

**Minutes of the 33<sup>rd</sup> Meeting of National Committee on Dam Safety (NCDS) held on**  
**23<sup>rd</sup> September, 2014 at 1030 hrs.**

33<sup>rd</sup> meeting of National Committee on Dam Safety (NCDS) was held on 23<sup>rd</sup> September, 2014 in 1<sup>st</sup> Floor Committee Room, CWC Library Building, R.K. Puram, New Delhi under the Chairmanship of Shri A.B. Pandya, Chairman, CWC & Chairman of the National Committee on Dam Safety (NCDS). Shri C.K. Agrawal, Member (D&R) & Vice Chairman, NCDS, Shri L.A.V Nathan, Chief Engineer (DSO), CWC & Member Secretary of NCDS and Shri G.S. Jha, Commissioner, Pen. Riv., Ministry of Water Resources, River Development & Ganga Rejuvenation(MoWR,RD&GR) were also present in the meeting. List of Officers from different states/organizations present in the meeting is enclosed at Annexure-I

At the outset, Chairman, NCDS welcomed all the Members of NCDS/Representatives and other officers present in the meeting and requested for their introduction. After the brief introduction, Chairman, NCDS requested Chief Engineer (DSO) & Member Secretary, NCDS to take up the agenda items.

**33.1.0 Confirmation of the minutes of 32<sup>nd</sup> meeting:**

In response to the comments of Govt.of Kerala & Tamil Nadu, Member Secretary, NCDS acknowledged the error in the Minutes of 32<sup>nd</sup> meeting [(Item 32.11.0 (b)] on the statement attributed to Director (DSR) about the stand of Tamil Nadu that *PAP sub-committee exists which can take care of dam safety aspects of PAP dams*. He further reconfirmed the Minutes of 31<sup>st</sup> Meeting as “Parambikulam sub-committee might be disbanded as a Water Board already exists which can take care of the Dam safety aspects of inter-state dams” (exactly as per verbatim of minutes of 31<sup>st</sup> meeting of NCDS).

Further, Kerala was pressing on inclusion of ‘reluctance’ of Tamil Nadu to hold PAP Sub-committee and on the other hand, Tamil Nadu was insisting on implementing ‘ownership’ clause in NRLD as accepted in 32<sup>nd</sup> meeting. After discussions, Chairman, NCDS categorically stated that the NCDS is not the right forum to discuss the ownership issues related to the large Dams, which may be resolved by the states themselves

separately and decided that since the minutes of 32<sup>nd</sup> meeting of NCDS have already been issued, the comments of States of Kerala and Tamil Nadu on the minutes of the 32<sup>nd</sup> meeting of NCDS are being recorded as such (for details see Annexure II & III).

### **33.2.0 Inclusion of Telangana & Himachal Pradesh States under NCDS:**

Member Secretary, NCDS informed that State of Telangana has come into existence w.e.f. 2<sup>nd</sup> June, 2014 consequent to the bifurcation of Andhra Pradesh. State Government of Himachal Pradesh has recently constituted the state Dam Safety Cell. It was decided to include Telangana and Himachal Pradesh states as the Members of the NCDS. The information related to large dams under the jurisdiction of bifurcated states of Andhra Pradesh and Telangana was submitted by respective States. It was decided that recommendations of NCDS for inclusion of the States of Telangana and Himachal Pradesh may be sent to Ministry of Water Resources, River Development & Ganga Rejuvenation.

Superintending Engineer, Dam Safety & Design, CDO, Telangana informed that the 2 dams - Nagarjunasagar and Srisailem are jointly operated by both the State Governments. Chairman, NCDS stated that the Krishna River Management Board and Godavari River Management Board would take care of these large dams according to their jurisdiction in future.

(Action: DSO, CWC, MoWR, RD & GR,  
States of Telangana, Andhra Pradesh & Himachal Pradesh)

### **33.3.0 National Register of Large Dams**

#### **33.3.1 Updation as per new format:**

Member Secretary, NCDS informed that during the last meeting, a new NRLD proforma including details of river basin was circulated to all States/DSOs. Further, the State Governments/DSOs were requested to check data of large dams in NRLD available at CWC website and submit the corrected data completely filled in the respective

columns of the prescribed proforma within one month to NCDS Secretariat. Besides, some deficiencies in data noticed by CWC were communicated to State Govt.s/DSOs, who were once again requested to thoroughly check the data of large dams in NRLD available at CWC website [www.cwc.nic.in](http://www.cwc.nic.in) and submit the corrected and completely data to NCDS Secretariat by mail at [damsindia2003@yahoo.co.in](mailto:damsindia2003@yahoo.co.in) and as well by hard copy. However, information has been received only from the States/DSOs of Andhra Pradesh, Bihar, Chhattisgarh, Kerala (Irr.), Maharashtra, Madhya Pradesh, Odisha, Tamil Nadu, Uttar Pradesh, BBMB, DVC, and NHPC. Other States/DSOs were requested to furnish the requisite information.

During the discussions, it was decided that the revised proforma of NRLD would include “Volume content of dam material” instead of “Volume content of dam”. Member Secretary, NCDS informed that there are quite a few large dams in each state with the same name appearing twice or more in NRLD but mostly differing in features and it is estimated that there are more than 350 such large dams. The states/DSOs were requested to examine the aforesaid NRLD data and also recheck the data available at CWC web site for similar cases and clarify their status and submit revised corrected information. States of Andhra Pradesh, Chhattisgarh, Karnataka and Maharashtra have submitted the requisite details after checking and Gujarat, Madhya Pradesh, Odisha, Rajasthan and Uttar Pradesh are yet to submit the same (copies enclosed for concerned states – Annexure - IV).

Chairman, Cauvery Technical Cell(CTC) cum Inter State Wing(ISW), Govt. of Tamil Nadu stated that in the disclaimer note, it is mentioned that the information given in NRLD is not binding on any party and does not confer rights or restrictions to any party and requested that it can be added that it does not confer rights including ownership. Chief Engineer, IDRB, Kerala stated that the disclaimer note was appropriate. Chairman, NCDS stated that disclaimer note is in proper order and does not need any changes. The suggestion of Chairman, Cauvery Technical Cell(CTC) cum Inter State Wing(ISW), Government of Tamil Nadu to remove the Caption ‘states’ and listing of all the dams in India under one list or under two or three groups, according to their capacity was not accepted. Chairman, CTC, Tamil Nadu mentioned about introducing “Tributary” in NRLD proforma, to which Chairman, NCDS intimated that river being the main component, there is no need to introduce “Tributary” in the Proforma. The representative

from Odisha submitted a revised list of dams for NRLD, wherein additional large dams have been included.

Member Secretary, NCDS informed as per additional agenda item the Government of Maharashtra has proposed inclusion of 207 new large dams under NRLD with the year of completion varying from 1893 to 2010 and also proposed deletion of some of the large dams already appearing in NRLD. Commissioner, Pen. Riv., MoWR, RD&GR stated that NRLD information is furnished to Parliament and therefore any addition/deletion made therein should be properly justified by way of documents/records. He further requested all the State Governments/DSOs to check the NRLD data as per their records and give a final list of large dams under NRLD after making any addition/deletion as per records/documents. The Superintending Engineer, Maharashtra stated that a massive campaign was launched to update the NRLD data and accordingly new figures have come up and proper justification in this regard would be furnished.

Similarly, Member Secretary, NCDS requested State Government of Gujarat to furnish sufficient justification for changes in NRLD for replacement of existing 12 numbers of large dams by a new set of 12 large dams. Government of Gujarat was requested to furnish the reasons for deletion/omission of 12 numbers of large dams already available in the NRLD require clarification and a justification report. Further, it was requested to provide year of completion for NRLD data pertaining to States of Andhra Pradesh (126 nos. dams), Madhya Pradesh (28 large dams), Karnataka (16 large dams) and few dams in Gujarat, Odisha, Maharashtra, Jharkhand, Himachal Pradesh and Chhattisgarh etc.

It was informed that the Government of Rajasthan had submitted a list containing year of completion of 7 nos of dams earlier named as State Time/Old dams. Subsequent to receipt of information regarding year of completion, these dams have been placed in their respective columns based on the year of completion of each dam. However, information regarding year of completion of 8 large dams as per list-1. Uncha 2.Mundliyakheri 3.Soniyana 4.Bherunda 5.Sadri 6. Gosunda 7. Bishan Samand 8. Madar (Bada) are yet to be received and Government of Rajasthan was requested to furnish the year of completion of aforesaid 8 nos of large dams.

(Action: Govt. of Rajasthan)

Superintending Engineer, Telangana raised the issue of minor tanks, major and medium projects etc. Chairman, NCDS stated that the major, medium and minor projects fall in the domain of irrigation projects, whereas under NRLD the structural definition of large dams as per International Commission on Large Dam (ICOLD) criteria (as in Annexure V) is being followed:

Chairman, NCDS stated that the State Governments/DSOs may finalize any further changes in NRLD data by reviewing all the data/records available with them and submitting the authenticated list approved by the respective Head of the Department in the enclosed proforma at annexure-VI.

(Action: All States/DSOs)

### **33.3.2 Matters related to Foot Note:**

Chief Engineer (Irrigation & ISW), Government of Kerala objected to the decision taken to include the word ‘owned’ in the foot note under Tamil Nadu list in the NRLD table below during the 32<sup>nd</sup> meeting of NCDS. Chairman, CTC & ISW, Tamil Nadu stated that during the 32<sup>nd</sup> meeting, it was agreed to modify the foot note for the four dams, viz., Periyar, Parambikulam, Thunakkadavu and Peruvaripallam located in Kerala as “owned, operated and maintained by Tamil Nadu Public Works Department instead of “operated & maintained”. Chief Engineer (IDRB), Kerala objected to this request made by the Government of Tamil Nadu intimating the Committee that 3 out of the aforesaid 4 dams are under Parambikulam Aliyar Project (PAP) agreement, wherein ownership of the dams is not stipulated. He further referred to the following Point No. 13 under the Schedule – IV of Kerala and Tamil Nadu Agreement on Parambikulam Aliyar Project 1970 as “Notwithstanding anything herein contained the Government of Tamil Nadu shall have the right for use of the land situated within the State of Kerala and given on license to them only for the purpose of execution and maintenance and operation of the Parambikulam Aliyar Project and for no other purpose”.

Chief Engineer (IDRB), Kerala stated that Mulla Periyar Dam comes under a lease agreement between the two states, whereas the PAP agreement is on cost sharing basis.

Chairman, CTC & ISW, Tamil Nadu stated that the ownership details may be included as they are not an agent maintaining the dam. After discussions, Chairman, NCDS again reiterated that the matter related to ownership is not under the purview of NCDS and it may be resolved by States themselves separately and it was decided to maintain status quo in this regard.

#### **33.4.0 A. Dams of National Importance:**

##### **(i) Bhakra Dam (Punjab):**

Member Secretary, NCDS informed that CWC team visited Bhakra Dam in August, 2014 and requested Chief Engineer, BBMB to give details in this regard. Chief Engineer, BBMB stated that the deflection has been found to be well within the range and the instrumentation aspects are being finalized in consultation with Instrumentation Dte of CWC. The PMF studies have been finalized in consultation with CWC and flood routing will be taken up. He requested that CWC may finalize the PMF studies for Pandoh and Pong (Beas) dams. Director, Hydrology(North), CWC informed that the same would be expedited

(Action: BBMB, Director  
(DSR, Instrumentation, Hyd.(N) ), CWC

##### **(ii) Idukki Dam (Kerala):**

Director (DSR), CWC informed that FEM analysis is being carried out. He informed that Idukki Dam is under DRIP and has been examined by experts and CWC teams, and studies are being carried out on core samples and further geological

investigations are also being done. Director, DSR, CWC stated that presently there is no alarming distress in the dam so as to take a call on reducing storage in reservoir.

(Action: Kerala State, Director, DSR, CWC)

**(iii) Srisailem Dam (Andhra Pradesh) :**

Chief Engineer, CDO, Andhra Pradesh informed that no further progress has been made in the rehabilitation work of the dam due to Telangana agitation in the state. However, regarding revision of design flood, a Government Order constituting an Expert Committee comprising of Director- Hydrology (S), CWC, Director-CMDD (NW&S), CWC and Director- (FE&SA), CWC has been issued to study the feasibility of increasing the spillway capacity of NSRS Srisailem Dam.

(Action: State of Andhra Pradesh,  
Director, Hydrology (S), CWC)

**B. Other Dams :**

**(i) Garada Dam (Rajasthan) :**

Director, CSMRS informed that Government of Rajasthan needs to speed up activities by providing necessary logistics, drilling equipment etc. so that the CSMRS team can visit and finalize the geological investigation. Director, Embankment (NW&S) informed that drawings have been issued to project authorities and details of geological investigation are awaited from project authorities for issue of construction drawings. Director, WRD, Rajasthan informed that necessary logistics, drilling equipment etc are being arranged and CSMRS would be informed accordingly. He further informed that the work of remedial measures of unbreached portion of Garada dam and reconstruction of breached portion of dam are likely to be completed in two years.

(Action: State of Rajasthan, CSMRS,  
Director, Embankment (NW&S) Dte., CWC)

**(ii) Nand Gavan Dam (Maharashtra)**

Member Secretary, NCDS requested Superintending Engineer Maharashtra about the status of rehabilitation and the technical report of dam failure. He stated that as the dam belonged to local body i.e. Water Supply Department, fund of Rs. 15.23 lakhs needed for the design of dam section, spillway etc. and detailed field survey have been demanded from District Planning & Development Committee (DPDC) of Yawatmal. After getting that fund, the work of detailed survey and design from Central Design Organization, Nashik will be completed. Thereafter, detailed project report of the scheme will be completed and the case would be processed for the necessary sanction of funds for rehabilitation works from government level. It was intimated that the Report regarding causes of failure of dam is awaited from field unit. Superintending Engineer, Maharashtra was requested to expedite the rehabilitation work of the Nand Gavan dam.

Director DSR, CWC pointed out the case of the newly built Temghar dam near Pune upstream of Kharagwasla dam, which is not in good condition. CWC team had visited Temghar Dam in July 2014 and there are major issues in the dam which need to be addressed by Government of Maharashtra. Superintending Engineer, Maharashtra informed that there is a critical problem of severe leakage and grouting work is to be taken up and a high level committee is being formed. He stated that the dam is not yet completed and dam safety role has not yet started, to which Chairman, NCDS stated that the project may not have been completed but as the dam is filled up the dam is structurally complete and the dam safety issues can be taken up. He further advised that the water resources department may pursue for O&M funds for dam maintenance and dam safety activities with their respective State Governments and apprise NCDS of the same. CWC may also take up the matter with respective state governments for adequate funds so that dam safety aspects are taken care of. Superintending Engineer, Maharashtra was requested to ensure that the rehabilitation measures are taken up urgently for Temghar dam.

(Action: State of Maharashtra, All States/DSOs,  
DSO, CWC)



**iii) Maro and Maudha Dam (Uttar Pradesh):**

Member Secretary, NCDS requested Executive Engineer (Irrg.), Dam Safety Cell, Uttar Pradesh to give details of rehabilitation work undertaken for Maro & Maudha Dams. Regarding Maro Dam, Executive Engineer, Uttar Pradesh informed that the second phase of rehabilitation measures of Maro Dam was completed upto March 2014, but performance checking of dam is remaining as the dam could not be filled up during this season. Regarding Maudha dam, it was informed no rehabilitation measures have been taken up yet. Chairman, NCDS requested that the dam safety organizations of Uttar Pradesh may visit the distress dams and submit report to their respective state government and follow up the matter with them for provision of funds for their rehabilitation. Director, CSMRS stated that the state governments may be requested by NCDS for allocation of the funds on priority for rehabilitation of dams. The representative of Indian Society of Engineering Geology (ISEG) was also in favour of dam safety inspections being carried out by Dam Safety Organizations. States/Govts./DSOs were requested to keep NCDS Secretariat updated on the issues related to aforesaid dams.

(Action: State of Uttar Pradesh/DSO, CWC/All States)

**33.5.0 Implementation of Central Water Commission (CWC)’s Guidelines on Dam Safety Procedures, Emergency Action Planning etc. by State Govt.s/DSOs related to dams**

Member Secretary, NCDS stated that CWC has laid down various guidelines covering the standardized dam safety practices – essentially guiding the Agency operating and maintaining dam in preparation of Emergency Action Plans, periodical dam safety inspections, comprehensive dam safety evaluation, and appropriate institutional framework for dam safety. He stated that their implementation is emphasized during the meetings of National Committee on Dam Safety (NCDS) and through communications sent in this regard and informed that all such CWC guidelines – available on its website ([http://www.cwc.gov.in/Dam\\_safety.html](http://www.cwc.gov.in/Dam_safety.html)) – are listed below:

- i) Report on Dam Safety Procedures;
- ii) Standardized Data Book Format, Sample Checklist or Proforma for Periodical Inspection of Dams;
- iii) Guidelines for Safety Inspections of Dams; and
- iv) Guidelines for Development and Implementation of Emergency Action Plan (EAP) for Dams.

States/ Agencies operating and maintaining dam were requested to take necessary steps for formation of Dam safety organizations/Cell wherever they do not exist, and Dam Safety Organisation/Cell need to be strengthened to discharge the requisite functions. In this regard, the functions and responsibilities of the dam safety Cell are enclosed at Annexure-VII for compliance by State Govts./DSOs. Agency operating and maintaining the dams will perform aforesaid dam safety functions in case no Dam Safety Organization/Cell exists.

State Governments/DSOs were requested to take preventive measures of disaster management in case of dam failure or sudden release of water.

(Action: All States/DSOs)

### **33.6.0 Ensuring public safety during normal operations of Project:**

Member Secretary, NCDS informed that the safety of the people against unprecedented floods in the downstream of dams in the event of a dam break /excess releases through spillway is of prime importance and concern. A well-planned evacuation programme is necessary in coordination with the civil authorities. The Dam Safety Procedures/EAP Guidelines prepared by CWC also emphasize proper operation of sluice/spillways to mitigate the monsoon/other hydrologic conditions related to large releases, spillway and outlet works releases. Specifically, there are situations arising during normal day-to-day operations of the project mainly H.E. Projects, wherein unexpected releases of very short duration in the downstream, could catch the people unawares. The recent incident at Larji Project in Himachal Pradesh causing loss of life of 25 students stands testimony to lack of preparedness in this context. Such incident can be

more frequent unlike dam break cases and the needed infrastructure to avoid such incidents has to be developed. The problems are compounded when there are a large number of private-owned H.E Projects which are operated by them as per their set procedures. The existing dam safety procedures and Standard Operating Rules do not suffice in the case of H.E Projects particularly those with diurnal storages which are sensitive to fluctuations in the regional power grid. The planning for such eventuality by operation of the reservoir is further compounded for a cascade of hydro projects in the river. Such 'flashy' floods can recur almost on a daily basis, which makes it all the more important to devise appropriate mechanism to avert such incidents and/or to ensure permanent safety measures.

Member Secretary, NCDS suggested that the state DSOs/Agency operating and maintaining dam should conduct a critical review of operations of H.E projects and devise procedures for safe management of such floods and for safety of the people in the downstream. The extent of freeboard during normal operation may need to be examined. The state authorities should ensure that the project owners conduct hydraulic routing for different flow conditions and identify vulnerable areas and set up permanent warning posts, marking of danger levels at appropriate places as well as sirens to alert people at least 10 minutes before the water is to reach those sites. He then requested Superintending Engineer, Dam Safety Cell, Himachal Pradesh about the action taken by the State. Superintending Engineer, Dam Safety Cell, Himachal Pradesh stated that after the incidence of Larji HEP, State Government has taken a number of steps, which includes preparation of EAP, Standard Operating Procedures(SOP) & safety guidelines. In order to create awareness among tourists, pamphlets are given at tourist entry check points and information is given through message on mobile that they should avoid going to nearby river. After this incidence the State Government of Himachal Pradesh has issued instructions to all the State Government Organisation/PSUs/Agency operating and maintaining dams to prepare EAPs/SOP/safety guidelines. Chairman, NCDS requested Superintending Engineer, Dam Safety Cell, Himachal Pradesh to furnish a copy of above guidelines to CWC, who informed that the same would be furnished. All State Governments were requested to furnish copy of already existing guidelines.

(Action: All States/DSOs,  
State of Himachal Pradesh)

### **33.7.0 Preparation of Emergency Action Plan (EAP):**

Member Secretary, NCDS informed that during the earlier meetings of NCDS and vide CWC's communications to States/DSOs, the preparation of EAP's has been repeatedly stressed and further as per the recommendations made in the Report No.5 of 2013, C&AG on Performance Audit on Disaster Preparedness in India, "The Ministry of Water Resources should ensure preparation of Emergency Action plans of the states covering all the major dams".

Member Secretary, NCDS stated that Secretary (Security), Cabinet Secretariat has now desired a report on the mock drills which have been conducted since July 2009 along with the dates and action taken to revise the CMPs. Member Secretary, NCDS further informed that CWC Guidelines is available on CWC website (<http://www.cwc.gov.in/main/downloads/EAPChapters.pdf>). The aforesaid guidelines stipulate that the EAP should prepare scenarios for the various emergency conditions and a plan to test the state of training and readiness of key personnel responsible for actions during an emergency, to make sure that they know and understand the procedures to be followed and actions required. These tests should involve a drill simulating emergency conditions, preferably up to but not including actual evacuation. Coordination and consultation with local government, law enforcement officials and other organizations involved is desirable in order to enhance the realism of the drill. The drills should be analyzed in detail and the plan should be revised to correct any deficiencies noted.

Member Secretary, NCDS further requested States/DSOs to inform the Committee on the updated status of preparation of EAPs of large dams along with a report on the mock drills/test carried out for EAPs since July 2009 with dates along with action taken to revise EAPs. Only Chief Engineer, BBMB informed regarding carrying out of the mock drills.

The representative of Odisha informed that the EAPs are being prepared for high priority dams by considering downstream hazards. Chairman, NCDS stated that for preparation of EAPs, mixed approach of field survey (for plain areas) and Digital Elevation Model (DEM) (hilly area) may be adopted. BBMB was requested to develop

the Emergency Action Plans for downstream areas in consultation with riparian State Governments.

The status of preparation of EAP's by States/DSO's was reviewed. In view of the importance of the matter, Member Secretary, NCDS requested state governments/DSOs to make all out efforts for the preparation of EAPs of all the large dams under their jurisdiction and to send the half yearly return as per Proforma enclosed at Annexure-VIII. States/DSOs were also requested that a report on the mock drills/test carried out for EAPs since July 2009 with dates along with action taken to revise EAPs in the light of experiences gained during these exercises may kindly be furnished to the NCDS Secretariat at the earliest.

(Action: All States/DSOs)

### **33.8.0 Pre & Post Monsoon Inspection of Dams :**

Member Secretary, NCDS stated that pre and post monsoon inspection of each large dam is required to be carried out by the concerned State/DSOs and Annual Reports of such inspections are compiled by the respective Dam safety Organization (DSO) and forwarded to Dam Safety Organization, CWC for discussion during NCDS meetings. It has been observed that all the large dams under a particular State are not covered in the Health status reports received from States/ DSOs. It was emphasized that the details of action taken on suggested remedial measures need to be included in Health Status Reports.

Member-Secretary requested to Director(DSM) to provide the latest status of submission of annual reports of pre and post monsoon inspections.. Director (DSM) informed that the states Andhra Pradesh, Bihar, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, BBMB DVC, Kerala State Electricity Board (KSEB) and NHPC have submitted the health status reports for year 2013. It was informed that the reports (except for Maharashtra) do not contain the action taken report on the deficiencies noticed/remedial measures suggested which may be included in the next report. He further requested all the states/DSOs to send annual consolidated report (both pre and post monsoon) for each of the large dams in the prescribed proforma (enclosed at Annexure-IX) in the month of April for the previous year. In the report,

deficiencies noted during the inspection may be classified as category (I) (Dams with major deficiency which may lead to dam failure), category (II) (Dams with rectifiable deficiency needing immediate attention), category (III) (Dams which minor/no deficiency has been noticed) and the category number may be given in the remarks column. In the successive reports, an “Action Taken Report” on the category No. (I) & (II), dams may be given in the beginning of periodical inspection of large dams for Category-I & II. Chhattisgarh, Gujarat, Jharkhand, Kerala Irrigation, Karnataka, Punjab, Uttarakhand and West Bengal were requested to expedite the submission of annual consolidated report (both pre & post monsoon) for all large dams for the year 2013. The representative of Odisha mentioned about inclusion of two more points like the summary of distress condition and action taken on the suggestions made by State Dam safety Organisation(SDSO) on last inspection report in the prescribed form of periodical inspection of large dams for Category-I and II. The above points are included in the aforesaid proforma enclosed.

States/DSOs were requested to follow the aforesaid schedule for submission of Annual Consolidated health Status Report strictly and further requested to submit the summary of pre and post monsoon inspections as per proforma enclosed at Annexure- X. Director, DSM, CWC informed that the health status reports submitted by Maharashtra needs to be appreciated. Chairman, NCDS desired that the sample portion from Maharashtra Report can be circulated. Accordingly the sample portion from Maharashtra health status report is enclosed at Annexure-XI for reference.

(Action: All States/DSOs)

### **33.9.0 Instrumentation of Dams:**

Member Secretary, NCDS requested Director (Instrumentation), CWC to brief the Committee on the issue of instrumentation of Dams. Director, Instrumentation, CWC stated to have received instrumentation report from the State of Maharashtra and NHPC. He stated that instrumentation details received in case of Maharashtra are region-wise and not project-wise. It was informed that NHPC has given only the inspection reports and no performance report and data analysis report have been furnished. Chief Engineer, BBMB stated that instrumentation report has been submitted by BBMB. Member

Secretary, NCDS, requested Director (Instrumentation), CWC to circulate the requisite proforma (as enclosed at Annexure-XII) for instrumentation in this regard. All States/DSOs were requested to send the instrumentation report of large dams directly to Director, Instrumentation Dte., CWC. Director (DSR), CWC stated that the instruments available in dams are mostly non-functional and stated that state government/DSO should ensure their proper functioning and make sure that at least basic instruments, i.e. plumb line, V-notch & survey settlement points etc are in working order.

(Action: All States/DSOs, Director, Instrumentation, CWC)

### **33.10.0 Comprehensive Dam Safety Review Panel (DSRP):**

Member Secretary, NCDS informed that as per “Dam Safety Procedures” the States/DSOs shall arrange comprehensive safety review of dams which are more than 15 metres in height and which store 50000 acre-feet ( $60\text{Mm}^3$ ) or more of water by an independent panel of experts once in 10 years. The State/DSO's shall develop their own mechanism for safety review of the balance dams in their state, based on assessment of safety of dam, hydrological, structural and seismological assessment.

During last meeting, Chairman, NCDS had requested the States to constitute the DSRPs wherever this has not been done and carry out the requisite Comprehensive dam safety review of large dams.

Director, DSM, CWC requested the states/DSOs i.e. the states of Chhattisgarh, Gujarat, Jharkhand, Punjab, Rajasthan, Uttar Pradesh, Uttarakhand, West Bengal and Kerala Electricity Board (KSEB) where the DSRPs have not been constituted as per available information, to furnish the status of constitution of DSRPs. It was informed that out of above states, Chhattisgarh, have constituted the DSRP. Some of the states informed of carrying out safety reviews through dam safety units which was not accepted and Chairman, NCDS stated that DSRP, a body consisting of independent Panel of Experts for the purpose of carrying out comprehensive safety review of dam needs to be separately constituted by the States/DSOs and requested the states to constitute DSRP, wherever not constituted and all States/DSOs were requested to carry out comprehensive dam safety review of large dams and submit updated status in this regard.

(Action: All States/DSOs)

### **33.11.0 Dam Rehabilitation & Improvement Project (DRIP) :**

Director, DSR, CWC informed that as part of continuous strengthening of the dam safety activities in India, Dam Rehabilitation and Improvement Project (DRIP) has been taken up with World Bank assistance. About 223 large dams in four states i.e. Madhya Pradesh, Orissa, Kerala and Tamil Nadu would be rehabilitated under this project. It was intimated that the case for bringing of Karnataka under DRIP is in advanced stages and expected to be completed by end of September, 2014. World Bank is also being pursued to speed up the case of inclusion of other new states/ organization (primarily Uttaranchal Jal Vidyut Nigam Limited and Damodar Valley Corporation) under DRIP.

Replying on status of DRIP, Director, DSR, CWC informed that design flood reviews of 163 DRIP dams have been completed; Dam Safety Review Panels have inspected 162 DRIP dams; project Screening Templates in respect of 69 DRIP dams have been approved by the World Bank; project authorities have prepared about 46 tender documents which covers the works of dam rehabilitation as well as works of basic facilities; and works have been awarded for 28 tenders, while 18 more have been invited and expected to be awarded shortly. So far, about twenty trainings have been conducted, wherein about 800 officials have been trained on different aspects of DRIP implementation and dam safety. He also informed about various guidelines on dam safety which are being targeted for preparation under DRIP.

Superintending Engineer, Dam Safety & Design, Telangana requested to publish a booklet on distress dams and giving details of reasons of failures and rehabilitation measures undertaken. Director, DSR, CWC stated that under DRIP such a publication would be taken up. Chairman, NCDS stated that the guidelines on initial filling of the reservoirs also need to be finalized under DRIP.

### **33.12.0 Record of Dam Failures :**

Member Secretary, NCDS informed that the record of dam failure in the country as per information received from State Govts. /DSOs was circulated with the minutes of the last meeting for updation and stated that out of 36 dams, technical details report of



dam failure have been received for only 8 dams and is required to be furnished for remaining dams in the states of Madhya Pradesh (10 dams), Rajasthan (11 dams), Uttarakhand (1 dam), Uttar Pradesh (1 dam), and Gujarat (5 dams) as per details at Annexure-XIII. Superintending Engineer, Maharashtra informed of submitting the technical report for Ashti Dam constructed in the year 1883 which failed in the year 1933. Chief Engineer, CDO, Andhra Pradesh informed regarding submission of technical report for the failure of Palemvagu Dam. Member Secretary, NCDS stated that the list of dam failures in the country as per information received from state governments/DSOs is enclosed at Annexure-XIII may be updated by State Govts./DSOs/Agency operating and maintain dams on regular basis and technical report on causes of failures and rehabilitation measures under taken for the states Madhya Pradesh (10 dams), Rajasthan(11 dams), Uttarakhand (1 dam), Uttar Pradesh (1 dam), Gujarat (5 dams) may be sent to NCDS Secretariat.

Chairman, CTC cum ISW, Tamil Nadu requested for funding for preparation of these Technical Reports in this regard. Director, DSR, CWC informed that the same can be undertaken under the institutional strengthening under DRIP.

(Action: All States/DSOs, State of Madhya Pradesh,  
Rajasthan, Uttarakhand, Uttar Pradesh, Gujarat)

### **33.13.0 Data Book and O&M Manual :**

Member Secretary, NCDS informed that during the last meeting, it was decided that the project authorities should prepare the operation & maintenance (O&M) manuals for all the large dams in their States on priority. Accordingly, State Govts./DSOs were requested to prepare data books along with complete set of designs and drawings as per CWC Guidelines on Standardized Data Book Format available at ([http://www.cwc.gov.in/Dam\\_safety.html](http://www.cwc.gov.in/Dam_safety.html)). Member Secretary, NCDS requested all State Government/DSOs to expedite the preparation of data books and O&M manuals for all the large dams under their jurisdiction and submit the updated status.

(Action: All States/DSOs)

### **33.14.0 Monitoring of safety aspects of inter-state Dams by Sub-Committee:**

#### **(a) Mahanadi River System Sub-Committee (MRSS) :**

Representative from Odisha informed that the 8<sup>th</sup> meeting of the Sub-Committee was held in August 2014, wherein, apart from the dam safety issues matters related to basin planning was discussed amicably amongst the states and there is no water sharing problem. Chief Engineer, Dam Safety, Odisha, Member Secretary, MRSS was requested to furnish report on monitoring of the safety aspects of interstate dams of Mahanadi River System to NCDS Secretariat.

(Action: Chief Engineer, Dam safety, Odisha (Member Secretary & Convenor), MRSS,  
Chief Engineer, Mahanadi Project, Chhattisgarh (Member),  
Chief Engineer & Basin Manager, Upper Mahanadi Basin, Odisha (Member)  
and Chief Engineer, Minimata Bango Project, Chhattisgarh (Member))

#### **(b) Parambikulam Aliyar Project Sub-Committee (PAPS)**

Member Secretary, NCDS opened the discussion stating that the Sub-Committee on PAP constituted by NCDS to monitor the safety aspects of dams under PAP system has not been functioning and efforts have been made by CWC for reviving the sub-committee through the various meetings of NCDS, a meeting under Chairman, CWC, was also planned, which could not materialize and the status quo is continuing.

Chief Engineer, IDRB, Kerala stated that Parambikulam Aliyar Project (PAP) is an aggregated system consisting of dams, weirs, power houses, tunnels and canals etc spread over two states of Kerala and Tamil Nadu. He informed that Joint Water Regulation Board (JWRB) is constituted for the purpose of regulating the flow of water as specified in schedule V of PAP agreement and is not conducting periodical safety inspections of Dams/structures in PAP. He also mentioned about the change in stand by Tamil Nadu Government regarding the dam safety issues of PAP System. Earlier it was agreed by Tamil Nadu to consider dam safety issues under JWRB, but later on it was not implemented by Tamil Nadu.

Chairman CTC cum ISW, Tamil Nadu stated regarding the consistent stand of Tamil Nadu that there is no need for a PAP Sub-Committee. He stated that in the 30<sup>th</sup> meeting it was decided not to pursue this, however in the 31<sup>st</sup> and 32<sup>nd</sup> meeting it was taken up, which was opposed by Tamil Nadu. He added that the Sub-Committee has become functus officio and JWRB of the PAP as per the inter-State Agreement is mandated to discuss only water regulation. He mentioned that safety aspects are taken care by Tamil Nadu Dam Safety Organization and further, these dams are in good conditions. He requested NCDS to drop this agenda. Member Secretary, NCDS pointed out that Chief Engineer (DSO), CWC is also a Member of PAP Sub-committee.

Chief Engineer, IDRB, Kerala stated that since PAP has been constituted by NCDS and requested that the dam safety issues may be taken care by PAP Sub-Committee. He further informed that the Kerala Irrigation and Water Services Act 2003 envisaged the constitution of Kerala Dam Safety Authority for the purpose of surveillance, inspection and advice on maintenance of dams situated within the territory of state. He requested that Kerala Dam Safety Organization may be allowed to visit the PAP dams. After discussions, Chairman, NCDS stated that PAP Sub-committee has been constituted by NCDS on the directions of Ministry of Water Resources, RD & GR and further added that as the sub-committee is not functional due to inter-state issues between the state governments, state governments may take up the matter with Ministry of Water Resources, RD & GR in this regard.

(Action: State of Kerala & Tamil Nadu)

**(c) Subarnarekha River System Sub-Committee (SRSS):**

Representative of Odisha informed that no meeting of the Sub-Committee could be organized for last 4 years. He informed that State Government of West Bengal has to organize the meeting and the dates for conducting the meeting have not been received from them. Director, Dam Safety, West Bengal stated that the Dam Safety Cell of West Bengal is understaffed and the matter would be expedited at the state government level. Chief Engineer, Dam Safety, Odisha – Member Secretary, SRSS was requested to impress upon the Government of West Bengal and Jharkhand to organize the meeting and

to furnish report on monitoring of the safety aspects of interstate dams of Subarnarekha River System Sub-Committee to NCDS Secretariat.

(Action: Chief Engineer, Design & Research, Odisha  
(Member Secretary & Convenor), SRSS,  
Chief Engineer Design & Research, West Bengal (Member),  
Chief Engineer, Design, Master Planning & Hydrology, Jharkhand (Member),

**(d) Other Sub-Committee:**

Representative from Odisha requested for constitution of sub-committee with Andhra Pradesh for the inter-state dams of Godavari basin and stated that the Godavari river flows through the states of Maharashtra, Madhya Pradesh, Karnataka, Andhra Pradesh, Chhattisgarh and Odisha. Fourteen large dams of Odisha are situated in the Godavari basin. He requested that a sub-Committee of NCDS representing all the above states may be formed to monitor the health status of large dams in the basin and discuss the dam safety issues.

(Action: States Maharashtra, Odisha, Madhya Pradesh, Karnataka,  
Andhra Pradesh and Chhattisgarh to give views on the  
aforesaid proposal for constitution of Sub-committee)

**33.15.0 Dam Safety Bill:**

Director, DSR, CWC informed that Dam Safety Bill (2010), which was introduced in the 15th Lok Sabha on 30th August 2010, has now come to lapse, and hence the Bill needed to be prepared afresh. Accordingly the case has been sent by the CWC to the MoWR, RD&GR for its consideration.

Chairman, CTC cum ISW, Tamil Nadu stated that Tamil Nadu had earlier suggested some modification to the Bill, and these needed to be incorporated in the fresh Bill. Chief Engineer (IDRB), Kerala stated that as the Kerala Government has already passed Kerala Irrigation & Water Conservation Act to form Kerala Dam Safety Authority and hence no separate Bill is necessary as far Kerala is concerned.

The committee noted the statement of both Tamil Nadu and Kerala with respect to the proposal on Dam Safety Bill.

### **33.16.0 Setting up Hydrology units and Design Floods Review:**

Member Secretary, NCDS informed that as the earlier design floods computation were based on limited data availability, these studies require to be updated with more data as now available, by carrying out hydrological studies based on state of art statistical methods. Director, Hydrology(S) clarified that the criterion of mandatory appraisal of large dam by CWC is applicable to dams under DRIP only. CWC has been appraising and extending guidance to states in respects of any project referred to CWC. He further highlighted some of the issues in the assessment of review design flood of existing dams. He informed that the project "preparation of PMP Atlases for various river basins in the country" is near completion and these atlases have been very useful in assessing the applicable design storm for various projects rationally. However, the catchment response functions (unit hydrographs etc) are still being derived synthetically in most of the cases despite the projects being in operation since long. Requisite efforts for collecting short interval rainfall and runoff data for few storm events are lacking. As the unit hydrograph is an empirical response function of a catchment, it is best assessed based on project specific observed rainfall and runoff data. He stressed to place requisite network of Self Recording Rain Gauge (SRRG) stations in the catchment of projects under DRIP for assessing their response functions. Member Secretary, NCDS requested States/DSOs of Chhattisgarh, Jharkhand, Uttar Pradesh, Uttarkhand, West Bengal and Kerala Electricity Board (KSEB) to take necessary steps for setting up the hydrological units. Further, All States/DSO's were requested to carry out review of Design floods of large dams and submit updated status in this regard.

(Action: All States/DSOs)

### **33.17.0 Other Item:**

- (i) Director, (DSR), CWC informed the Committee that Balimela dam of Odisha has been included under Dam Rehabilitation and Improvement Project. He further stated that as per information, Balimela dam is a joint venture project of Odisha

and Andhra Pradesh with equal sharing of water of Balimela dam. The share of Andhra Pradesh from the Balimela reservoir was earlier planned through AP tunnel. The diversion of water through this tunnel was operational for three years i.e. 1974 to 1977. After that they are not operated. The Andhra share is being released from a river sluice gate which is jammed and not operable. Because of the continuous flow, a deep channel has been formed due to erosion which is also endangering the road on the left of the spillway. Dam Safety Review Panel of Odisha after inspection of this dam has suggested to make operational the tunnel for passing the water without continuously opening the river sluices, and for repair of downstream erosions. He requested for Govt. of Andhra Pradesh's view point on the stated intervention at Balimela Dam; and in response representative of AP agreed to look into the issue and respond at a later date.

(Action: Andhra Pradesh/ Odisha)

- (ii) Chief Engineer, IDRB, Kerala took up the issue related to desilting of the dams. Chairman, NCDS informed that the desilting of the dams is linked to conserving storage capacity of the dams and not directly an issue of dam safety and may be taken up separately under water management area.

The meeting ended with a vote of thanks to chair.