Water Security for India - A journey through India's Jal Jeevan Mission

Course Plan for International Participants under the ITEC Programme of the Ministry of External Affairs, Government of India

(27th January 2027 to 2nd February 2027)

1. Background

Water security is a critical development, health and environmental challenge, driven by population growth, urbanisation, climate change, environmental degradation and increasing pressure on water resources. India, with a population exceeding 1.4 billion and a predominantly rural population, faces challenges including groundwater depletion, water contamination, ageing infrastructure, intermittent supply, competing water demands and climate variability.

The Jal Jeevan Mission (JJM), launched in 2019, represents India's ambitious response to these challenges. It aims to provide Functional Household Tap Connections (FHTCs) to rural households through a decentralised, demand-driven and community-managed approach. JJM promotes source sustainability, water-quality monitoring, local governance, behavioural change, capacity building and digital technologies for assured and sustainable water services.

India's experience offers valuable lessons in large-scale programme implementation, participatory governance, inclusive planning, community ownership and climate-resilient water management, with relevance to countries working towards SDG 6: Clean Water and Sanitation

2. About SPM NIWAS

Dr Syama Prasad Mookerjee National Institute of Water and Sanitation (SPM NIWAS), Kolkata, is an autonomous institution under the Ministry of Jal Shakti, Government of India. Inaugurated on 30 December 2022, the Institute serves as the apex capacity-building institution under the Department of Drinking Water and Sanitation.

SPM NIWAS supports the implementation of JJM and SBM-G through capacity building, applied research, policy support and knowledge exchange. Its state-of-the-art facilities, expert faculty and exposure to rural and urban water-management models provide an ideal setting for international learning and training.

3. About Kolkata - The City of Joy

Kolkata, also known as Calcutta (its official name until 2001), is the capital and largest city of the Indian state of West Bengal. It lies on the eastern bank of the Hooghly River, 80 km (50 mi) west of the border with Bangladesh. It is the primary financial and commercial centre of eastern India and one of the gateways to northeastern India. Kolkata is the seventh most populous city in India with an estimated city proper population of 4.5 million, while its metropolitan region, the Kolkata Metropolitan Area, is the third most populous metropolitan region of India with a metro population of over 15 million. Kolkata is regarded by many sources as the cultural capital of India and a historically and culturally significant city in the historic region of Bengal.

4. Course Objectives & Expected Learning Outcomes

Course Objectives	Expected Learning Outcomes
The course aims to: ● Understand India's rural water challenges, policy evolution and linkages with SDG 6. ● Examine the evolution, typologies, design and operation of rural water-supply systems. ● Explore source sustainability, groundwater recharge, nature-based solutions and climate resilience. ● Understand water-safety planning, water-quality monitoring, surveillance and disinfection. ● Examine community participation, local governance, gender inclusion and behaviour change. ● Explore governance, stakeholder coordination and community-based approaches for effective programme implementation. ● Introduce digital tools and technologies for water-quality monitoring and assured services. ● Provide practical learning through case studies, field visits and interactive sessions.	By the end of the course, participants will be able to: ● Describe the transition from infrastructure coverage to assured rural water services. ● Explain key principles, policies and implementation strategies for rural water supply. ● Identify rural water-supply scheme typologies, design features and operational requirements. ● Assess institutional, financial, technical and community conditions for sustainable services. ● Develop approaches for community participation, stakeholder engagement and behaviour change. ● Analyse case studies and adapt relevant lessons to diverse country contexts. ● Apply approaches for water-quality management, monitoring and risk management. ● Identify major source, climate and water-quality risks and appropriate responses.

5. Day-Wise Course Plan

Day	Time	Session	Mode	Resource Person
Day 1 (27-01-2027 | Wednesday)				
	09:00 – 9:30	Inauguration		
	09:30 – 10:00	Icebreaking & Expectations Mapping	Group Activity	**Mr. Mohd Ishfaq,** Retired IAS
	10:00- 10:15	Tea Break		
	10:15 – 11:15	History of Indian Water Systems, Evolution of Water Policy & Institutions	Lecture	**Dr. Basant Yadav,** Assistant Professor Indian Institute of Technology Roorkee

Day	Time	Session	Mode	Resource Person
	11:15 – 12:15	Overview India Rural Water Supply Program, Jal Jeevan Mission)	Lecture	**Prof Anshul Yadav**, Assistant Professor, Department of Water Resources Development & Management, Indian Institute of Technology Roorkee
	12:15- 13:15	Lunch Break		
	13:15 – 14:15	Rural Water supply systems Challenges and their best practices or mitigation strategies adopted in Participant Countries	Group Discussion	**Dr. Subhasish Das**, Associate Professor and Joint Director at the School of Water Resources Engineering (SWRE), Jadavpur University, Kolkata
	14:15 – 15:15	Institutional Architecture for Rural Drinking Water Governance in India	Lecture	**Dr R Ramesh** Associate Professor and Head (I/c) of the Centre for Rural Infrastructure at the National Institute of Rural Development and Panchayati Raj (NIRDPR) in Hyderabad
	Evening	Welcome Dinner	Cultural/ Informal	Hosted by Director, networking
Day 2 (28-01-2027 | Thursday)				
	09:00 – 10:00	From Source to Tap: Rural Water-Supply Systems and Technology Choices	Lecture	**Prof. Souvik Das** Assistant Professor, Department of Civil & Environmental Engineering, IIT Delhi, India
	10:00- 10:15	Tea Break		
	10:15 – 11:15	Type of drinking water Source Sustainability & Water Security Framework in India	Lecture	**Prof. Souvik Das** Assistant Professor, Department of Civil & Environmental Engineering, IIT Delhi, India
	11:15 – 12:15	Citizen-Centric Water Quality Governance, Monitoring and Surveillance Framework (WQMS)	Lecture	**Dr. Sambuddha Misra** Associate Professor, IISc. Bangalore
	12:15- 13:15	Lunch Break		
	13:15 – 14:15	Major Drinking Water challenges and their technological solutions in India	Lecture	**Dr. Sambuddha Misra** Associate Professor, IISc. Bangalore

Day	Time	Session	Mode	Resource Person
	14:15 – 15:15	Microbial Contamination Water-Quality Risks : disinfection technologies	Lecture	**Dr. Sambuddha Misra** Associate Professor, IISc. Bangalore
Day 3 (29-01-2027 | Friday)				
	9:00 – 01:30	Half day Field Visit	Visit	**SPM NIWAS team**
	12:15- 13:15	Lunch break		
	14:30 – 15:15	Reflection Session	Interaction	**SPM NIWAS team**
Day 4 (30-01-2027 | Saturday)				
	9:30 – 16:30	Kolkata Heritage & Water Tour	Visit	**SPM NIWAS**
Day 5 (31-01-2027 | Sunday)				
	9:30 – 17:30	Local tour on your own		SPM NIWAS to arrange transport and guide to facilitate the tour
Day 6 (01-02-2027 | Monday)				
	09:00–10:00	Community Participation (Jan Bhagidaari) in Governance of Rural Water Supply systems in India	Lecture	**Mr. Mohd Ishfaq,** Retired IAS
	10:00-10:15	Tea break		
	10:15– 11:15	Participatory Planning, Stakeholder Engagement and Conflict Management	Lecture	**Dr. Tanuka Roy Sinha,** Assistant Professor, Department of Social Work, Bankura University, West Bengal
	11:15 – 12:15	Role Play: Conflict Simulation	Role Play	**Dr. Tanuka Roy Sinha,** Assistant Professor, Department of Social Work, Bankura University, West Bengal
	12:15-13:15	Lunch break		
	13:15 – 14:15	IEC Campaign Design	Group Activity	**Dr. P. SivaRam** Former Professor and Head at the Centre for Rural Infrastructure (CRI), the National Institute of Rural Development

Day	Time	Session	Mode	Resource Person
				and Panchayati Raj (NIRD&PR),Hyderabad, India
	14:15 – 15:15	River of Life Reflection	Adult Learning	**Dr. P. SivaRam** Former Professor and Head at the Centre for Rural Infrastructure (CRI), the National Institute of Rural Development and Panchayati Raj (NIRD&PR), Hyderabad, India
	Evening	Cultural Night	Event	Folk music, dance, Indian dinner
Day 7 (02-02-2027 | Tuesday)				
	09:00 – 10:00	Digital Data Governance in Rural Drinking Water Supply systems	Lecture	**Prof. Amlan Chakrabarti,** Professor and Director, A.K. Choudhury School of Information Technology, University of Calcutta & Adjunct Professor, IIIT Delhi, New Delhi
	10:00-10:15	Tea break		
	10:15 – 11:15	IoT and SCADA Applications in Water supply and Management.	Lecture	**Prof. Amlan Chakrabarti,** Professor and Director, A.K. Choudhury School of Information Technology, University of Calcutta & Adjunct Professor, IIIT Delhi, New Delhi
	11:15 – 12:15	24x7 Supply & Drink from Tap	Lecture	**Mr. Mohd Ishfaq,** Retired IAS
	12:15-13:15	Lunch break		
	13:15 – 14:15	Learning from International Rural Water Supply Models	Lecture	**Mr. Mohd Ishfaq,** Retired IAS
	14:15–15.15	Feedback & Reflections	Interactive	**SPM NIWAS Team**
	15:15–16:00	Valedictory & Certificate Distribution	Formal Event	**SPM NIWAS Team**