

No. W-11042/69/2020-JJM-IV-DDWS-Part (3)  
**Government of India**  
**Ministry of Jal Shakti**  
**Department of Drinking Water and Sanitation**  
**(National Jal Jeevan Mission)**

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CGO Complex, Lodhi Road,  
New Delhi-110 003  
Date: 29<sup>th</sup> October, 2020

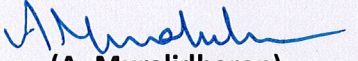
**To**  
**All the Members of the Committee (As per the list attached)**

**Subject:** Minutes of the 2<sup>nd</sup> meeting of the Technical Committee for examination and use of innovations & technologies in drinking water and sanitation sector under Jal Jeevan Mission (JJM), held on September 29, 2020

Madam/ Sir,

The undersigned is directed to enclose the minutes of the above mentioned meeting of Technical Committee held under the Chairmanship of Prof. K. VijayRaghavan, Principal Scientific Adviser on 29<sup>th</sup> September, 2020 for information and necessary action.

**Encl.: As above**

  
**(A. Muralidharan)**  
Deputy Advisor (PHE)  
email: amdharan@gov.in

To,

1. PS to Hon'ble Minister of Jal Shakti / PS to Hon'ble MoS M/o Jal Shakti, for kind information.
2. Sr.PPS to Secretary (DDWS).
3. PS to Mission Director & AS (Water)

**Department of Drinking Water and Sanitation  
National Jal Jeevan Mission**

**Minutes of the 2<sup>nd</sup> meeting of the Technical Committee for examination and use of innovations & technologies in drinking water and sanitation sector under Jal Jeevan Mission (JJM) held on September 29, 2020**

1. The 2<sup>nd</sup> meeting of the Technical Committee set up for examination and use of innovations and technologies in drinking water and sanitation sectors was held on September 29, 2020 at 1400 hours over video conferencing. The meeting was chaired by Prof. K. Vijayraghavan, Principal Scientific Adviser (PSA) to Government of India. The list of participants, is at Annex-I.
2. The Additional Secretary (Water) & Mission Director, Jal Jeevan Mission extended a warm welcome to all the participants and thanked them for joining the meeting over VC. He stated that the mission is looking up to the committee for identifying and recommending application-oriented innovative technologies that can be immediately used by the States to achieve the goal of the Jal Jeevan Mission – Har Ghar Jal.
3. In order to expeditiously evaluate the suitability of technologies in a rolling manner for use under JJM, he suggested the following for the consideration of the Committee:
  - i.) Develop a system by having a list of referees for preliminary examination of different technologies. After the technology is uploaded in the Department's website, it may be forwarded to three referees for their comments/ views;
  - ii.) The referees would examine and provide their views within one week, whether the technology is useful to be fit for the use in WSS and need validation in the field also;
  - iii.) At present, NEERI carries out the validation. Keeping in view the large number of technologies/ innovations are coming, it may worthwhile to identify few more such institutions for validation. Such institutions may be selected on the basis of their readiness to carry out such work and area of expertise. We may identify such institutions based on areas in which most of the technologies or innovations are coming. We may have such a panel of institutions to whom such a validation work can be assigned;
  - iv.) We may develop a system wherein a lump sum amount should be paid to these referees for their comments as well as to these institutions for validations. We may also develop a system wherein applicant or technology developer pays a fee while making the application. While working out the details, we may see to it that the system becomes self-financing;
  - v.) In future, when this Department's institution i.e. National Centre for Drinking Water, Sanitation and Quality, Kolkata becomes fully functional, the whole process could be transferred to this institute.
  - vi.) This institute would also carry out interactions with States for providing solutions to the various challenges faced in the field.
4. The Additional Secretary (Sanitation) mentioned that Swachh Bharat Mission Phase II involving solid and liquid waste management (SLWM) and allied activities like faecal sludge management are much more challenging than the Phase-I, which involved construction of

toilets and behaviour change communication. SLWM requires multiple technological solutions. He also quoted that Government's approach about 'waste to wealth' and felt that the number of applications for water technologies is higher than sanitation and there is a need to get more technologies on sanitation through another advertisement. The PSA suggested that the DDWS, may internally do an exercise to decide to have a separate committee for considering the required areas related to sanitation, wherein new technologies are required and invite such innovations/ technologies, which will be taken up for consideration by the Committee. Also, expertise available with the O/o PSA, DST and CSIR would be shared with the Department specifically for SBM II.

5. The Secretary, DDWS stated that the current committee is for both water and sanitation technologies. The technologies being placed before the committee is more on water quality testing and solutions to water quality. He mentioned that focus is not only on water quality but also on water quantity and wastewater. Also, most of the focus, in general, is on installation of infrastructure but operation part is also equally important. A separate advertisement for calling more technologies in the sector of water and sanitation would be published by the DDWS.

6. AS (W) & Mission Director, JJM emphasised the need to develop small water quality testing devices/ kits for household level water testing so that people can test their tap water at home and confidence in the tap water supply about its quality can be enhanced. Also, the equally challenging tasks of IoT based monitoring of water supply and SLWM need to be given priority. Further, large scale use of aerators' that would save water needs to be mainstreamed so that the production can be scaled up with the help of MSMEs generating employment also.

7. After this, a presentation on the agenda items was made before the committee and they were taken on record. A copy of the presentation is at Annex-II.

8. The Senior Adviser from the O/o the PSA made a presentation on the detailed procedure adopted to select the technologies and mentioned about the decentralised evaluation of technologies by shortlisted reputed institutions. It was further mentioned that due to COVID-19 pandemic, field evaluation was not opted and the evaluation was carried out in three rounds viz. a.) desk review by the sub-committee in the O/o of PSA, b.) presentation by the technology applicants before the Sub-committee and after short listing, c.) presentation of technologies before this Technical Committee chaired by PSA.

9. This was followed by the presentation on 10 technologies by shortlisted technology developers/ innovators before the Committee. The details of technologies are placed at Annex-III.

10. During the presentations given by the technology providers various queries were raised by the Technical Committee members, which were answered by the innovators/ technology developers. As desired by some of the committee members, the applicants were requested to furnish field data on the functionality of the technologies to the sub-committee for further analysis.

10. AS (W) & MD (JJM) mentioned that there should be specific context within which technologies should be recommend for the use in the field. Also, possibilities of pilot studies with the innovators/ technology developers, if required, may be explored. He also mentioned that a survey needs to be conducted to list out the existing technologies in the field and their performance analysis.

12. Professor T. Pradeep from IIT Madras mentioned that as there are large numbers of technologies being evaluated, it is important to evaluate them for specific outputs rather than assessing them in the context of overall water quality required. He gave an example that if a technology is for the purification of Fluoride, it should be evaluated for removing Fluoride and not for overall water quality that depends on multiple factors inter-alia quality of input water.

13. Professor C. Majumdar of IIT, Roorkee mentioned that technologies presented address main contaminant for which it is installed, and co-contaminants, if any, present in the water also need to be addressed. He also desired that quality of input water needs to be captured so that capability of the technology to remove the maximum contamination level could be known.

14. Dr Srinivasan Director, CSMCRI, CSIR stated that the Committee should recommend that identified institutions for evaluation may also handhold the technologies for their commercialisation and updation of these technologies. The PSA clarified that this is not within the mandate of the Committee.

15. After detailed discussions, the following decisions were taken:

- i.) On the basis of the presentations made by innovators/ technology providers and discussions thereon, a summary of pros and cons of all the ten technologies need to be shared with all the members of the committee for their comments;
- ii.) The decision of the committee on these technologies would be taken on the basis of the comments received from the members;
- iii.) Two technologies submitted by IIT Jodhpur (W-0000132) and by Company Kerrokraft (W-0000138) are to be taken out of the purview of the Committee as they are seeking committee's recommendation for scaling up and certification, respectively;
- iv.) As suggested by JJM, the sub-committee under the Technical Committee may come out with a note on how pilots can be explored with technology providers with their continuous monitoring for assessing their field performance;
- v.) A survey of technologies available in the market may be undertaken by the sub-committee for addressing various regional challenges. Inputs can be taken from IITs, DST, CSIR, DRDO and NIOT in this regard;
- vi.) Another round of advertisement may be issued by DDWS for seeking more innovations and technologies on specific challenges in water and sanitation, as per requirement. It will be better, if specific areas are identified and then proposals are invited; and
- vii.) DDWS may internally discuss and decide about referees and institutions for validation and field studies along with fee to be charged from innovators/ technology providers desirous of validation/ approval by the committee to be used in JJM and SBM.

The meeting was ended with vote of thanks to the Chair by AS (W) & MD (JJM).

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## List of Participants

| Sl. No. | Name and Designation  |                  |
|---------|---|------------------|
| 1.      | Prof. Vijayraghavan, Principal Scientific Adviser   | In the chair     |
| 2.      | Shri. U P Singh, Secretary, Department of Drinking Water and Sanitation (DDWS).   | Member           |
| 3.      | Shri Bharat Lal, Additional Secretary & Mission Director, National Jal Jeevan Mission, DDWS.  | Member           |
| 4.      | Shri. Arun Baroka, Additional Secretary (Sanitation) DDWS.  | Member           |
| 5.      | Dr. Arabinda Mitra, Scientific Secretary, Office of PSA   | Special Invitee  |
| 6.      | Dr. Shailja V. Gupta Senior Advisor/Scientist H, Office of PSA  | Special invitee  |
| 7.      | Dr. Rakesh Kumar Director NEERI representing Director General, CSIR.  | Member           |
| 8.      | Dr. Kannan Srinivasan, Director, CSMCRI, CSIR   | Member           |
| 9.      | Prof. Thalappil Pradeep, Professor, IIT Madras  | Member           |
| 10.     | Prof. C. Majumdar, IIT Rourkee  | Member           |
| 11.     | Dr. Atmanand, Director, National Institute of Ocean Technology (NIOT)   | Member           |
| 12.     | Prof. Pradip Tewari, IIT Jodhpur  | Member           |
| 13.     | Dr. Sanjay Bajpai, Head, Technology Missions Division (Energy, Water & all Other), representing Secretary, DST  | Member           |
| 14.     | Dr. Sangita Kasture, Adviser, DBT, representing Secretary, DBT  | Member           |
| 15.     | Dr. Pawan Labhasetwar, Chief Scientist, NEERI, Nagpur   | Special Invitee  |
|         | Dr. Purnima Jalihal, Scientist (G), NIOT, MoES  | -do-             |
| 16.     | Dr. Srikant Sharma, Chief Scientist, CSIR – representing Director, Institute of Minerals and Materials Technology, CSIR.  | Member           |
| 17.     | Dr. K P Mishra, Scientist-E, Directorate General Life Sciences, DRDO-HQ representing Chairman DRDO.   | Member           |
| 18.     | Dr. Ayesha Chaudhary, Programme Director, Atal Innovation Mission Representing Mission Director & Additional Secretary, Atal Innovation Mission, NITI Aayog.            | Member           |
| 19.     | Dr. Arun Bharadwaj, Scientist E, Office of PSA  | Special Invitee  |
| 20.     | Shri Kapil Chaudhary, Director, DDWS.   | -do-             |
| 21.     | Shri Rahul Nayyar, Vice President, Invest India representing CEO, Invest India  | Member           |
| 22.     | Shri R.K. Meena, O.S.D. (LAND), Urban Development and Housing Department, Rajasthan, Representing Principal Secretary, Public Health Engineering Department, Rajasthan. | Member           |
| 23.     | Shri Niril Kumar, Executive Engineer, Public Health Engineering Department, Government of Rajasthan   |                  |
| 24.     | Shri A. Muralidharan, Deputy Adviser, DDWS  | Member Secretary |
| 25.     | Shri Swapan Mehra Office of PSA to Gol  | Special Invitee  |
| 26.     | Ms. Malyaj Varmani, Assistant Vice President, Invest India  | -do-             |
| 27.     | Shri Harshan V V, Assistant Vice President, Invest India  | -do-             |
| 28.     | Ms. Garima Raj  | -do-             |
| 29.     | Shri Himanshu Malik   | -do-             |

## Technologies presented before the Committee

| S. No. | Name of the organization                | Details of the technology   |
|--------|---|---|
| 1.     | Daiki-Axis India Pvt. Ltd               | JOHKASOU technology (advanced anaerobicaerobic technology) for wastewater treatment.  |
| 2.     | Nixie Engineers Pvt Ltd                 | FBTec - De-centralized wastewater treatment; a fixed media and is modular in nature to enhance capacity without touching the existing unit.   |
| 3.     | Foundation for Environmental Monitoring | <b>Foundation for Environmental Monitoring (ffem)</b> has developed smartphone-based water testing kit which is portable, easy to use, affordable and accurate. ffem water kit app uses smartphone camera and flash to read the color and off the shelf colorimetric reagent. Following water quality parameters can be measured by ffem water test kit pH, Fluoride, Total Arsenic, Iron, Nitrate, Chromium (VI), Residual chlorine, Copper, Aluminium, Nitrite, Sulphate, Phosphate, Potassium, Alkalinity, Phosphate and Ammonia |
| 4.     | Grundfos                                | The Grundfos AQPure (2000 l/hr) water treatment system produces potable water by filtering bacteria, viruses and particles from raw source water, providing reliable and affordable water to the communities. The water treatment is based on ultrafiltration (UF) technology. Standardized treatment modules can be combined according to the specific raw water quality on site to deliver a complete water treatment unit. There are 11 different module options available with this unit which are briefed below.               |
| 5.     | Supremus Developers                     | JanaJal WOW (Water on Wheels) is an Electric Vehicle developed and designed to achieve "HarGharJal" using a unified technology platform and IoT controllers to enable delivery of safe water to the doorstep of beneficiaries and households. Features include: a.) Qualitative Monitoring, b.) Quantitative Monitoring, c.) GPS tracking, d.) Geo Fencing, e.) Mobile App for order, invoicing and other customer centric features, f.) Configurable alerts and notifications, g.) Dashboard & MIS, and h.) Trip Management.       |
| 6.     | AL-Aziz Plastics Pvt. Ltd.              | PRESTO Online Chlorinator, Online chlorine dosing system for raw water and drinking water supply.   |
| 7.     | Ion Exchange (I) Ltd.                   | INDION Fluoride Removal Solar Based Systems 2.0m <sup>3</sup> /h with remote monitoring   |
| 8.     |   | INDION Arsenic removal Tube well attachment Unit  |
| 9.     |   | INDION Iron Removal Power Pump Attachment Unit  |
| 10.    | Uros Limited                            | UROS smart water cycle powered by Sensors, IoT & AI Technology can be used to monitor the quality of incoming wastewater. If big quality deviations are detected before the treatment plant, chemical dosage can be adjusted accordingly or bad quality wastewater can be taken into the safety pool to be  |

| <b>S.<br/>No.</b> | <b>Name of the<br/>organization</b> | <b>Details of the technology</b>  |
|-------------------|-------------------------------------|---|
|                   |                                     | treated later. By detecting leakages along the wastewater pipelines, leaking pipelines can be fixed. In this manner, amount of effluent can be reduced. |

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