

**BY SPEED POST**

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**Subject: Minutes of the Extra-ordinary Meeting of Expert Appraisal Committee for River Valley and Hydroelectric Projects to consider the Final Report by Dr. Pandey Committee on Assessment of Command Area Development Plans for Omkareshwar and Indira Sagar Projects in Madhya Pradesh**

Sir,

Kindly find enclosed the Minutes of the above mentioned meeting which was held on 10<sup>th</sup> February 2011 at Ministry of Environment and Forests, New Delhi under the Chairmanship of Shri Rakesh Nath, Chairman, EAC.

Comments, if any, may kindly be communicated immediately.

(Sanchita Jindal)  
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**Encl:** Minutes of the Meeting.

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**Minutes of the Extra-ordinary Meeting of Expert Appraisal Committee for River Valley and Hydroelectric Projects to consider the Final Report by Dr. Pandey Committee on Assessment of Command Area Development Plans for Omkareshwar and Indira Sagar Projects in Madhya Pradesh**

In observance of the orders of the Hon'ble Madhya Pradesh High Court and the Supreme Court of India, the Committee under the Chairmanship of Dr. Debender Pandey (herein referred as Pandey Committee), which was originally constituted for the Assessment of Survey/Studies/Planning and Implementation of the Plans on Environmental Safeguard Measures for Sardar Sarover and Indira Sagar Projects was entrusted with the additional work of scrutinizing the Command Area Development Plans (CAD) for Indira Sagar and Omkareshwar Canal Projects. Accordingly, the Committee has submitted its final report to the Ministry of Environment & Forests in January 2011.

To enable the Ministry of Environment & Forests to take a view on the completeness of the CAD Plans, based on the recommendations of this report, an extra ordinary meeting of the Environmental Appraisal Committee (EAC) for River Valley and Hydro Electric Power (RV&HEP) was organized on **10<sup>th</sup> February, 2011 at 3.00 pm in Room No. 402 of Ministry of Environment & Forests, New Delhi**. The meeting was chaired by Shri Rakesh Nath, Chairman (EAC). The following were present in the meeting-

1. Shri Rakesh Nath, Chairman (EAC)
2. Dr. B.P. Das, Vice Chairman (EAC)
3. Dr. Utpal Bhaumik, Member (EAC)
4. Dr. B.K. Bansal, Member (EAC)
5. Mr. A.K. Rana, Chief Conservator of Forests, MoEF, Regional Office, Bhopal and Member Secretary ( Pandey Committee)
6. Ms. Sanchita Jindal, Director , MoEF and Member – Secretary(EAC)
7. Dr. P.V. Subba Rao, MoEF

Dr. A. Bhattacharya, Prof K.C. Mishra, Prof. Dulal Goswami, Dr. (Mrs) Maitrayee Choudhary and Dr. Dhanjaya Mohan could not attend the meeting due to pre occupation.

After welcoming the Members, the Chairman requested Dr. Das, being a member of the P. Committee, to apprise the members about their work. It was informed that the recommendations were based on the examination of the earlier project documents (2009), information submitted by the Project Authorities, revised documents from time to time, field visits by the Pandey Committee members and discussion with some of the local people. Thereafter, Mr. A.K. Rana, CCF Regional Office, Bhopal – the Member Secretary of Pandey Committee presented the following details and the recommendations of the Committee-

**GENERAL OBSERVATIONS AND RECOMMENDATIONS**

- (i) It was observed by the Pandey Committee that NVDA had perceived that CAD plan for Omkareshwar project would be identical to the one prepared for Indra Sagar Project due to similarities in the features and contiguous nature of the two command areas. The Committee was of the view that due to the orientation of the Narmada River, slope and soil characteristics, the nature of the two commands will be different. Further, the command of Omkareshwar is nearer to the Narmada River therefore shall have a different base line data. This would require change in concept and planning for commands.
- (ii) The observations and recommendations of the Pandey Committee are based on the 'Revised Plan of 2010' submitted by NVDA and the Final Report submitted in January 2011 supersedes the Interim Report.
- (iii) The CAD Plans should be as per the Guidelines of Ministry of Water Resources and should incorporate environmental considerations too.
- (iv) Attention is to be given to the soil-water-crop environment of the command area, which will receive irrigation for the first time.
- (v) All developmental activities have to be pari pasu with the commencement of irrigation and hence, need to be planned according to the implementation schedule of the irrigation distribution network.
- (vi) Committee examined the technical details of OFD works with basic cost details, but did not have time to go through the financial details of the Plans.

## **PROJECT SPECIFIC OBSERVATIONS AND RECOMMENDATIONS**

### **Omkareshwar Project**

- (i) Out of gross command area of 2,14,200 ha, the Culturable Command Area (CCA) is 1,46,800 ha for which the CAD Plan is relevant. Out of this :
  - 54,630 ha is through lift irrigation through the right bank lift canal;
  - 24000 ha under flow irrigation through left bank canal; and
  - 68,170 ha under right bank flow canal
- (ii) There was an overlapping of irrigation at some places in lift canal command area with that of already existing irrigation through tanks, wells and direct lift from the Narmada River.
- (iii) As per the records of Project Authorities, the irrigation potential under the existing irrigation facilities was 13,746 ha out of the total of 1,46,800 ha, but the area actually receiving irrigation water from the existing sources was only 6173 ha. This being a small area, the suggestion of creation of lift irrigation command by some beneficiary as un-necessary is not justified.

- (iv) NVDA should map the existing irrigation sources in the command area with their potential and actual irrigation for integration with lift irrigation distribution network.
- (v) Although maps of the area showing main, branches, distributaries of canals, command areas under flow and lift irrigation and phase-wise development to be taken up, are available, more clarity is needed in formulating the schedule of construction of various works so that the CAD works can be planned properly.
- (vi) The total work of canal construction is divided into 4 phases corresponding to different extent of proposed irrigated area:
- Phase-I ( flow canal) - 24,000 ha- Left Bank Canal
  - Phase-II (flow canal) - 19,578 ha- Right Bank
  - Phase-III (flow canal) - 48,592 ha-Right Bank
  - Phase-iv (lift canal) - 54,630 ha-flow canal
- (vii) About 75% of the infrastructure works i.e. On-Farm-Development (OFD) in Phase I (24,000 ha) for left bank canal has been completed. 20 per cent of the works in Phase II and Phase III under the Right Bank Canal is also complete. Tendering is in progress for Phase IV.
- (viii) On-Farm-Development (OFD) details on a sample area of 1500 ha have been planned adequately. The most crucial ones namely the field channels, field drains, and cooperatives in the form of Water Users' Association (WUAs) have also been planned. However, implementation of OFD works like planning for water courses and field channels, land leveling and shaping, field drainage and cooperative structures etc. for all the area to which irrigation water is being released need to be given importance for the sustainability of irrigation.
- (ix) Micro-plans have been prepared for an area of 49,753 ha and an estimate of Rs. 48.55 crores has been submitted to the Zila Parishad.
- (x) Implementation of OFD works up to field channels on a sample area of 1457.7 ha comprising of lined water courses with built in outlets is completed.
- (xi) In places, other than the sample area, field channels and fields drains were not completed would result in inequitable water irrigation and water stagnation/ logging in some areas.
- (xii) The Committee felt satisfied in respect of micro-planning and implementation in the sample area.
- (xiii) The activity for land shaping and grading is planned presently. Land with slope steeper than 1% would require soil movement to varying extent once irrigation water is made available from the canal system. Therefore, it is essential to include such activity along with its cost in the CAD Plan.

- (xiv) A total of 52 WUAs have been constituted covering 49,753 ha of the planned command area falling under Phases I, II and III. However, there is a need to educate and train them as they are unaware about their roles and responsibilities.
- (xv) There is a need to ensure equitable distribution of irrigation water among the beneficiaries. This could be achieved by motivation and water management training to the members of the WUAs.
- (xvi) Conjunctive water use in the command area has been planned on the basis of 70% (surface) and 30% (use of ground water) in the canal system to meet the crop water requirement. However, availability of adequate numbers of groundwater structures, energy availability for groundwater pumping and restricting the canal water release to the stipulated 70 per cent of the crop water requirement needs to be ensured.
- (xvii) Planning for ancillary infrastructure like roads, marketing strategy, warehousing facilities, agriculture demonstration farms etc. should be undertaken.
- (xviii) The plan for providing irrigation for entire command area on yearly basis and accordingly the implementation schedule plan for the irrigation distribution network and the CAD works should be submitted.
- (xix) As OFD plans already prepared for a part of the command area and the sample execution sites have been examined by the Committee and have been found satisfactory, such plans are to be completed for the remaining part of the command area and executed pari pasu with the commencement of irrigation.
- (xx) Details of funding for micro-plans are to be presented.
- (xxi) Training plans to make WUAs effective & efficient water management schedule to be provided.
- (xxii) Planning of conjunctive water use for irrigation (70 per cent canal water and 30 per cent groundwater) is good. Whether, electrical distribution supply is in place in command area to energise the pumps for groundwater lifting is to be ensured.
- (xxiii) Of the other stipulated CAD activities, over and above the OFD items namely, roads, marketing and warehousing, demonstration farms, cooperatives, farm inputs and land consolidation; the last item has been considered infeasible. Due attention has already been paid to the cooperatives (WUAs) and the effort in this regard is to be strengthened. Proper attention, therefore, has to be given to the remaining activities so that the full benefit of irrigation is accrued to the farmers.
- (xxiv) Water should be released only when the Command Area Development plan is successfully implemented pari pasu with the commencement of irrigation.

## **Indira Sagar Project**

- (i) The total CCA proposed is 1.23 lakh ha through a Left Bank Canal. However potential area of irrigation works out to be 1.69 lakh ha as some areas is to be irrigated twice. The canal system is planned in phases.
- (ii) Irrigation distribution network construction has been planned in four phases-
  - Phase I would be for 0-71 km reach with command area of 36,100 ha; Completion target date: December 2011
  - Phase II for 71-142 km reach with command area of 26,100 ha; Completion target date: June 2012
  - Phase III for 142-206 km with command area of 20,700 ha; Completion target date: June 2013 and
  - Phase IV under lift irrigation for 206-248 km with command area of 40,100 ha; Completion target date: June 2015
- (iii) The total number of villages to be benefited from irrigation is 574.
- (iv) Of the 34,010 ha for which potential has been created till 2009-10, the actual irrigation has been around 16,848 ha only.
- (v) Field channels / field drains have been constructed over the sample areas of three distributaries namely, Neelkantha, Gudariya and Roopkheda inside the 16500 ha already irrigated. As authorities plan to extend irrigation to an area of 51,528 ha in the FY 2010-11 covering Phase-I & II, micro-planning works and implementation has to be completed over this area by June 2011.
- (vi) Authorities need to complete the micro-planning expeditiously for the entire area in the next two years.
- (vii) Several WUAs though formed, need to be more actively involved.
- (viii) Although detailed OFD plans for about one-third of the CCA have been prepared (41240 ha), the plan has been implemented over about 1 % of sample area only.
- (ix) Micro Planning for OFD works for rest of the CCA i.e. 81,760 ha is planned to be completed by the end of March 2011.
- (x) The Environmental Impact Assessment and the Environmental Management Plan documents (August 2009) of the Project identifies several adverse impacts on the command area due to the introduction of irrigation such as water-logging, groundwater table rise, possibility of development of saline and alkali condition, seepage from the unlined irrigation conveyance network,

contamination of natural streams due to mixing of agro-chemical laden surface runoff, occurrence of vector borne diseases in a wet environment and consequent health risks there from, etc.

- (xi) 18 WUAs have been constituted to address the issues related to the irrigation water in the command area.
- (xii) Plan to use groundwater for irrigation through conjunctive use has been prepared. However power for lifting water has to be ensured through transmission and distribution network.
- (xiii) No plantation along the canals was found.

### **Views of EAC**

While the Chairman and the members noted the progress of work carried out by NVDA and other Project Authorities and initiatives in micro planning regarding the CAD but felt that lot still needs to be done. Dr. Das informed that the CAD Plans have been improved substantially from the time of the interim report of the Pandey Committee. Several meetings, presentations and in-depth discussions with NVDA have resulted in channelizing the formulation of CAD Plans. The Pandey Committee was satisfied with the work carried out in the sample/ pilot area of Omkareshwar, specifically OFD works and the most crucial ones namely the field channels, field drains and cooperatives in the form of WUAs and the micro planning for sample area. Moreover, CAD Plans development is a dynamic process and cannot be completed in one go. It is a continuous process.

However, EAC felt that even if the CAD Plan cannot be prepared for the whole command area in one go, the macro level plans can be prepared providing the schedule for the micro level planning. Implementation of micro level plan is imperative to prevent the possibility of large scale water logging, as small water logged patches were observed by the Pandey Committee in Sardar Sarovar Project. However, it can be taken up phase-wise, commensurate with irrigation phases. EAC was of the view that the plans and documents submitted to the Pandey Committee by the NVDA or other authorities were only the sample CAD Plans and the Pandey Committee has approved the methodology and procedure. Based on it, now the detailed CAD Plan need to be made and the schedule of such formulation and implementation be submitted to the Ministry for its final approval. The implementation schedule will also help in monitoring progress of OFD and other CAD works commensurate with the construction of irrigation infrastructure. The CAD Plan for the entire command area is linked with details given below and the information to be included shall apply for both the projects, except where specific project has been mentioned.

- (i) Year-wise plan for providing irrigation to the entire command area.
- (ii) Schedule of construction of main irrigation infrastructure for phase wise area proposed for irrigation.

- (iii) Implementation schedule for OFD work commensurate with programme for providing irrigation.
- (iv) Modalities and schedule of implementation of micro level plan for 49,753 ha area of first phase of Omkareshwar Project, where OFD planning has been finished.
- (v) Schedule for preparation of Micro level Plans of OFD for the remaining command area for Omkareshwar.
- (vi) Modalities of implementation and schedule of OFD for the remaining command area for Omkareshwar.
- (vii) Phase-wise details of the work completed so far and CAD activities taken up for ISP.
- (viii) Modalities and Schedule of implementation of OFD work for the 41240 ha of ISP for which micro planning has been completed.
- (ix) Schedule for OFD, micro level Plan preparation and implementation for the balance area of ISP.
- (x) On priority basis, plan for completion of OFD works over cumulative irrigation potential to be created till 2010-2011 for 51, 528 ha for ISP.
- (xi) Environment action plan to address issues such as health impacts, ground water table rise , possibility of development of saline and alkaline condition, seepage from the unlined irrigation conveyance network, contamination of natural streams due to mixing of agro-chemicals laden surface runoff, occurrence of vector borne diseases, loss of Bio-diversity, pollution, impact on aqua-culture related to irrigation in the areas. This is specifically more important for ISG where water logging and mosquitoes breeding was observed.
- (xii) Target Plans for leveling of command area.
- (xiii) Financial details and availability of funds.
- (xiv) Comprehensive plan for training to the WUAs for water management and Rotational water distribution and its implementation schedule.
- (xv) To confirm availability of electricity supply infrastructure is in place to energise the farmer's wells for ground water extraction for conjunctive use of water.
- (xvi) Plan for providing support to farmers for pumping for conjunctive use of water.

(xvii) Implementation schedule for other CAD activities such as roads, marketing, ware housing, cooperatives, farming in-puts, etc.

(xviii) Monitoring mechanism for implementation of the Plan.

EAC observed that implementation schedule for all these plans should be pari pasu with the construction of irrigation system and water should be released only when all the components of CAD plan are in place on ground in the area to be irrigated.

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

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