DRAFT NATIONAL WATER METRO POLICY, 2026

Contents

1. Background and Context:

1.1. Introduction:

Rapid growth of Indian cities with increasing population, increased focus on economic activity and rapid urbanization has resulted in transport problems. Urban transport in India is struggling with congestion, air pollution, inadequate public transit options, and high fossil-fuel dependence.Aligned with the objectives of the Harit Nauka Guidelines, the Water Metro prioritizes green transportation by promoting clean-fuel, low-emission vessels. By leveraging energy-efficient inland waterways and adopting electric or hybrid propulsion systems, the initiative aims to significantly reduce the carbon footprint of urban transit.

Rapid growth requires various modes of transportation, but the availability of land for new transport infrastructure is becoming increasingly constrained.The Water Metro model addresses this limitation by utilizing existing navigable waterways to create a robust, reliable, and environmentally sustainable urban transport network. It represents an innovative shift in city mobility, offering safe, efficient, cost-effective, and eco-friendly alternatives to conventional road-based systems.

The Inland Water Transport (IWT) system in India plays a critical role in strengthening urban mobility and regional connectivity. It enhances access to remote or water-locked areas, enables shorter and faster travel by bypassing long road corridors, and helps decongest overburdened road networks. Beyond mobility, IWT contributes significantly to economic growth by lowering transport costs, supporting local livelihoods, and improving the movement of goods and people. It also unlocks substantial tourism potential, particularly in states with rich cultural and natural waterways, thereby boosting local economies. As a low-emission, energy-efficient mode, IWT strongly aligns with national goals for sustainable and environmentally responsible transportation. These advantages underscore the Government's continued emphasis on expanding and modernizing inland water transport as a key pillar of future urban mobility.

1.2. Concept of Water Metro/Water Buses/Water Taxi

A Water Metro is a **mechanically propelled, mass passenger transport system** operating on inland, coastal, or other water bodies, designed for systematic movement of people and, where applicable, vehicles and may include passenger vessels and Ro-Pax.

Such systems may **operate across intra-city, inter-city, coastal, and inter-island corridors, on rivers, canals, lakes, backwaters, estuaries, creeks and coastal waters and are not restricted to National Waterways**. Water Metro services use **modern, standardized vessel designs equipped with prescribed safety,**

accessibility, environmental-protection features, and function as part of an organized public transport network.

1.3. Key Features of Water Metro

1. **Mass Transport Character**

   i. Services are open to the general public
   ii. Operate on scheduled or regulated routes
   iii. Intended primarily for public mobility

2. **Vessel Types Included**

Water Metro systems **may includePassenger-only vessels and Ro-Pax vessels**(passengers + limited vehicles).Recognizing that Water Metro systems are at a nascent stage of development, sustainability shall be embedded at the planning and design stage itself. Accordingly, all Water Metro vessels are required to operate on zero or low-emission vessels (**Green Vessels**) designed to provide safe, reliable and sustainable mobility solution.

All vessels shall be mechanically propelled built to standardized, certified designs, compliant with applicablenational maritime and inland vessel safety rules and regulations.

3. **Waterways Covered**

Operations are **not limited to notified National Waterways** and may occur on State or Union Territory or locally administered water bodies, subject to applicable clearances.

4. **Functional Use**

May support daily commuting, recreational, tourism, mixed-purpose travel and general public mobility.

2. Rationale for a dedicated Water Metro Policy

At present, Mass Rapid Transit Systems (MRTS) frameworks primarily encompass BRTS (Bus Rapid Transit System), LRT (Light Rail Transit), tramways, metro rail, and regional rail systems, with inland waterway-based transport largely remaining outside the formal public transport ecosystem.

A dedicated Water Metro Policy would provide a structured, coordinated approach between the Centre and States, positioning waterways as a formal component of urban public transport alongside existing MRTS modes. The policy

would promote an ecosystem-based framework focused on standardization, safety, technical efficiency, and sustainable system design, including a transition to low-emission and green propulsion technologies.

At present **the technical and operational expertise with respect to inland water-based transport** involving project identification, appraisal, vessel specification andsafety oversightlargely resides with IWAI. A common framework will help ensure **Water Metro systems develop in a coordinated and consistent manner, enabling standardized safety practices, streamlined vessel designs, clear institutional arrangements,scalable and replicable implementation across cities**.

3. Key Characteristics to be Emphasized in Water Metro

3.1. Green, Zero or Low-Emission Fuel-Powered Vessels

Inland Waterways Transportation (IWT), by virtue of lower energy consumption per passenger-kilometer, has the potential to significantly enhance sustainability and cost efficiency within the urban mobility and logistics ecosystem. However, a large proportion of the existing inland vessel fleet in India continues to rely on conventional fossil fuels such as diesel.**Given that the Water Metro ecosystem is at a nascent stage, systems should be designed from the outset as low-emission alternatives, with provisions for clean-fuel or hybrid vessel configurations incorporated at the planning and design stage itself.**

Considering the current maturity of vessel designs, availability of proven specifications, operating cost sustainability, and ease of deployment, electric propulsion—including battery-operated and solar-assisted vessels—emerges as the predominant option for Water Metro systems in the near term. While electric-powered vessels are presently prioritized, the **policy framework provides for periodic reviews**of technological developments, fuel availability, cost trends, and safety considerations, **enabling phased induction of other suitable clean-fuel** propulsion technologies as they achieve operational readiness and commercial viability.

For specific operating conditions—such as **longer trip lengths, higher power or range requirements, challenging waterway characteristics or safety considerations—the use of hybrid vessels may be permitted to ensure safe, efficient and reliable operations.**

While the integration of renewable energy sources with charging and refueling infrastructure shall be encouraged, the policy does not mandate the sourcing of clean

fuels/electricityexclusively from renewable sources in the initial phase. The progressive greening of fuel supply is expected to be driven by broader national policies and programs aimed at increasing the share of renewable energy in India's overall energy mix.

3.2. Standardization of Vessel Design and Specification

Water Metro vessels shall be based on **standardized designs and specifications to the extent feasible, to promote operational efficiency, safety, ease of maintenance and scalability. Technical standards and specifications for Water Metro vessels and, charging or bunkering infrastructurenotified by a Technical Standards Committee constituted in this regard by the Inland Waterways Authority of India, shall be mandatorily adhered to in order to ensure safety, uniformity, and interoperability. The Technical Standards Committee shall formulate and notify the standards within the time frame stipulated by MoPSW in this regards.**

Vessel designs shall be **approved by the Indian Register of Shipping (IRS) or other classification societies authorized by DG Shipping and shall facilitate interoperability across different waterways, subject to local waterway characteristics**.

The choice of vessel materials—such as steel, aluminium or reinforced fibre-plastic (FRP)—and structural strength parameters shall be aligned with navigational conditions, hydrological characteristics, draft restrictions, climatic conditions and safety requirements of the concerned waterways.

3.3. Enhanced Service Quality and Safety Standards

Water Metro systems shall aim to significantly**improvethe quality, reliability and safety of inland water-based passenger transport services**. This shall be achieved through a transition towards modern vessels, adoption of advanced navigational and communication systems, compliance with prescribed technical and safety standards, and professionalized operational and maintenance practices.

Emphasis shall be placed on **passenger safety, comfort, accessibility, predictable schedules and service reliability** to position Water Metro systems as a credible and preferred mode of urban public transport.

3.4. Indigenization

Vessels procured for Water Metro systems are to be **indigenously designed and built by Indian shipyards**, in line with the objective of promoting domestic manufacturing

and self-reliance. Aggregation of demand through standardized designs and bulk procurement is encouraged to achieve economies of scale, negotiate competitive costs, and progressively enhance local content across the Water Metro ecosystem.

3.5. Integration with Urban Transport and Mobility Networks

Water Metro systems shall be planned and implemented as an integral part of the broader urban mobility framework. **Seamless integration with road networks, metro rail systems, bus services and other urban transit modes shall be prioritized to enable multimodal connectivity.**

Adequate provision shall be made for **last-mile connectivity, including pedestrian walkways, non-motorized transport infrastructure, feeder services and intermodal terminals, to ensure ease of access and maximize ridership potential**.

4. Planning and Implementation:

4.1. Project Planning

1. Project Proponent

Water Metro systems constitute an urban mass transport intervention, requiring close alignment with city-level planning, land use and service delivery mechanisms. **For National Waterways, both the Inland Waterways Authority of India (IWAI) and State Government may propose Water Metro projects with plans for joint development**. In cases where the **State intends to undertake independent development of Water Metro projects on National Waterways, it must obtain a No Objection Certificate (NOC) from IWAI as per Chapter-IV 'Functions And Powers of the Authority', section 14 ofthe IWAI Act.** This NOC will be issued subject to the project's compliance with prescribed standards, specifications, and applicable frameworks. **For waterways other than National Waterways, the State Government may initiate the development of Water Metro projects**.

2. **Institutional Support and Role of IWAI**

Recognizing that many States currently possess limited institutional capacity and technical expertise for inland water transport (IWT) project planning and development, appropriate facilitation and technical support may be availed to strengthen project preparation.

In this context, the IWAI, by virtue of its specialized domain knowledge and experience, **shall undertake the preparation of Detailed Project Reports (DPRs) and other studies for projects located on National Waterways. For projects on waterways other than National Waterways, States may seek technical support from IWAI** to ensure projects are technically sound, conform to prescribed technical

and safety standards, and adopt a structured implementation approach that supports timely delivery and efficient project turnaround.

3. **Proposal Requirements**

Proposals for Water Metro systems are to be supported by a comprehensive assessment of transport alternatives, comparing different modes to establish the suitability of Water Metro solutions for the identified corridor. **In addition to the DPR, proposals are expected to include Techno-Economic Feasibility Report (TEFR)as part of DPR, socio-economic cost–benefit analysis, site and route assessment, land acquisition and rehabilitation requirements and plans, strategies for transit-oriented development (TOD), integration with other urban transport modes and last-mile connectivity plansand identification of potential non-fare box revenue streams to enhance long-term financial viability.**

4.2. Suitability of Cities and Circuits for Water Metro System

Water Metro / Water Bus systems may be considered in cities, regions or specific urban zones that demonstrate **suitable geographic, demographic and mobility characteristics**.

1. Water Metro / Water Bus planning may be considered in urban or regional contexts that demonstrate inherent **geographic suitability –** presence of **navigable waterways,** availability of continuous or semi-continuous **navigable circuits capable of supporting scheduled services**and **hydrological conditions that can reasonably supportsafe and reliable operations**including manageability of seasonal variations through appropriate design and operational planning.

2. Water Metro systems are most suitable for cities and regions with concentrated populations and directional travel patterns, in line with mass rapid transit planning principles:
   a. **Urban agglomerations or metropolitan regions with populations typically exceeding one million**, where water-based transport can operate as a high-capacity, high-frequency public transport mode;
      or
   b. **Cities with populations above one lakh** where clearly defined demand or seasonal corridors exist, particularly in tourism-intensive areas or locations with significant existing waterway passenger traffic, indicating established or latent demand;
      and

c. Supported by **minimum peak ridership levels of2000 per day that justify mass-transit operations.***(To be discussed)*

3. Water Metro / Water Bus systems should be positioned as a complementary mode within the overall urban transport network, particularly in contexts where they can deliver tangible mobility benefits. **Planning priority or threshold relaxations may be considered for**:
   a. Cities experiencing severe congestion on road networks, where **water-based transport can offer congestion relief** and improved travel reliability.
   b. Corridors where water transport **enables shorter, faster, or more direct journeys by bypassing long, circuitous road or rail routes.**
   c. Regions where waterways provide **critical connections across natural barriers, access to remote water-locked habitations reducing dependence on bridges or limited crossing points**.
   d. Areas where water transport can meaningfully enhance resilience during floods or infrastructure disruptions.

4.3. System-Based Approach to Planning

Planning and development of Water Metro systems shall follow a system-based, integrated approach, rather than a stand-alone interventions.
Wherever available, Water Metro planning shall be **guided by the city's Comprehensive Mobility Plan (CMP)**, with a view to ensuring seamless integration with the overall urban transport network. Water Metro circuits may be identified as part of, or in consistency with, the CMP to promote:

1. Multimodal connectivity and interoperability,
2. Optimal modal share between road-based, rail-based and water-based transport,
3. Reduction in congestion and emissions, and
4. Sustainable urban mobility outcomes

In cities where a CMP is not available, the State Government may undertake suitable mobility assessments or studies to establish the role of Water Metro within the broader urban transport framework prior to project approval.

4.4. Ecosystem Approach to Development

Water Metro systems require an end-to-end ecosystem approach for achieving operational, financial and user-centric success. Accordingly, planning and implementation shall be undertaken with a long-term perspective, encompassing both vessel operations and requisite shore-side infrastructure.

1. **Vessels**
    a. Water Metro vessels shall conform to the **"Key Characteristics to be Emphasized for Water Metro Systems**" as prescribed in Section 3 of this Policy, including technical compliance,safety, energy efficiency, accessibility and passenger comfort.
    For water metro routes exceeding certain duration, provision should be made for onboard sanitary toilets and appropriate waste management systems.
    b. Adequate provision shall be ensured for support vessels such as dredgers, emergency response and rescue vessels, medical aid vesselsand patrolling vessels to maintain navigability, operational safety, and security across the corridor.
    c. Fleet planning shall be integrated with service frequency, terminal capacity, and energy infrastructure to ensure reliable operations.

2. **Pontoons and Jetties**
    a. Pontoons and jetties shall be designed for appropriate structural strength and buoyancy, accounting for peak passenger traffic, boarding and alighting dynamics and local hydrological conditions.
    b. Jetty height and interfacing shall be aligned with vessel freeboard to ensure universal accessibility and safe passenger movement.
    c. Selection of construction materials, including concrete, rubber, or composite systems, shall consider durability, lifecycle costs, waterway characteristics, tidal variation, and maintenance requirements

3. **Bunkering and Charging Infrastructure**
    a. Depending on fleet configuration, suitable low-emission fuel refuelling stations, electric charging stations, or swappable battery systems shall be provided to ensure service continuity.
    b. Charging interfaces shall be standardized and sized to avoid queuing during operating hours, with night-time or off-peak charging provisions encouraged.
    c. Backup and resilience measures including DG sets, UPS (Uninterruptible Power Supply) systems, APFC (Automatic Power Factor Controller) panels, shore power supply, and energy management systems shall be incorporated to ensure uninterrupted and efficient operations.

4. **Terminal and other facilities**
    a. Terminals shall generally include ticketing facilities, waiting areas, Automatic Fare Collection (AFC) systems, passenger information systems, medical aid facilities, and integration with control and command centers.

b. In areas with limited or non-availability of land along the waterfront, innovative solutions such as compact terminals, shared infrastructure, or demarcated dedicated Water Metro jetties with AFC provisions are to be adopted in lieu of conventional spread-out terminal layouts.
c. Terminal design shall prioritize inter-modal integration, universal accessibility, safety, and efficient passenger circulation.

5. **Navigational Aids**

Navigation aids are essential for safety in water transport such as buoys, channel markers, and signage for safe operations. Advancement in technology has combined traditional markers (lighthouses, buoys) with modern digital technology (GPS, AIS, smart buoys) to create an efficient, smooth maneuvering and to prevent accidents.

4.5. Coordination and Approvals

Given the multi-sectoral nature of Water Metro systems, project planning and implementation shall involve coordination with relevant agencies, including but not limited to urban development authorities, transport departments, inland waterways agenciesand environmental and safety regulators.
Appropriate institutional mechanisms may be established by State Governments to facilitate inter-departmental coordination, timely approvals, and efficient project execution.

5. Financing Models and Financial Prudence:

While overall project costs are expected to be lower than rail-based MRTS due to limited land-side construction, the induction of low-emission vessels and the supporting energy ecosystem (charging/bunkering, shore power, APFC, resilience) increases upfront capex.
Ridership growth potential and modal shift may be comparatively modest relative to metro rail, and several corridors will serve lower-income users, warranting reasonable, affordable fares to sustain mass-transport utility.

To promote induction and accelerate adoption, Central assistance is envisaged as a catalytic support alongside State resources and PPP participation.

5.1. Funding Models:

Various funding models that may be explored include:

1. **Joint State–Central funding:**Under this model, eligible project capital expenditure is shared equally between the Central Government and the State Government, while operation and maintenance expenditure is borne by the State.
2. **Fully State-funded:**Projects may be undertaken entirely by the State Government, with both capital and operating expenditures financed through State resources. States may also leverage multilateral funding, green finance instruments, or other permissible sources to support project implementation.
3. **PPP-led development:**Water Metro projects may be developed through private participation under appropriate PPP structures. Such projects may, where justified, be supported through Viability Gap Funding (VGF) from the State and/or Central Government, in accordance with applicable Government of India guidelines.
4. **Central-fundedmodel**: for significant projects on National Waterways: In exceptional cases, where a Water Metro project located on a National Waterway demonstrates substantial socio-economic impact, regional connectivity benefits, or strategic public interest, the Central Government may consider providing assistance for the entire eligible project capital cost, excluding land and rehabilitation-related expenditures.

   Costs related to land acquisition, rehabilitation and resettlement, and other State-specific requirements are to be met by the State Government.

5.2. Central Assistance Mechanisms

The various options for central assistance for water metro projects may include:

1. **VGF (GoI):** Central financing aligned to the Government of India's VGF framework to improve bankability of eligible PPP components.

2. **Central Sector Scheme (CSS) support**: A dedicated assistance mechanism may be notified under which project capex (excluding land, R&R, and other ineligible items) is shared equally by Centre and State via an SPV with equal ownership, with milestone-linked disbursement and compliance to technical/safety standards and scheme guidelines.

   OPEX support (where justified): Time-bound, performance-linked support may be considered by State Government for initial years to ensure service ramp-up and fare affordability.

5.3. Indicative Operations and Maintenance Model

Operations and maintenance may be **undertaken by an SPV, either through in-house arrangement or outsourcing to professional operators, or through an O&M-focused PPP model**. Similar operational options may be adopted in fully State-funded projects, depending on institutional capacity and project scale.

O&M contracts, where adopted, may be structured under Gross Cost Contract (GCC), Net Cost Contract (NCC), or cost-plus-fee arrangements.

- **Gross Cost Contract (GCC):** Private operator paid a fixed/variable fee; revenue risk retained by SPV; suitable for fare affordability and service control.
- **Net Cost Contract (NCC):** Operator retains fare revenue and bears revenue risk; SPV sets service and performance standards.
- **Cost-plus-Fee:** Actual audited costs reimbursed with a management fee, used where demand/technology risks are high.

Where projects are implemented under a PPP framework, end-to-end responsibilities, including O&M, may be undertaken by the private concessionaire under models such as DBFOT or BOT.

5.4. Revenue Enhancement

The Water Metro System shall strengthen its viability through:

1. Modal shift promotion through integrated ticketing, reliable frequencies, and last-mile connectivity
2. Non-fare box revenues: Advertising, retail, event spaces, waterfront/commercial development, value capture/TOD instruments, and ancillary services (parking, feeders).
3. Public-private development of shore-side commercial assets to cross-subsidize operations where feasible.
4. Tourism or cruise related revenue

5.5. Cost Optimization and Sustainability

To enhance efficiency and long-term viability, Water Metro projects are to **explore cost-optimization measures across planning, infrastructure, and operations**. These include:

1. **Fleet and service rationalization**: Right-sizing fleet, phased induction, standardized vessel classes; context-appropriate amenities (e.g., AC vs non-AC on specific routes).

2. **Efficient infrastructure**: Modular terminals, shared facilities, energy-efficient systems and APFC-enabled power management
3. **OPEX management:** Performance-based contracts, energy procurement optimization, predictive maintenance, and glide-path reduction of subsidy through periodic tariff/revenue reviews.

The objective is long-term financial sustainability, with any operating losses transparently managed and progressively reduced through efficiency gains, revenue diversification, and targeted support.

6. Fare Policy

For projects seeking Central assistance, fare policies shall be formulated within the existing relevant statutory framework and shall be guided by corridor-specific considerations including projected ridership, demand growth potential, affordability, target user demographics and income profiles, and the intended end use of the service—such as daily urban commuting or tourism-oriented travel. **The primary objective shall be to ensure affordable, inclusive access to public transport services, with operational sustainability being pursued without prioritizing revenue maximization over user accessibility and affordability.**

7. Legal Framework.

Shipping and navigation on National Waterways involving mechanically propelled vessels fall under Entries 24 & 30 of the Union List in Schedule VII of the Constitution. Therefore, the Inland Waterways Authority of India ("IWAI"), a statutory authority constituted under the IWAI Act, 1985, is empowered for development and regulation of infrastructure on National Waterways.

For waterways other than national waterways, IWAI has advisory functions with respect to inland water transport under Section 14(2)(a) of the IWAI Act. Inland waterways other than national waterways and mechanically propelled vessels plying therein, falls under Entry Number 32 of the Concurrent List (in Schedule VII of the Constitution).

Based on the above framework, the regulation of all mechanically propelled inland vessels is governed by the provisions of the Inland Vessels Act, 2021 ("IV Act"). Under this Act, the Central Government has, through the Rules, prescribed standards relating to construction, design, manning, pollution control, and safety, which all mechanically propelled vessels must comply with while plying on inland waterways. List of Inland Vessel Rules is placed under Annexure I. **In addition, the**

Rules framed under the IV Act address certain trade-related aspects, including minimum service standards and terms and conditions aimed at protecting both service providers and service users.

The Central Government sets standards for inland vessels under the IV Act which are implemented by the State Governments and their authorities.

Technical standards and specifications for Water Metro vessels and charging or bunkering infrastructure notified by a Technical Standards Committee constituted in this regard by the Inland Waterways Authority of India, shall be mandatorily adhered toin order to ensure safety, uniformity, and interoperability. Where applicable, relevant provisions and guidelines issued by the Ministry of New and Renewable Energy (MNRE), Ministry of Power (MoP), and Ministry of Petroleum and Natural Gas (MoPNG) relating to electric charging, alternative fuels, and bunkering infrastructure shall also be complied with, in addition to all other applicable Central and State laws.
While determining the requisite standards, the Technical Standards Committee will ensure due alignment with the current applicable standards per the rules drafted under the Inland Vessels Act, 2021.

8. Monitoring of Performance

Projects shall be monitored against Key Performance Indicators relating to safety, punctuality, ridership, service quality, environmental performance and on the indicators decided by the administering authority. Independent audits, third-party inspections, and public disclosure of key performance information shall be undertaken.

9. Policy Review and Revision

This Policy shall be periodically reviewed, to ensure continued relevance and effectiveness. The review process shall take into account**evolving alternative fuel and propulsion technologies, changes in demand patterns and ridership behavior, operational experience, cost and financing considerations, and developments across the broader Water Metro ecosystem.**

Based on such reviews, suitable revisions may be undertaken to adapt the policy framework to emerging technologies, regulatory changes, best practices, and lessons learnt from implementation, with the objective of enabling responsive, future-ready, and sustainable Water Metro systems.

Annexure I : List of Inland Vessel Rules framed under Inland Vessel Act, 2021

1. Survey and Certification Rules, 2022
2. Registration and Other Technical Issues Rules, 2022
3. Manning Rules, 2022
4. Crew and Passenger Accomodation Rules, 2022
5. Safe, Navigation, Communication and Signals Rules, 2022
6. Life Saving Appliance Rules, 2022
7. Fire Fighting Rules, 2022
8. Prevention and Pollution Rules, 2022
9. Insurance, Limitation of Liability, Inquiry and Investigations Obligations of Service Providers and Service Users Rules, 2022