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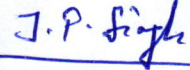
M-54011/01/2018-NWM/901-910  
Government of India  
Ministry of Jal Shakti  
Department of Water Resources,  
River Development & Ganga Rejuvenation  
(National Water Mission)

2nd Floor, Block No. III  
CGO Complex, Lodhi Road  
New Delhi-110003  
Dated: 7<sup>th</sup> August, 2019

Subject: Summary record of the proceedings of the Fifth Water Talk organized by National Water Mission on 19<sup>th</sup> July, 2019.

Sir/Madam,

The undersigned is directed to forward the summary record of the proceedings of the Fifth Water Talk held on 19<sup>th</sup> July, 2019 at 3:00 PM in Dr. Ambedkar International Centre, New Delhi.



(J.P. Singh)

Deputy Secretary to the Government of India  
Ph: 011-24368984

Enclosure: as above

To

1. Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Shram Shakti Bhawan, Rafi Marg, New Delhi – 11000.
2. Dr. Tushaar Shah, Senior Fellow, International Water Management Institute.
3. Sh. Rajiv Ranjan Mishra, Director General, National Mission for Clean Ganga, National Mission for Clean Ganga (NMCG), 1st Floor, Major Dhyam Chand National Stadium, India Gate, New Delhi – 110002.

4. Smt. T Rajeshwari, Additional Secretary, DoWR, RD & GR, Ministry of Jal Shakti, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110001
5. Shri Nitishwar Kumar, Joint Secretary (Administration), DoWR, RD & GR, Ministry of Jal Shakti, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110001
6. Shri Jagmohan Gupta, Joint Secretary (JS & FA), DoWR, RD & GR, Ministry of Jal Shakti, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110001
7. Shri Akhil Kumar, Joint Secretary (IC & Ground Water), DoWR, RD & GR, Ministry of Jal Shakti, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110001
8. Shri K C Naik, Chairman, CGWB, Central Ground Water Board, Bhujal Bhawan, NH-IV, Faridabad.
9. Sh. Arun Kumar Sinha, Chairman, Central Water Commission, R. K. Puram, Sector-1, New Delhi-110066.
10. Shri K Guite, Adviser, Economic Advisery Wing, DoWR, RD & GR, Ministry of Jal Shakti, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110001

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National Water Mission (NWM) has initiated a seminar series- 'Water Talk' - to promote dialogue and information sharing among participants on variety of water related topics. The 'Water Talk' is intended to create awareness, build capacities of stakeholders and to encourage people to become active participants in conservation and saving of water. NWM had already organized three 'Water-Talks' on the topics - "Water for All", "Groundwater" "Water Conservation" and "Ecology Inclusive Economy" on 22<sup>nd</sup> March 2019, 1<sup>st</sup> May 2019, 24<sup>th</sup> May 2019 and 21<sup>st</sup> June 2019 respectively.

2. Fifth Water Talk in this series was held on 19<sup>th</sup> July, 2019. Dr. Tushaar Shah, Senior Fellow, International Water Management Institute (IWMI) delivered the Water Talk. Shri U. P. Singh, Secretary (DoWR, RD & GR) MoJS; Shri Rajiv Ranjan Mishra, DG, NMCG; and Officers from CWC, CGWB, NMCG, CSMRS, NWDA and D/oWR, RD & GR attended the programme.

3. Dr. Tushaar Shah delivered talk on '**Governing India's Energy-Groundwater Nexus: Old Constraints and New Opportunities**' and discussed the reasons of ground water depletion and offered solutions towards ground water & energy management. He said that there is little scope to resolve outstanding issues in water sector in country without acting in the energy sector. The efforts of Ministry of Jal Shakti (MoJS) to bring water institution together will not be sufficient and MoJS and Ministry of Power needs to discuss about the approach to be adopted to resolve the issues which are closely intertwined.

4. At the time of independence, India had largest surface irrigation infrastructure and world's largest canal network. Surface irrigation was most important driver of irrigated agriculture in India, however since 1960, transformative changes occurred and there has been an exponential growth in the use of ground water. Presently, India uses more ground water than United States and China put together. Apart from improving the performance of Government's irrigation system, our main challenge is to fix the ground water sector. The ground water economy is completely unmanaged and our major challenge is to properly manage the ground water economy by finding ways through which State/Central Governments could bring behavioral changes amongst ground water users.

5. Dr. Shah stressed on the lack of monitoring mechanism/ technology of ground water allocation and use in India. He added that due to large no of tube wells (around 25 millions), the cost of monitoring them tubewells becomes very high and its management becomes difficult. Ground water economy uses almost quarter of the energy produced in the country. Therefore, the role of energy sector & manager of distribution companies becomes critical in ground water management. Apart from electricity, there are massive energy implications of ground water irrigation economy in the form of diesel utilization (5-8 billion liters) and

generation of carbon footprint (9% from agriculture out of which 6% due to pumping of ground water). Dr. Shah said that if India wants to pursue a path of carbon efficient economic growth then one area it needs to pay attention is energy used in ground water irrigation.

6. Dr. Shah discussed the major drivers for massive use of ground water in India. He outlined that high population density on agricultural land is a principal driver of high ground water use. Due to small size of land holding, farmers are forced to over-exploit the agricultural land in order to make living thus requiring access to water throughout the year. Canal system provides water only for 3-4 months in a year thus increasing the dependency on ground water.

7. Due to high demand of on-farm irrigation, informal irrigation system got developed where farmers/individual owns and manage the irrigation system. The informal irrigation system which is 3-4 times bigger than formal government irrigation system and the informal system has cannibalized the government irrigation system.

8. Rapid decline in the maintenance of the irrigation system has been a major contributor to the use of ground water. Poor recovery of irrigation service fees (ISF), low value of crops irrigated and low yearly maintenance allocation in respect of capital investment has led to a decline in the maintenance of already built irrigation system.

9. Heavily subsidized electricity/ free electricity to the farmers in most parts of the country are major contributing factors in ground water depletion and it has resulted in the rampant ground water over-exploitation and deteriorating finances of electricity utilities. In the past 20 years, there was an energy divide in the irrigation economy of the country. Parts of the country where ground water is scarce, we provide energy at throw-away price while in states like Bihar, UP, West Bengal and Odisha where ground water is available in abundance, farmers are poor and High cost of electricity is impeding the use of ground water.

10. Highlighting the consequences of massive ground water use, he outlined the major impacts which are as under:

- Dependency of agricultural economy on subsidies.
- Depletion of aquifer.
- Bankruptcy of Electricity Boards and electricity distribution companies.
- Massive wastage of power and water.
- Anarchy on rural feeder.
- High fiscal deficit in some states due to higher budgetary allocation for paying electricity subsidy.

11. Dr. Shah stated that the situation can be salvaged if irrigation tubewells are metered and farmers are charged for power consumed in irrigation, however this will require political will and in the present scenario, States are unlikely to take such a decision. Only West Bengal has started charging day time full commercial tariffs from the farmers. Implementation of commercial tariff in West Bengal could be implemented due to less numbers of electric tubewells (nearly 10,000).

12. Dr. Shah suggested introduction of separate dedicated feeder for agricultural and non-agricultural consumers and imposing a ration on duration of power supply for irrigation use. The Government of Gujarat implemented 'Jyotigram Yojana' on this line and it has powerful impact on ground water. Gujarat is the only state which has improved its ground water balance since 2001 in spite of having breakneck growth of agriculture economy. Government of Gujarat involved the NGOs, spiritual organizations, religious bodies and governments in ground water recharge campaign based on community actions and created 6000-7000 water harvesting structures.

13. Highlighting the impact of Solar Irrigation Pumps (SIPs) on ground water Shri Shah mentioned that SIPs will pose a great threat to current water situation by offering approximately 2800 hrs of day time top quality uninterrupted full voltage powers. If all existing electric and diesel pumps in the country were to be replaced by solar pumps in next 15 years then the demand of ground water will increase manifold. In such a situation, ground water will face serious threat in western parts of the India although it may be a boom for many ground water abundant parts of India. Dr. Shah further added that SIPs also creates a new opportunity to resolve energy-irrigation nexus in western and eastern parts of India.

14. SIPs offer an opportunity to correct some perversities that have survived in water economy for the last 30-40 years. We can reverse the perverse incentives that farmers have over pumping ground water by promoting Solar Power as Remunerative Crop (SPaRC) among farmers. This can be done by using SIPs to replace grid-connected electric tubewells and offering SIP owners a buy-back guarantee for their surplus solar energy at a remunerative price. During this process, it should be ensured that no SIP is given to farmers without taking electric pump out of the system.

15. Dr. Shah shared one such initiative done by IWMI on pilot basis in Dhundi village of Anand, Gujarat. IWMI gave 9 solar pumps to farmers and connected them to micro-grid. The electricity board paid Rs. 4.63 per unit to the farmers for power purchased from them. This project is under implementation for last 36 months and this initiative has transformed the economy in just two years and this success story is being replicated at other places.

16. Dr. Shah appreciated the Surya Shakti Kisan (SKY) Yojana of Government of Gujarat. The scheme enables the farmers to generate electricity for their captive consumption as well as sell the surplus power to the government. The scheme offers a cost sharing pattern - 30% MNRE; 5% farmer; 65% NABARD loan on farmer's behalf. The government provides buy back guarantee for 25 years at rate of Rs 7/- per unit, out of which Rs 3.50/- per unit is given to farmers in cash and Rs 3.50 per unit to NABARD towards loan instalment over 7 years. Approximately 70 feeders have been solarized and government is planning to solarize 1000 feeders. Dr. Shah emphasized that such a policy would create an incentive for farmers to conserve energy and water, curtail grid power subsidies, reduce carbon footprint of irrigation and offer farmers a new risk-free income source. Dr. Shah stated that given the reluctance of states in taking decision to meter tubewells and start charging farmers full

commercial tariff for utilization electricity this is the only way we can change the perverse incentive.

17. Discussing the situation of energy and ground water in eastern part of the India where ground water is available in abundance, Dr. Shah said that solar pump can be used to transform the way water market works in these parts. He presented a case study of Village Chakhaji, Samastipur, Bihar where 220 cultivators are used to cultivate 115 acres of land divided in 2600 plots. IWMI created groups of Solar Irrigation Providing Entrepreneur and provided them solar pump of 5 KW capacity along with 1500 feet of buried pipe. These groups started selling water to farmers which resulted in a significant proportion of income. This initiative resulted in fall in the prices of water by 60%, growth in the trade of volume of water, creation of full time jobs and increase in the irrigation cover. He said that there is a need to review the solar pump promotion policy in eastern region with focus on creating SIP-E by providing higher capacity solar pumps. He further added that if the scheme is efficiently implemented, Eastern India's Irrigation Economy can grow from Rs 30,000 crore to Rs 150,000 crore in next 3-5 years. This will support 10 million Solar Irrigation Service Providers (S-ISPs) as entrepreneurs.

18. Dr. Shah stated that there is enormous scope of cross fertilization of ideas between Ministry (NWM) as well as host of institutions around the country which are actively engaged in water sector through research and ground work. Dr. Shah appreciated Secretary (WR, RD & GR), M/o Jal Shakti for initiating a forum for dialogue, discussions & debate where people working in water sector outside the Government will have an opportunity to interact with decision makers in the Govt. on issues related to water.

19. Dr. Shah concluded his talk by stating that if we can take an imaginative view of how we can launch solar pumps in the country not only from energy point of view but also from water point of view, then over 5 to 10 years we can create a wholesome water situation in the country.

20. **Shri U. P. Singh, Secretary, DoWR, RD & GR**, Ministry of Jal Shakti while extending gratitude to Dr. Tushaar Shah for delivering the talk, highlighted the need of storage structure in form of large dam, medium/major irrigation projects, millions of small ponds, tanks, watersheds and underground storage in aquifers. Considering the availability of rainfall in limited period of time and requirement of water over the year, proper storage and management of water is essential.

21. Shri Singh mentioned that promotion and awareness generation of water is gaining prominence and Hon'ble Prime Minister has talked about water conservation in his 'Mann Ki Baat' aired on 30.06.2019. Due to initiative like 'Jal Shakti Abhiyan', conscience about the water conservation is being generated amongst masses. Shri Singh stated that though we don't create water, however 'saving water is like creating water'.

22. Shri Singh highlighted the importance of traditional water conservation system and shared that Banda District Administration has revived/ dug a large number of wells/ponds

with public participation. Water security in the country achieve through supply side intervention by creating small structure like ponds/well and through demand side management.

23. Earlier, Shri G. Asok Kumar, Mission Director, NWM welcomed the Speaker, dignitaries, participants and briefly discussed the purpose and aim of Water Talk and informed that the next Water Talk in this series will be delivered on 23<sup>th</sup> August 2019.

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