RIDING NATURE’S PATH...

Presented by:
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Inland Waterways Authority of India
Ministry of Shipping, Government of India

Conserving Now, Preserving Future
Agenda

The presentation covers the following:

• History of Inland Waterways in India.

• Quantum Environmental Jump – from 5 to 111 National Waterways

• Environmental Friendly development initiatives in Inland Waterways

• Green Initiatives of IWAI

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History of Inland Waterways in India

- Maurya, Magadha & Gupta Empires arose near rivers
- Earliest record of river navigation in India - 4th century
- River navigation – an important mode of transport in Mughal period & British Raj
- In late 18th century - navigational canals, steam ships and steam ports introduced

East Indiaman – East India Company ships used in 17th to 19th Century

Paddle steamers – revolutionized inland transport in 19th Century – Indigo transported in Bihar & Bengal
Inland Navigation -
“ A lost socio-economic opportunity since independence”

Mid 19th Century
Decline of Inland Navigation in India

- Construction of railways
- Development of roads
- Withdrawal & diversion of river water for irrigation

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1986 – 2014: Only 5 National Waterways

National Waterways Act, 2016: 106 new National Waterways declared

111 new National Waterways spread across 24 states of India.
Total length of waterways ~20,000 km
Jal Marg Vikas Project

- Capacity augmentation of Ganga - Haldia to Varanasi
- Technical & Financial assistance from World Bank
- ~USD 800 Million Project

Environment Benefits

Employment Generation

Cultural & Economic Ties

Regional Integration

Socio-Economic Benefits

“Inland Waterways to be integrated with Roads & railways to achieve sustainable economy”
Jal Marg Vikas Project – Key Interventions

- Varanasi
- Sahibganj
- Farakka
- Haldia

Key Interventions:
- Navigational Lock
- Assured Depth
- Bandalling Works
- Multimodal Terminal
- Bank Protection
- Intermodal Terminal
- WTP & STP
- Ro-Ro
- Disaster Management
- Terminal Development
- Ecological Protection

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<table>
<thead>
<tr>
<th>Factor(s) Considered</th>
<th>Rates Considered (Rs./TKm)</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Waterways</td>
<td>Road</td>
</tr>
<tr>
<td>Air Pollution</td>
<td>0.03</td>
<td>0.202</td>
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<tr>
<td>Noise Pollution</td>
<td>Negligible</td>
<td>0.0032</td>
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<tr>
<td>Soil &amp; Water Pollution</td>
<td>Negligible</td>
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<tr>
<td>Emission of GHGs</td>
<td>0.0006</td>
<td>0.0031</td>
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Monetization of benefits of Inland waterways
### Benefits of Inland Water Transport

<table>
<thead>
<tr>
<th>Mode</th>
<th>Carrier Type</th>
<th>Capacity (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>Truck (Normal 10 wheeled)</td>
<td>16</td>
</tr>
<tr>
<td>Rail</td>
<td>Rail Rakes of (40 Wagons)</td>
<td>2200</td>
</tr>
<tr>
<td>IWT</td>
<td>IWT Vessels</td>
<td>2000</td>
</tr>
</tbody>
</table>

#### Carrying capacity

- **Road**
  - Truck (Normal 10 wheeled) 16 MT
- **Rail**
  - Rail Rakes of (40 Wagons) 2200 MT
- **IWT**
  - IWT Vessels 2000 MT

#### Operating Cost

- **Waterways**: $0.018/ton-Km
- **Railways**: $0.028/ton-Km
- **Roadways**: $0.043/ton-Km

1 standard **2000 DWT vessel** compares to **125 Truck Loads** and almost **1 complete train rake (40 rail wagons)** load on existing Road, Airway & Railway infrastructure, respectively.

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Green Initiatives of IWAI

01
Innovative energy efficient vessels with zero discharge

02
Green Terminal Buildings

03
Minimum Land acquisition

04
Oil Spill contingency Plan

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Green Initiatives of IWAI

05
Minimal impact on aquatic life

06
On/offshore renewable power supply

07
Minimum emission of GHGs

08
Minimal fuel consumption

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Green Initiatives of IWAI

09
River Information system

10
LNG fuelled vessels
Measures of Environmental Conservation

- Hospital Grade Silencers For Generator's
- Environmental Friendly E-Rickshaw- For last mile connectivity
- Water Filtration Plant
- Onboard Yoga Sessions

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