

MEMORANDUM OF UNDERSTANDING

BETWEEN

INLAND WATERWAYS AUTHORITY OF INDIA (IWAI) (Ministry of Ports, Shipping and Waterways, Government of India)

AND

NATIONAL TECHNOLOGY CENTRE FOR PORTS, WATERWAYS & COASTS (NTCPWC)
(Indian Institute of Technology Madras)

FOR DRIVING INNOVATION, RESEARCH, AND THE ADOPTION OF BEST PRACTICES IN DREDGING OPERATIONS AND SEDIMENT MANAGEMENT ON NATIONAL WATERWAY-1 (NW-1)

This Memorandum of Understanding (hereinafter referred to as "MoU") is made and entered into on this [Day] day of [Month], [Year] **17.10.2025**

BY AND BETWEEN:

- I. **INLAND WATERWAYS AUTHORITY OF INDIA (IWAI)**, an autonomous body under the Ministry of Ports, Shipping and Waterways, Government of India, established under the Inland Waterways Authority of India Act, 1985, having its Head Office at A-13, Sector-1, Noida – 201301, Uttar Pradesh (hereinafter referred to as "IWAI", which expression shall, unless repugnant to the context or meaning thereof, include its successors and assigns);

AND

- II. **NATIONAL TECHNOLOGY CENTRE FOR PORTS, WATERWAYS & COASTS (NTCPWC)**, established under the Sagarmala Programme of the Ministry of Ports, Shipping and Waterways, Government of India, and operating under the aegis of Indian Institute of Technology Madras (IIT Madras), having its principal office at IIT Madras Campus, Chennai – 600036, Tamil Nadu (hereinafter referred to as "NTCPWC", which expression shall, unless repugnant to the context or meaning thereof, include its successors and assigns).

(IWAI and NTCPWC are hereinafter collectively referred to as "the Parties" and individually as "Party").

WHEREAS:

- A. IWAI is the statutory body responsible for the development, maintenance, and regulation of inland waterways for shipping and navigation in India, including the critical task of maintaining declared navigable depths on National Waterways through dredging and river training works.
- B. The Ganga River (from Haldia to Prayagraj) has been declared as National Waterway-1 (NW-1), which is a strategically important waterway requiring continuous maintenance of its navigation channel, necessitating efficient and sustainable dredging and sediment management practices.
- C. NTCPWC is a state-of-the-art national centre established as a technology hub and research arm for the ports, waterways, and coastal sector, equipped with advanced laboratory facilities,




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computational tools, and expertise in areas such as coastal and inland hydrodynamics, sediment dynamics, dredging technology, and port engineering.

- D. Both Parties recognize the critical importance of adopting innovative technologies, best international practices, and scientific research to enhance the efficiency, cost-effectiveness, and environmental sustainability of dredging operations and sediment management on NW-1.
- E. The Parties desire to enter into this MoU to establish a collaborative framework to leverage NTCPCW's specialized research and technological expertise to support IWA's mission on NW-1, particularly in the realm of dredging and sediment management.

NOW, THEREFORE, THE PARTIES HEREBY AGREE AS FOLLOWS:


1. **PURPOSE AND OBJECTIVES** - The primary purpose of this MoU is to establish a strategic partnership between IWA and NTCPCW for driving innovation, conducting research, and facilitating the adoption of best practices in dredging operations and sustainable sediment management on National Waterway-1 (NW-1). The key objectives are:
- To enhance the technical and operational efficiency of IWA's dredging activities through scientific inputs and advanced methodologies.
 - To develop and implement environmentally sound and cost-effective sediment management strategies for NW-1.
 - To foster innovation in dredging technologies and techniques suitable for riverine environments.
 - To build capacity within IWA personnel through specialized training, knowledge transfer, and technical guidance.
 - To generate actionable research outcomes that inform policy and operational decisions for sustainable waterway maintenance.
2. **SCOPE OF THE MoU:** This MoU outlines the framework for collaboration between IWA and NTCPCW on various aspects related to dredging and sediment management on NW-1. The scope includes, but is not limited to, the following areas:
- Research & Development:** Joint and collaborative research projects on sediment transport, river morphology, dredging techniques, and beneficial use of dredged material.
 - Technical Consultancy & Advisory:** Providing expert technical advice, feasibility studies, and problem-solving support for complex dredging and sediment management challenges.
 - Best Practices & Innovation:** Identification, evaluation, and promotion of best national and international practices, and innovation in dredging equipment, methods, and sediment disposal/reuse.
 - Data Analysis & Modeling:** Development and application of advanced numerical models for predicting sediment dynamics, dredging requirements, and optimizing channel maintenance.
 - Environmental Sustainability:** Studies on environmental impact assessment of dredging and development of environmentally friendly dredging and disposal solutions.
 - Capacity Building:** Training programs, workshops, and knowledge transfer initiatives for IWA engineers and personnel.
 - Technology Transfer:** Facilitating the adoption of new technologies and methodologies developed or identified by NTCPCW.




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- h) **Pilot Projects:** Collaboration on pilot projects for testing new dredging technologies, sediment management techniques, or beneficial use applications on NW-1.
- 3. TERM AND REVIEW**
- a) This MoU shall come into effect from the date of its signing and shall remain in force for a period of five (5) years, unless terminated earlier in accordance with the provisions herein.
 - b) The MoU may be extended for further periods upon mutual written agreement of both Parties, based on a review of its effectiveness and continued relevance.
 - c) The Parties shall review the progress and implementation of this MoU annually through the Joint Working Group.
- 4. AMENDMENT:** This MoU may be amended or modified at any time by mutual written agreement of both Parties. Any such amendment or modification shall form an integral part of this MoU.
- 5. TERMINATION:**
- a) This MoU may be terminated by either Party by giving six (6) months' prior written notice to the other Party, without assigning any reason.
 - b) This MoU may be terminated by either Party immediately if the other Party commits a material breach of any of the terms and conditions of this MoU and fails to remedy such breach within ninety (90) days of receiving written notice of such breach.
 - c) Notwithstanding termination, any liabilities or obligations incurred prior to the effective date of termination shall remain binding on the respective Parties.
- 6. DISPUTE RESOLUTION:** Any dispute, difference, or question which may arise between the Parties concerning the construction, meaning, or effect of this MoU, or the rights or liabilities of the Parties hereunder, shall be resolved amicably through mutual discussions and negotiations. If no amicable resolution is reached within sixty (60) days, the dispute shall be referred to the Chairman, IWAI, and the Head, NTCPWC (or Director, IIT Madras) for their joint intervention and resolution.
- 7. GOVERNING LAW AND JURISDICTION** This MoU shall be governed by and construed in accordance with the laws of India. The Courts in New Delhi shall have exclusive jurisdiction to entertain any suit or proceeding arising out of this MoU.
- 8. GENERAL PROVISIONS**
- a) **Non-Binding Nature:** This MoU represents the mutual understanding and intent of the Parties and is not intended to create any legally binding financial obligations beyond the express provisions outlined herein, particularly those relating to responsibilities and dispute resolution. It serves as a framework for a more detailed agreement or project-specific contracts if required.
 - b) **Confidentiality:** Both Parties agree to maintain confidentiality of any proprietary or sensitive information shared during the course of this collaboration.
 - c) **Severability:** If any provision of this MoU is held to be invalid or unenforceable, the remaining provisions shall remain in full force and effect.




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- d) **Force Majeure:** Neither Party shall be held liable for non-fulfillment of their obligations under this MoU if such non-fulfillment is due to a Force Majeure event (acts of God, war, natural calamities, pandemic, etc.), provided prompt notice is given to the other Party.

IN WITNESS WHEREOF, the Parties hereto have executed this Memorandum of Understanding on the date first above written.

For & on behalf of Inland Waterways Authority of India (IWAI):  A.K. Mishra Chief Engineer (JMVP) Inland Waterways Authority of India (Ministry of Port, Shipping & Waterways, Govt. of India) A-13, Sector-1, Noida-201301 (U.P.)	For & on behalf of National Technology Centre for Ports, Waterways & Coasts (NTCPWC):  Dr. K. MURALI Project Co-ordinator National Technology Centre for Ports, Waterways and Coasts I.I.T. Madras, Chennai - 36.
Witness: 1.  KARIR SINGH, Dy. Dir. (Jm) 2.  DR. PRAKRITI K MISHRA SR. CONSULTANT (JMVP)	Witness: 1.  P. Jay 2. 