



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(ii)/2021/ 3576 - 3592

Date : 6.9.21

**Sub.: Minutes of the 18<sup>th</sup> Meeting of the “Sub Committee on System Studies for identification of most appropriate alternative plan”, held on 25.08.2021 at 11:00 hrs. through Video Conferencing – reg.**

Sir,

The 18<sup>th</sup> Meeting of the “Sub Committee on System Studies for identification of most appropriate alternative plan” was held on 25.08.2021 at 11:00 hrs. through Video Conferencing under the chairmanship of Prof. P.B.S.Sarma. 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 : [dirtech-nwda@nic.in](mailto:dirtech-nwda@nic.in).

Yours faithfully,

Encl :As above

(D.K.Sharma)

Director (Technical) &  
Member Secretary  
[dirtech-nwda@nic.in](mailto:dirtech-nwda@nic.in)

To

1. Prof. P.B.S.Sarma (Retd.), CED, IIT, Delhi & Chairman of the Sub- Committee, B2-501, Sunny Valley, Plot no. 27, Dwarka, New Delhi-110078. E-mail: [pbssarma@yahoo.com](mailto:pbssarma@yahoo.com), Phone : 011-47522501 ( R ), Mob.: 09873222125.
2. Prof. Sanjeev Kapoor, IIM, Lucknow, Prabandh nagar, IIM Road, Lucknow-226013. E-mail: [sanjeev@iiml.ac.in](mailto:sanjeev@iiml.ac.in), Mob.: 09415402466.
3. Dr. S.Mohan, Professor, EWRE 24, Department of Civil Engineering, IIT, Chennai- 600036. E-mail: [smohan@iitm.ac.in](mailto:smohan@iitm.ac.in), Phone : 044-22574261 (O), 044-22579296 (R ), Mob.: 09837600444.

Contd./-

4. Prof. Kamta Prasad, Chairman, IRMED, 2-B, Institutional Area, Karkardooma, Delhi-110092. E-mail: [irmed7@gmail.com](mailto:irmed7@gmail.com), Phone:011-22377199 (O), 011-22374975 (R ), Mob.: 09810288036.
5. Dr. Sharad K.Jain, Retired Director, NIH, Roorkee. E-mail: [s\\_k\\_jain@yahoo.com](mailto:s_k_jain@yahoo.com), Mob.: 09897018550.
6. Sh. M.K.Sinha, Assessor, Krishna Water Disputes Tribunal and Retd. Chief Engineer, CWC, Bhikaji Cama Place, New Delhi-110066. E-mail: [mksinhacwc@gmail.com](mailto:mksinhacwc@gmail.com), [mksinhacwc@yahoo.co.in](mailto:mksinhacwc@yahoo.co.in), Mob.: 09971686789.

Special Invitees:

7. Chief Engineer (North), NWDA, Lucknow. E-mail : [cenwdalko@rediffmail.com](mailto:cenwdalko@rediffmail.com).
8. Chief Engineer (South), NWDA, Hyderabad. E-mail : [ceshyd-nwda@nic.in](mailto:ceshyd-nwda@nic.in), [cesnwda@rediffmail.com](mailto:cesnwda@rediffmail.com).
9. Superintending Engineer-I, NWDA, Palika Bhawan, New Delhi. E-mail: [se1nwda@rediffmail.com](mailto:se1nwda@rediffmail.com).
10. Superintending Engineer-II, NWDA, Palika Bhawan, New Delhi. E-mail: [se3nwda@rediffmail.com](mailto:se3nwda@rediffmail.com).
11. Director, National Institute of Hydrology (NIH), Roorkee-247667. E-mail: [dir.nihr@gov.in](mailto:dir.nihr@gov.in). Kind Attn.: Dr.M.K.Goel, E-mail: [goel.mk1@gmail.com](mailto:goel.mk1@gmail.com), Mob.:09410393347.
12. Director, National Institute of Technology (NIT), Ashok Rajpath, Patna, Bihar – 800005. E-mail: [director@nitp.ac.in](mailto:director@nitp.ac.in). Kind Attn.: Dr. Ramakar Jha, [rjha43@gmail.com](mailto:rjha43@gmail.com), Mob. : 08544401806.
13. The Head of Department, Department of Civil Engineering, IIT, Guwahati. E-mail : [hodcivil@iitg.ac.in](mailto:hodcivil@iitg.ac.in). Kind Attn.: Prof. Subashisa Dutta, E-mail: [subashisa@iitg.ac.in](mailto:subashisa@iitg.ac.in). Phone : 0361- 2582415 (O), Mob.: 09435104598
14. Prof.N.V.Ramana Rao, Director, NIT, Warangal, Telangana- 506004. E- mail : [director@nitw.ac.in](mailto:director@nitw.ac.in). Kind Attn.: Prof. N.V.UmaMahesh, E-mail : [mahesh@nitw.ac.in](mailto:mahesh@nitw.ac.in), [uvnanduri@gmail.com](mailto:uvnanduri@gmail.com). Mob.: 09849730834.
15. The Chairman cum Managing Director, WAPCOS Ltd., Gurgaon- 122016, Haryana. E-mail : [mail@wapcos.co.in](mailto:mail@wapcos.co.in). Kind Attn.: Ms. P.Sumana, E-mail: [sumana@wapcosindia.com](mailto:sumana@wapcosindia.com) , Phone : [0124-2399220](tel:0124-2399220).

Copy for kind information to :

1. SPS to DG, NWDA, Palika Bhawan, New Delhi. E-mail: [dg-nwda@nic.in](mailto:dg-nwda@nic.in).
2. CE(HQ), NWDA, Palika Bhawan, New Delhi. E- mail : [cehq-nwda@nic.in](mailto:cehq-nwda@nic.in).

**Minutes of the 18<sup>th</sup> meeting of the Sub-Committee on “System Studies for identification of Most Appropriate Alternative Plan” held on 25.08.2021 at 11.00 hrs through Video Conferencing.**

The 18th meeting of the Sub-Committee on “System Studies for identification of Most Appropriate Alternative Plan” was held on 25.08.2021 through video conferencing under the Chairmanship of Prof. P.B.S. Sarma. The list of the participants is given at **Annexure – I**.

Prof. Sarma, the Chairman of the Sub-committee welcomed all the members of the Sub-committee and other invitees. Thereafter, he requested Shri D K Sharma Director (Tech), NWDA & Member Secretary of the Sub-committee to initiate the proceedings.

**Item 18.1: Confirmation of the Minutes of 17th Meeting of the Sub-Committee on System Studies for identification of most appropriate alternative Plan held on 08.04.2021**

The Member-Secretary informed that the minutes of the 17th Meeting of the Sub-Committee held on 08.04.2021, were circulated to all the members. No comments on the minutes were received from any of the members. So minutes may be confirmed as circulated.

**Item No. 18.2: Follow up action of the previous meeting.**

a.) **System Studies of Mahanadi-Godavari link being carried out by NIH, Roorkee** – The Member-Secretary apprised all the members that as informed by NIH, Roorkee, the work is in progress and Draft Report of the study will be submitted shortly.

b.) **Proposal for taking up the system studies of other links:** As decided in the last meeting, the revised EOIs on the basis of attributes and weightages finalised during the meeting, were sought from the five Institutions viz; NIH, Roorkee, NIT, Patna, NIT, Warangal, WAPCOS Ltd. And IIT, Guwahati. The

Member Secretary apprised all the members that the revised proposals have been received from four institutions except WAPCOS , Ltd.

**Item No. 18.3: System studies of Mahanadi – Godavari link being carried out by NIH, Roorkee**

The Member-Secretary informed that the revised Inception Report after incorporating the observations of the sub-committee has been submitted by NIH, Roorkee on 18.08.2020. A meeting was held between officers of NWDA and NIH, Roorkee on 29.01.2021 and it was decided that length and other parameters shall be assessed by NIH by using relevant toposheets provided by NWDA. During the last meeting, it was informed by Dr.M.K.Goel, NIH, Roorkee that the parameters of their study are broadly tallying with figures given in the Feasibility Report prepared by NWDA.

Thereafter, he requested Dr.M.K.Goel to make a presentation. Dr. M.K.Goel made a presentation on the latest status of the study, citing the main objectives of the study and main analyses undertaken for the study. He informed that they have focused on impact evaluation of Mahanadi-Godavari link canal for next 50 years and have studied various possible scenarios and have analysed alternatives of water availability at source i.e. Mahanadi at Barmul. Mahanadi Godavari link canal has been digitized using 41 toposheets provided to them by NWDA. They have analysed three water availability scenarios. He briefed about meteorological datasets used in the study and explained the methodology used by them for bias corrections of rainfall and temperature datasets. Then, his team presented other aspects of the studies in detail.

Dr Vishal Singh, NIH, Roorkee presented the approach and progress on likely impact of climate change on precipitation and temperature. As Khurda is the biggest command area, climate change analysis has been conducted in this area. Dr. Surjeet Singh presented the ground water model set up for the study area. Dr. Prabhas Mishra presented the progress on assessment of crop water requirement and land and apprised the members about the criteria considered for

computing Crop Water Requirement and the 17 scenarios considered for the computation. Dr. M. K. Goel briefed about the System Model developed by themselves, and its components and schematic of overall methodology. He explained about outputs from the Systems Model for each of 20 enroute commands under M-G Link canal and for M-G link main canal (for before and after GW Model scenarios). He also explained the calibration and validation of their 5 –layered GW Flow Model. He also highlighted the use of WA+ analysis done by them. Finally, Dr. Goel summarized the progress citing that they have developed a generic Systems model for M-G Link system and it is planned to provide the developed tool and methodology to NWDA officials for future analysis of new scenarios of the system.

Dr. M.K.Goel, apprised the Sub – Committee that the study is progressing well and 7 out of 11 chapters of the Draft Report have been completed and the Draft Report of the study will be submitted very shortly.

Prof. P.B.S.Sarma, Chairman of the Sub- Committee appreciated their efforts and congratulated them for developing a generic systems model and praised them for using latest technologies like WA+ model.

Prof. Kamta Prasad, IRMED, raised certain queries on cropping pattern analysis done by NIH, Roorkee. Chairman explained that NIH, Roorkee has already been suggested to consider the factors affecting changes in cropping pattern and thanked Prof. Kamta Prasad for his valuable guidance and suggestion.

#### **Item No. 18.4: Proposal for taking up the system studies of other links**

The Member-Secretary informed that Expression of Interest from following four institutes for the proposed system studies for link projects viz., Manas – Sankosh – Tista – Ganga, Farakka – Sunderbans, Ganga – Damodar – Subarnarekha and Subarnarekha – Mahanadi have been received:

1. NIH, Roorkee
2. NIT, Patna
3. IIT, Guwahati

#### 4. NIT, Warangal.

He, then, requested the officers from these institutions to give a brief presentation of their proposals.

First, Dr. Ramakar Jha, from NIT, Patna made a brief presentation on their proposal. He apprised about input data, model set-up to be used, softwares available with them, outcomes expected from their study and core members of their team. He explained that they propose to build up a comprehensive system model for the four links which will include all the components of the link system with a focus on careful selection of parameters for the study.

The Chairman pointed out that NIT, Patna would require to provide the areas of expertise of its team members as well as their manpower commitment, and timeline required for the completion of the study as per schedule. Dr. Jha, said that he would submit this required information shortly.

Prof. Subashisa Dutta, from IIT, Guwahati made presentation related to system study of MSTG Link as they prefer to take up the work of this link due to their geographical/ physical location with respect to MSTG link. He briefed about the methodology, data requirements, available expertise in IIT, Guwahati for the work, SWOT analysis to be taken up by them and work plan and also presented information of his additional team members and their expertise. He explained about their proposal to take up development of systems model for 3 scenarios and finalising a Systems Dynamic model and also informed about tentative budget of approximately 1.02 crores for taking up the work.

Dr. N.V.Umamahesh from NIT, Warangal made his presentation about manpower availability, objectives of the study, data requirement and their proposal of setting up of System Dynamic model. He told that the time period required by them to complete the study would be approximately 2 years and explained the experiences of their institution in similar types of research projects.

After all the presentations, Chairman opined that as the amount of work involved is very large for one Institute, it is suggested to involve all the four Institutions for this and to allot one link system each to each of the four institutions depending upon the geographical location of the institution and that of the link system. He suggested that each institute will have to take up responsibility of the link allotted to that institute and will try to work with a generic systems model. He suggested to allot system studies of M-S-T-G link to IIT, Guwahati, G-D-S link study to NIT, Patna and system study of Subernarekha-Mahanadi to NIT, Warangal and Farakka- Sunderbans to NIH, Roorkee.

DG, NWDA supported the decision of the Chairman and suggested that development of overall framework for the four link systems including models to be used and their integration as well as work related to overall compilation of reports will be allotted to NIH, Roorkee. NWDA will provide all the support required by these institutes and will be responsible for total coordination work with these institutes.

Chairman of the Committee asked DG, NWDA to seek the timeline and financial proposals from all the four institutes for taking up the systems studies' work, before the next meeting so that it can be discussed and finalized during the next meeting

DG, NWDA suggested to hold the next meeting at NIH, Roorkee, after we get the Draft Report submitted by NIH, Roorkee and it gets circulated to all the members of the Sub-Committee so that they can give their views on the Report in the next meeting.

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

\*\*\*\*\*

Annexure – I

**List of participants of the 18<sup>th</sup> Meeting of the “Sub-Committee on System Studies for identification of most appropriate alternative plan” held on 25.08.2021 through Video Conferencing.**

<b>S.No.</b>	<b>Name of the Participant</b>
1.	Prof. P.B.S.Sarma, (Retd.), CED, IIT Delhi, New Delhi, <b>Chairman</b>
2.	Dr. Sharad K. Jain, Former Director, NIH, Roorkee, <b>Member</b>
3.	Sh.M.K.Sinha, Assessor, Krishna Water Dispute Tribunal & Chief Engineer (Retd.), CWC New Delhi. <b>Member</b>
4.	Prof. Kamta Prasad, Chairman, IRMED. <b>Member</b>
5.	Sh. D.K.Sharma, Director (Technical),NWDA <b>Member Secretary</b>
<b>Special Invitees</b>	
6.	Sh. Bhopal Singh, DG, NWDA
7.	Sh.R.K.Jain, CE(HQ), NWDA
8.	Dr.R.N.Sankhua, CE(S), NWDA
9.	Sh. Shiva Kant Pandey, CE(N), NWDA
10.	Sh.S.C.Awasthi, Superintending Engineer-II, NWDA
11.	Smt. Jancy Vijayan, Director (MDU), NWDA.
12.	Sh.M.K.Goel, Scientist - ‘G’, WRS Division, NIH, Roorkee



13.	Dr. Ramakar Jha, Department of Civil Engineering, NIT, Patna
14.	Dr.N.V.Umamahesh, NIT, Warangal
15.	Prof. Subashisa Dutta, IIT, Guwahati
<b>Other Officers</b>	
16.	Dr.A.R.Quaff, Associate Professor, NIT, Patna
17.	Dr. Jaivir Tyagi, NIH, Roorkee
18.	Dr.L. B. Roy, NIT, Patna
19.	Dr. Vishal Singh, Scientist - 'C', WRS Division NIH, Roorkee
20.	Dr. Prabhas Mishra, Scientist - 'C', WRS Division NIH, Roorkee
21.	Shri Suresh A. Kartha, IIT, Guwahati
22.	Dr. Surjeet Singh, Scientist - 'F', WRS Division NIH, Roorkee
23.	Dr. Roshni T., NIT, Patna
24.	Dr. Vivekanand Singh, NIT, Patna
25.	Ms. Sreeja P., IIT, Guwahati
26.	Sh. Rishikesh Bharti, IIT, Guwahati
27.	Sh. Ketan Nandi, IIT, Guwahati
28.	Sh. Arup Kumar Sharma , IIT, Guwahati
29.	Sh.P.K.Singh, NIH, Roorkee
30.	Prof. Rajeev Bhattacharya, IIT, Guwahati