



राष्ट्रीय जल विकास अभिकरण
जल शक्ति मंत्रालय, भारत सरकार
(जल संसाधन, नदी विकास और गंगा संरक्षण विभाग)
National Water Development Agency

Ministry of Jal Shakti, Government of India
(Department of Water Resources, River Development and Ganga Rejuvenation)



SCILR/400/2/2023/3081-83/02

Date : 6.10.23

Sub.: Minutes of the 3rd meeting of the "Sub Committee for Comprehensive Evaluation and System Studies on Interlinking of Rivers", held on 26.9.2023 at NWDA, Palika Bhawan, New Delhi in hybrid mode – reg.

Sir,

The 3rd Meeting of the "Sub Committee for Comprehensive Evaluation and System Studies on Interlinking of Rivers" was held on 26.9.23 at 11:00 A.M. at NWDA, New Delhi in hybrid mode, under the chairmanship of Sh. A.B.Pandya. A copy of minutes of the meeting, duly approved by the Chairman are enclosed for kind information.

It is requested to send your comments, if any, at the earliest, by e-mail to: cehq-nwda@nic.in / dirtech-nwda@nic.in.

Yours faithfully,

Baleshwar Thakur
06/10/2023

Encl : As above

(Baleshwar Thakur)
Chief Engineer(HQ) &
Member Secretary

E-mail: cehq-nwda@nic.in

To

1. Shri A.B. Pandya, Secretary General, ICID & Chairman of the Sub-Committee, New Delhi. E-mail: abpandya@yahoo.co.uk, sec-gen@icid.org, Mob. No.: 09910264141.
2. Prof. P. P. Majumdar, Department of Civil Engineering & Chairman, Interdisciplinary Centre for Water Resources, IISc, Bengaluru -560012. E-mail: pradeep@iisc.ac.in. Phone no. : 080 22932669, 2293232, 23600290.
3. Prof. S. Iqbal Hasnain, Eminent Environmental Expert, New Delhi. E-mail: hasnainsyed09@gmail.com. Mob. No.: 09650576439.
4. Shri A. C. Tyagi, Retd. Director, Hydrology & WRD (Geneva, Switzerland), World Meteorological Organization. E-mail: avinash.c.tyagi@gmail.com. Mob. No.: 09650012655.

5. Sh. M. K. Sinha, Former Assessor, Krishna Water Disputes Tribunal, 254, APR Pranav Antillia, Bachupally road, Hyderabad. E-mail: mksinhacwc@gmail.com, mksinhacwc@yahoo.co.in, Mob.: 09971686789.
6. Prof. Kamta Prasad, Chairperson Emeritus IRMED, 2-B, Institutional Area, Karkardooma, Delhi-110092. E-mail: irmed7@gmail.com, Phone: 011-22377199(O), 011-22374975 (R), Mob.: 09810288036.
7. Prof. N. K. Goel, Department of Hydrology, IIT, Roorkee. E-mail: nkgoel@hy.iitr.ac.in, goelhy@gmail.com, Mob. No.: 09412393851.
8. Dr. S. Mohan, Professor, EWRE 24, Department of Civil Engineering, IIT, Chennai- 600036. E-mail: smohan@iitm.ac.in, Phone : 044-22574261 (O), 044-22579296 (R), Mob.: 09837600444.
9. Chief Engineer (HQ), NWDA and Member Secretary of the Sub Committee, New Delhi. E-mail: cehq-nwda@nic.in, Mob. No.: 9015404275.

Special invitees:

1. Sh. Bhopal Singh, DG, NWDA, New Delhi. E-mail: dg-nwda@nic.in
2. Chief Engineer (North), NWDA, Lucknow. E-mail: cenwdalko@rediffmail.com, cenlko-nwda@nic.in.
3. Chief Engineer (South), NWDA, Hyderabad. E-mail : ceshyd-nwda@nic.in, cesnwda@rediffmail.com.
4. Superintending Engineer - N, NWDA, Palika Bhawan, New Delhi. E-mail: se3nwda@rediffmail.com, se2delhi-nwda@gov.in
5. Superintending Engineer - S, NWDA, Palika Bhawan, New Delhi. E-mail: selnwda@rediffmail.com, sel-nwda@nic.in
6. Superintending Engineer, IC, NWDA, BBSR / Patna / Hyderabad / Valsad / Gwalior.
7. Director, National Institute of Hydrology (NIH), Roorkee-247667. E-mail: dir.nihr@gov.in. Kind Attn.: Dr. M.K. Goel, E-mail: goel.mk1@gmail.com, Mob. No.- 09410393347
8. Director, National Institute of Technology (NIT), Ashok Rajpath, Patna, Bihar – 800005. E-mail: director@nitp.ac.in. Kind Attn.: Dr. Ramakar Jha, rjha43@gmail.com, Mob. : 08544401806.
9. The Head of Department, Department of Civil Engineering, IIT, Guwahati. E-mail: hodcivil@iitg.ac.in. Kind Attn.: Prof. Subashisa Dutta, E-mail: subashisa@iitg.ac.in. Phone : 0361-2582415 (O)
10. Prof. N.V. Ramana Rao, Director, NIT, Warangal, Telangana- 506004. E-mail : director@nitw.ac.in. Kind Attn.: Prof. N.V. Uma Mahesh, E-mail : mahesh@nitw.ac.in, uvnanduri@gmail.com. Mob.: 09849730834

Copy for information to:

1. PS to JS (RD & PP), DoWR, RD & GR, Ministry of Jal Shakti, New Delhi.
2. SPS to DG, NWDA, Palika Bhawan, R.K. Puram, New Delhi.
3. PS to CE(HQ), NWDA, Palika Bhawan, R.K. Puram, New Delhi.

Minutes of the 3rd Meeting of the “Sub Committee for Comprehensive Evaluation and System Studies for Interlinking of Rivers” held on 26.9.2023 at NWDA, New Delhi.

The 3rd Meeting of the “Sub Committee for Comprehensive Evaluation and System Studies on Interlinking of Rivers” was held on 26.9.2023 at NWDA, New Delhi, in hybrid mode, under the Chairmanship of Sh. A.B. Pandya. The list of the participants is given at Annexure – I.

At the outset of the meeting, Sh. Baleshwar Thakur, Chief Engineer (HQ) and Member Secretary of the Sub-committee welcomed Chairman and all the members of the Sub-Committee and other invitees. He then requested Chairman for opening remarks.

Sh. A.B. Pandya, Chairman of the Sub Committee in his opening remarks mentioned that the final report submitted by NIH, Roorkee for system studies of Mahanadi-Godavari link project was approved during second meeting of Sub-Committee and he apprised all the participants that the basic purpose of the study is served and water availability through the link project has been evaluated. In present meeting, studies done by four institutes for Manas-Sankosh-Tista-Ganga(MSTG), Ganga-Damodar-Subernarekha link (GDS), Subernarekha-Mahanadi (SM) and Farrakka-Sunderbans (FS) link project shall be deliberated.

Thereafter, Chairman, Sub-Committee requested Member Secretary to take up the agenda items.

Chief Engineer (HQ), NWDA & Member Secretary of the Sub-Committee took up the agenda items for discussions:

Item No. 3.1: Confirmation of the minutes of 2nd meeting of the Sub-Committee held on 30.6.23

Chief Engineer (HQ), NWDA & Member Secretary of the Sub-Committee apprised all the members that minutes of the second meeting were circulated and comments from Sh. M. K. Sinha were received.

Sh. M. K. Sinha put forth his comments that the results of the Final Report as submitted by NIH, Roorkee shall be presented in tabular format for different scenarios considered during the study highlighting the water availability at head (Barmul dam), enroute losses, enroute utilization and quantity of water reaching Godavari. He said this tabulated information will be very useful at time of preparation of the Detailed Project Report.

Prof. Kamta Prasad supported his views.

Chairman, Sub-Committee suggested to include the tabulated information as suggested by Sh. M. K. Sinha, for normal as well as changed climatic conditions, in Executive Summary of the Report so that option to be pursued can be seen at a glance.

Members confirmed the minutes of second meeting.

Item No. 3.2: Follow up Action of the previous meeting.

Member Secretary of the Sub-Committee informed the members that follow up actions for decisions taken during second meeting shall be discussed under subsequent agenda items.

Item no. 3.3: System Studies of Mahanadi-Godavari link being carried out by NIH, Roorkee

Member Secretary, Sub-Committee apprised the members about submission of Final Report for study carried out by NIH, Roorkee and its acceptance with the limitations of assumptions as considered during finalization of the report.

Item no. 3.4 : System studies of four links viz ; Manas-Sankosh-Tista-Ganga Link project, Ganga-Damodar-Subernarekha link project, Subernarekha-Mahanadi and Farrakka - Sunderbans link project:

Member Secretary briefed about discussions held in various meetings of Sub Committee-II regarding initiation of taking up system studies of four links viz; Manas-Sankosh-Tista-Ganga(MSTG) link project, Ganga-Damodar-Subernarekha (GDS)link, Subernarekha-Mahanadi (SM) link and Farrakka – Sunderbans (FS) link project, shortlisting of institutes and finally awarding of works to four institutes viz; IIT, Guwahati, NIT, Patna, NIT, Warangal and NIH, Roorkee. He referred to second meeting wherein after deliberations on presentations made by representatives from IIT, Guwahati and NIT, Patna, it was decided that IIT, Guwahati shall make few modifications and NIT, Patna shall submit a revised inception report and same was submitted by them.

He then requested Dr. Ramakar Jha, NIT, Patna to give a presentation .

Dr. Ramakar Jha, NIT, Patna made a detailed presentation explaining objectives, scope, study area considered for study, proposed methodology, data collection, climate change impact on supply and demand pattern of water resources in the Project area, estimation of crop water requirements and irrigation water demands at different intensities and development of a Generic Model application for the study. He explained that a number of hydrological models will be used to attain the objectives. He gave timeline for completion of study as 18 months.

Prof. Kamta Prasad emphasised the significance of data collection and suggested that study should be based on realistic data. He opined to use local level data in study and to procure such data from Directorate of Economics and Statistics of States. He suggested to consider demand scenario also for evaluating water requirements. He also suggested to consider average of latest 3 years data for the cropping pattern parameters and to consider environmental demand while estimating water demand. He also mentioned about Watershed Development Programme started by Hon'ble Prime Minister of India and suggested to integrate its effect on ground water during the analysis.

Sh. M. K. Sinha pointed out that as per guidelines of Water Balance Studies done by NWDA, irrigation intensity for Himalayan link projects is taken as 100% and the same shall be considered for system studies.

Prof. S. Iqbal Hasnain opined to take information from industries in command area regarding treatment of effluents as that would affect ground water.

Chairman, Sub Committee made following suggestions:

- i) Canal alignment should be such that FRL shall be equal to or slightly more than Ground level. It is not advisable to run such a huge discharge canal in embankment for long stretches.
- ii) Mining activity in command area shall be shown on soil or topographical map.
- iii) Planning shall be done on 75% dependable flow and not on basis of extreme values in such studies.
- iv) Database for rainfall shall be increased and it was suggested to take data at least from year, 2015 so that it can be compared with present year's data to study the trend of Ground water levels.
- v) Regarding livestock water requirement, gross growth rate data shall be taken and check with norms of ICAR/ Animal Husbandry departments to calculate average water requirement for cattle.
- vi) For industrial water requirement, tea shall not be considered for the study area taken for this link project.
- vii) To consider demand of human population and cattle as per capita demand but industrial demand shall not be taken in terms of per capita demand.
- viii) Rainfall data shall be matched with agro climatic data.
- ix) IMD data should be used for agro climatic parameter of study.
- x) "Nadia" district shall not be considered for GDS link project.
- xi) Lean season demand shall be focussed upon and impact of climate change etc. shall be checked by including the lean season demand.

Chairman of the Sub-Committee appreciated the efforts of NIT, Patna and asked them to consider the suggestions made by Sub Committee for further progressing of work.

Thereafter, Dr. Vamsi Verma from NIT, Warangal made a presentation. He explained about objectives of the study, command area, assessment of realistic water demands, cropping pattern study and crop water requirement, ground water scenario, data collection done by them, their methodology to be adopted etc.

Prof. Kamta Prasad suggested to take data for growth rate of livestock from Animal Husbandry department of concerned districts.

Sh. M. K. Sinha pointed out that larger command area has been taken for study by NIT, Warangal so total crop water requirement as evaluated by them is on higher side. He

suggested to take care of existing command area along with additional command areas. He also suggested to consider climate change scenario for the study.

Chairman gave following suggestions:

- i) For population growth, census data of India should be used instead of UN data as taken by NIT, Warangal.
- ii) Ground water data of CGWB shall be used for study.
- iii) Land use changes have to be considered.
- iv) Assessment of major and medium projects covering command area shall be considered.
- v) Quality of maps needs to be improved.
- vi) To review canal alignment coupled with other projects in that area.
- vii) Identify additional areas which can be irrigated with this link canal.
- viii) Extend data range of study upto year, 2022.

Thereafter, Dr. Surjeet Singh, NIH, Roorkee made brief presentation on system study of Farrakka – Sunderbans link project.

Prof. Subhashisa Dutta, IIT, Guwahati then presented baseline situations considered for system study of MSTG Link project. He mentioned about the field trips made by his team for the work from Mahananda river upto Farrakka.

Chairman, Sub Committee highlighted two important factors to be considered for MSTG Link study:

- i) How much storage is required to make entire link chain projects, a success.
- ii) How to take this link canal in most optimal manner in present geographical conditions considering Land Use Land Cover and various logistics links criss crossing the narrow region of North Bengal and Assam.

After deliberations on presentations made by four institutes, it was felt that a set of guidelines shall be provided to all the Institutes involved in system study work of link projects for making a common basis for preparation of Report and depiction of outcomes. All the members supported this decision.

Chairman, Sub Committee suggested to obtain Draft of Guidelines from the Institutes so that these can be deliberated in forthcoming meeting of Sub Committee to arrive at a common set of guidelines. It would help the Institutes to proceed further.

Due to shortage of time, the meeting was concluded with decision of taking up remaining agenda items in the next meeting.

The meeting ended with a vote of thanks to the Chair and all the participants by CE (HQ), NWDA & Member Secretary of the Sub-Committee for their fruitful guidance and deliberations.

Annexure – I

List of participants of the 3rd Meeting of the “Sub Committee for Comprehensive Evaluation and System Studies”

Sl. No.	Name of the Participant	Mode
1.	Shri A.B. Pandya, Secretary General, ICID & Chairman of the Sub-Committee	Physical
2.	Prof. Kamta Prasad, Member	Physical
3.	Prof. S. Iqbal Hasnain, Member	Physical
4.	Prof. N.K Goel, Member	Online
5.	Sh. M.K. Sinha, Member	Physical
6.	Sh. Baleshwar Thakur, CE(HQ), NWDA & Member Secretary	Physical
Special Invitees		
1.	Sh. Shiva Prakash, CE (N), NWDA	Online
2.	Dr. R.N. Sankhua, CE (S), NWDA	Online
3.	Shajatnan K H , SE (S), NWDA	Physical
4.	Sh. Rakesh Kumar Gupta, SE, NWDA, IC, BBSR & Patna	Online
5.	Sh Ch. Y.Subramaniam, SE, NWDA, IC, Valsad	Online
6.	Sh. S A Naidu , SE, NWDA, Hyderabad	Online
7.	Sh. A. K. Madhok, SE, IC, Gwalior	Online
8.	Prof. Subashisa Dutta, IIT, Guwahati	Physical
9.	Dr. Ramakar Jha, NIT, Patna	Physical
10.	Dr. Vamsi Krishna Verma, NIT, Warangal	Online
11.	Dr. Surjeet Singh, NIH, Roorkee	Online

12.	Dr. Dilip Jha, Director, MDU	Online
Other Officers		
1.	Sh. R.N. Singh, DD, NWDA, Delhi	Physical
2.	Sh. N.P. Sahu, EE, ID, Gwalior	Online
3.	Ms Deepti Verma, DD, NWDA, Lucknow	Online
4.	Sh. Mahesh Kumar Raman,EE, NWDA, Patna	Online
5.	Ms Deepika Sharma AD, NWDA, Delhi.	Physical
6.	Sh.M.P.Krishnamurthy, AD, NWDA, Delhi	Physical
7.	Sh. Hariom Varshney, AE, NWDA, Delhi	Online
8.	Sh. M.D. Dhimmarr, AE, NWDA, Delhi	Physical
9.	Sh. Ankit Kumar, AE, NWDA, Delhi	Physical
10	Sh. Nimish Upadhyay, AE, NWDA, Hyderabad.	Online
11	Sh. Amir Ahmad, AE, NWDA, Patna	Online
12	Sh. Nikhil V.J JE, NWDA, Delhi	Physical
13	Sh. Subodh Kumar, JE, NWDA, Delhi	Physical
14	Sh. Shubham Kumar, JE, NWDA, Lucknow	Online
15	Sh. Shivam Sharma, JE, NWDA, Delhi	Online
16	Sh. Dharam Singh Bairwa, JE, NWDA, Delhi	Online
17	Ms. Santosh Vishnoi, JE, NWDA, Delhi	Online
18	Dr. Roshni T. NIT, Patna	Online
19	Sh. Md. Barkatullah, NIT, Patna	Online
20	Dr. A.R. Quaff , NIT Patna	Online
21	Dr. Koteswara Rao, NIT, Warangal	Online
22	Dr. Nitesh Patidar, NIH, Roorkee	Online
23	Dr. L B Roy, NIH, Roorkee	Online