgarh	-	To be reported.
Jharkhand	-	To be reported.
Uttaranchal	-	To be reported.
BBMB	-	New DSRP is formed.
DVC	-	To be reported.
NHPC	-	Report for Salal dam completed and other dams have not completed 10 years.
KSEB	-	Formation of DSRP is under consideration.

Some difficulties in constitution of DSRP were stated by Tamil Nadu. In this context it was clarified that there is no need of selecting experts from out side the State but the members should not be connected directly or indirectly with the construction and maintenance of the dam.

The States of Chhattisgarh, Jharkhand, Uttaranchal and organizations DVC and Kerala State Electricity Board have not given the present status.

The States/Organizations who have yet to form the DSRP were requested to constitute the same and to carry out safety review of dams without further delay. A copy of the constitution of DSR Panel may be supplied to DSO, CWC.

24.10.0 Monitoring safety of inter-State dams by sub-committees of NCDS

The Status of monitoring of safety of Interstate dams by Sub-committee constituted by NCDS was reviewed by the Committee. The status of different Sub-committees, as informed by the representatives of State Governments, is as under:

Mahanadi River System	Two meetings have been held. Last meeting was held on 23.6.2000. As per the new set up Mahanadi River system is between Chhattisgarh and Orissa States. The State of Orissa opined that the need for continuance of the committee is to be decided. It was suggested that the State
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of Orissa being the downstream State, the State may report their opinion in this matter & contact the State of Chhattisgarh which is the upstream for a final decision.

Parambikulam Aliyar Project The State of Tamil Nadu informed that as per the Dam Safety procedures and also in the light of the passing of Dam Safety Legislation it is the duty of the State who owned the dam to take care for periodical and safety review of dams and to rectify the deficiencies. Involvement of two States in this case shall jeopardize the safety status of the dam. However, Kerala insisted that as there is a Water Regulatory Authority for the dam comprising of officers from both the States, in the same way safety of the dam also can be looked into, as Kerala is concerned with safety and loss of their property being the downstream State.

Subarnarekha River System In this Committee, Jharkhand is the upstream State while Orissa and West Bengal are the downstream States. The States of Orissa and West Bengal may inform their opinion on the requirement of this Committee. Member from Orissa suggested that meetings of the sub-committee should be held so that problem, if any, can be solved.

Members opined that the safety of interstate dams must be dam wise and not basin wise. The decision is important as the issue of dams on State borders such as Jalaput dam (Orissa & Andhra Pradesh), Rajghat dam (Madhya Pradesh and Uttar Pradesh) etc., may come up. Member from Orissa raised the issue of maintenance of Jalaput Dam. In this context, Chairman was of the view that the agreement made between Governments of Orissa & Andhra Pradesh has to be kept in view for any decision in the matter.

By looking at all the above aspects, the committee agreed that the sub-committee meetings should be held at regular intervals. In this connection, the regional Chief Engineers of CWC of the respective areas can be co-opted to look into the matter and co-ordinate for such meetings and this was accepted by the members. Regarding the suggestion by some states, particularly Tamil Nadu for disbanding the present Committees, a proper analysis of the position in consultation with State Governments involved is required. Identification of new interstate dams for which such committee may be required to look after dam safety aspects can be taken up.

24.11.0 Setting up of hydrological studies units in the States for review of hydrology of existing dams

24.11.1 The State/Organization representatives were requested to apprise the committee on the progress of setting up/strengthening of hydrological studies units.

24.11.2 Status of setting up of hydrology units as reported in the meeting by the States/Organizations is as follows:

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| 1. Andhra Pradesh | proposed one Hydrology Division under DSARP II |
| 2. Maharashtra | A permanent hydrology unit is already working under the Dam Safety Organization. However, a separate independent unit has to be established. |
| 3. Orissa | Separate unit available |
| 4. Uttar Pradesh | Establishing of the unit is under progress. |
| 5. BBMB | Separate unit available |
| 6. DVC | Separate unit available |

- 7. NHPC
- 8. KSEB

Separate unit available
Separate unit available

The States of Bihar, Gujarat, Karnataka, Madhya Pradesh and Rajasthan informed that existing units in their State have been strengthened for carrying out hydrology review of large dams.

The State of Tamil Nadu informed that formation of a separate hydrology unit has been deferred by the Government and hence, the review work will be done through consultants. The States of Kerala (Irrigation) and West Bengal have not informed on the present position regarding strengthening of existing hydrology units.

The States of Chhattisgarh, Jharkhand and Uttaranchal were also requested to give the present position.

- 24.11.3 In the cases of hydrology review by CWC, Chief Engineer (HSO), CWC stated that design flood review studies for existing projects are being received in Hydrological Studies Organization for vetting. In many cases these studies are not based upon concurrent short term (hourly) rainfall run-off data, but based upon the Synthetic Unit Hydrograph presented in the Sub-Zonal Flood Estimation Reports of CWC. It is to be expressly understood that the Sub-Zonal Flood Estimation Reports of CWC are meant for design of bridges and not meant to be used for Water Resources Development Projects. Design Flood Review Studies must be based upon site specific and catchment specific unit hydrographs derived based on observations.

In case of DSARP-II, CWC will have to vet the design flood review studies of more than 100 Projects. It will be difficult to meet the requirements, if all the studies are received simultaneously. In DSARP-I there were only 4 States involved. But in DSARP-II – 14 States are involved. So he requested that all the States must start doing design flood review studies and start sending them to HSO for vetting, so that the work is completed early to enable remedial measures etc. to be completed before the end of 10th Plan.

In response to the request for training the State Officers on hydrology review/fixing of PMF etc., the Chief Engineer informed that HSO of CWC organizes training every year and the training for this year is in February 2003 on

preparation of DPR and design flood studies for which the nominations for participation have already been received. All the States/Organizations may approach CWC for the training the programmes next year. Chairman suggested that HSO could conduct regular workshops with special emphasis on design flood studies.

24.12.0 Instrumentation for dams

- 24.12.1 Instrumentation is one of the important items in a dam, as it provides a tool for continuous monitoring of the behaviour of the dam. Performance of instruments installed in the dams is very important and the representatives of the State Governments/Organizations gave information of their dams.

Most of States/Organizations reported nonfunctioning of the instruments and requested to suggest measures regarding repairs or alternatives. They also requested for training of Officers on instrumentation.

Chief Engineer (DSO) informed that a manual on instrumentation is going to be published and released shortly. The training on instrumentation is being held every year and this year the training is being organized in February. Moreover a one day conference on various dam safety problems is going to be organized at Nasik, Maharashtra in which instrumentation on dams will be one of items.

All States/Organizations were requested to give details on instrumentation of dams as well as meteorological instruments in the yearly Consolidated Report on Health Status of dams regularly as per the proforma circulated by CWC.

The States of Chhattisgarh, Jharkhand and Uttaranchal were also requested to submit the report.

24.13.0 National Register of Large Dams

- 24.13.1 The newly published National Register of Large Dams – 2002 was released by Chairman during the meeting. One copy of the register was handed over to all the participant of the meeting. While releasing the register Chairman informed that all the members from States/Organizations may verify the register thoroughly and report immediately

any addition/alternation as may be required in the data. He complemented DSO of CWC for bringing out the publication expeditiously.

24.14.0 National Performance of Dams Programme (NPDP)

24.14.1 Chairman requested all the members of States / Organizations to do the needful for setting up their websites on performance of dams.

Most of the States/Organizations intimated that they were maintaining websites in their States. As per the letter from Shri S.N.Guru Rao, Water Resources Aid (WRA), Bangalore which was circulated during the twenty first meeting of NCDS and suggestion received from Karnataka, the following parameters mentioned by Shri S.N.Guru Rao may be adopted in this website.

- 1) Salient features of large dams;
- 2) Monitoring of instruments
- 3) Analysis of instrumentation data
- 4) Operation & Maintenance aspects and
- 5) Systematic collection and storage of information on performance

All the States/Organizations were informed to intimate the website addresses to DSO/CWC.

24.15.0 Important issues related to safety of dams.

The member from the State of Maharashtra informed that a conference as decided in the 23rd NCDS meeting will be conducted in Nasik on 15th February where the following issues will be discussed. (1) Non Performance of instruments in dams (2) Heavy leakages in the drainage gallery and unsatisfactory working of dewatering pumps (3) leaching and choking of drainage pipes in dams (4) fixation of Probable Maximum Flood (PMF) for dams (5) Provision of stop log gates which have not at all been used in many projects and the need for providing the same (6) Providing mobile crane instead of Goliath crane.

All States/Organizations were requested to present papers for the seminar on the above subjects for the one day conference in Nasik proposed to be organized by Maharashtra (DSO) unit.

The State of Karnataka requested for the inclusion of details of inspection of reservoir and rim in the periodical inspection proforma. The proposal was noted for consideration during updating of the "Dam Safety Procedure".

Chief Engineer (DSO) again stressed the need for preparation & submission of completion reports of all large dams. He also requested the 4 participating States of DSARP-I for a short note for each of the 33 dams for which remedial measures were completed under DSARP indicating the Salient features, remedial measures under taken, actual cost incurred for the work etc.. Further, he stated that on any request of State Government, CWC is providing necessary assistance on problems being faced in different dams, for which the State Governments may respond with adequate data/information requested by CWC. All the members of the Committee were requested to co-operate in this regard.

The meeting ended with a vote of thanks to the chair.