NATIONAL RIVER CONSERVATION PLAN

Ministry of Environment & Forests
March 15, 2010
Rivers in India

• 45,000 km of riverine length

• 12 major river basins, 46 medium river basins, 14 minor and desert river basins

• Ganga Basin: largest, lies in 11 States

• Lifeline of the people

• Closely linked with culture and tradition
Main Water Quality Threats

- Water Scarcity
  - Distribution of rainfall
  - Over-exploitation of water resources
- Pathogenic Pollution
- Oxygen depletion
- Salinity
- Toxicity
Major Cause for Water Quality Degradation

- **Point Sources of Pollution**
  - Domestic Wastewater
  - Industrial Wastewater

- **Non-Point Sources of Pollution**
  - Rural and Slum Population, open defecation, garbage etc
  - Agricultural Run-off
  - Half-burnt bodies
  - Storm water
  - Cattle wallowing
  - Deposition of Air pollutants
Main Sources of Pollution

- **Point Sources**
  - MUNICIPAL SEWAGE: 70%
  - INDUSTRIAL POLLUTION: 30%

- **Non-Point Sources**
  - DISPOSAL OF DEAD BODIES & ANIMAL CARCASSES
  - OPEN DEFECATION & CATTLE WALLOWING
  - RUNOFF FROM SOLID & MEDICAL WASTES & AGRICULTURAL FIELDS
Magnitude of the Problem

- Around 33,000 mld domestic wastewater generated from class I & II towns

- Generation of sewage increasing rapidly with growth in urban population

- Sewage treatment capacity of only 7000 mld exists, of which 4000 mld created under NRCP

- Present sanctioned schemes of NRCP would add 2000 mld leaving a very large gap
Comparison of pollution load generation from domestic and industrial sources

- Wastewater gen (mld)
  - Industrial: 15438
  - Domestic: 33000

- BOD Generation (t/d)
  - Industrial: 10852
  - Domestic: 6600

- BOD Discharge (t/d)
  - Industrial: 2033
  - Domestic: 5200
## Water Quality Status of Rivers

Analysis of 10 years data with respect to BOD values as indicator of organic pollution

<table>
<thead>
<tr>
<th>S. No</th>
<th>Level of Pollution</th>
<th>Pollution Criteria</th>
<th>Riverine length (Km.)</th>
<th>Riverine length (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Severely polluted</td>
<td>BOD more than 6 mg/l</td>
<td>6086</td>
<td>14</td>
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<tr>
<td>2.</td>
<td>Moderately polluted</td>
<td>BOD 3-6 mg/l</td>
<td>8691</td>
<td>19</td>
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<tr>
<td>3.</td>
<td>Relatively clean</td>
<td>BOD less than 3 mg/l</td>
<td>30242</td>
<td>67</td>
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</tbody>
</table>
Diminishing flows

- Minimum ecological flows important for biodiversity, aquatic life, and water quality
- Competing demands for irrigation, drinking water, industries and power
- Large scale abstraction for
  - hydroelectric projects in upper reaches
  - canals in central plains for irrigation
National River Conservation Plan

- Pollution abatement works in major rivers in the country commenced with the launching of Ganga Action Plan Phase-I in 1985

- GAP-I extended as GAP-II in 1993 to cover shortfall and Gomti, Yamuna, Mahananda and Damodar rivers

- Programme broad based in 1995 to include other major rivers and renamed NRCP
National River Conservation Directorate

- Ganga Project Directorate (GPD) set up in MoEF in 1985 for coordinating implementation of Ganga Action Plan
- NRCD evolved out of Ganga Project Directorate in 1996 as more rivers taken up for conservation
- NRCD entrusted with implementation of NRCP & NLCP
- Organizational Structure of NRCD – headed by Project Director, and consists mostly of technical officers
River Action Plans

Objectives: Reduction of pollution load into river through schemes of:-

- interception & diversion of sewage
- sewage treatment
- crematoria (electric & improved wood)
- low cost sanitation
- river front development
- afforestation
- public participation
Funding Pattern

- Initially 100% funding by Centre
- From 1993, equal sharing of funds between Centre and States
- 100% by the Centre with effect from 1.4.1997
- Projects approved after March 2001 are being funded on 70:30 cost sharing basis
- Operation and maintenance (O&M) of assets created is the responsibility of the State Government/ULB
Ganga Action Plan

- Town centric, focussed on interception, diversion and treatment schemes
- Investment of Rs 900 crore; treatment capacity of around 1000 mld created in 73 towns
- Despite industrial & urban growth, BOD and DO values at most locations improved
Ganga Action Plan Phase - I

- 25 towns of U.P., Bihar, West Bengal covered
- Amount spent- Rs. 452 crore.
- 869 million litres per day (mld) sewage treatment capacity created
Ganga Action Plan Phase - II

- Sanctioned cost: Rs. 2367.11 crore
- Schemes sanctioned: 701
- Schemes completed: 544
- Amount spent: Rs. 1612.38 crore
## Physical Progress

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Item</th>
<th>Target</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Ganga Action Plan Phase – I</strong></td>
<td><strong>Expenditure:</strong> - Rs. 452 crores</td>
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<tr>
<td>1.</td>
<td>No of schemes</td>
<td>261</td>
<td>260</td>
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<tr>
<td>2.</td>
<td>Treatment capacity</td>
<td>882 mld (35 STPs)</td>
<td>869 mld (34 STPs)</td>
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<tr>
<td>3.</td>
<td>No. of Interception &amp; Diversion schemes</td>
<td>88</td>
<td>88</td>
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<td>4.</td>
<td>No. of Low Cost Sanitation schemes</td>
<td>43</td>
<td>43</td>
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<tr>
<td>5.</td>
<td>No. of Crematoria schemes</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>6.</td>
<td>No. of River Front Development schemes</td>
<td>35</td>
<td>35</td>
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<td></td>
<td><strong>Ganga Action Plan Phase – II</strong></td>
<td><strong>Expenditure:</strong> - Rs. 437.53 crores</td>
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<tr>
<td>1.</td>
<td>No of schemes</td>
<td>322</td>
<td>218</td>
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<tr>
<td>2.</td>
<td>Treatment capacity</td>
<td>281 mld (38STPs)</td>
<td>156 mld (24STPs)</td>
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<td>No. of Interception &amp; Diversion schemes</td>
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<td>4.</td>
<td>No. of Low Cost Sanitation schemes</td>
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<td>5.</td>
<td>No. of Crematoria schemes</td>
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<td>6.</td>
<td>No. of River Front Development schemes</td>
<td>49</td>
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Present Coverage of NRCP

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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<tbody>
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<td>States covered</td>
<td>20</td>
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<tr>
<td>Towns covered</td>
<td>167</td>
</tr>
<tr>
<td>Rivers covered</td>
<td>38</td>
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<tr>
<td>Sanctioned cost of schemes</td>
<td>Rs. 4691.55 crore</td>
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<tr>
<td>Expenditure</td>
<td>Rs. 3521.85 crore</td>
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</table>
Cumulative Status of NRCP (Physical)

- Schemes sanctioned: 1085 nos.
- Schemes completed: 802 nos.
- STP capacity sanctioned: 4246 mld
- STP capacity created: 3095 mld

* Adding 869 mld capacity created under GAP-I, an aggregate treatment capacity of 3964 mld has been created so far
## National River Conservation Plan

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of River</th>
<th>No. of towns covered</th>
<th>Sanctioned Cost (Crore)</th>
<th>Expenditure (Crore)</th>
<th>STP Capacity Created (mld)</th>
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<tr>
<td>1</td>
<td>Adyar</td>
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<td>404.25</td>
<td>380.74</td>
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<td>Cooum</td>
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<tr>
<td>3</td>
<td>Beehar</td>
<td>1</td>
<td>19.44</td>
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<tr>
<td>4</td>
<td>Betwa</td>
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<tr>
<td>20</td>
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<td>1353.37</td>
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<td>753.25</td>
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</tbody>
</table>
Experience with NRCP: Mixed Success

- Visible improvement lacking, coliform levels unacceptably high
- In critically polluted stretches, BOD values do not meet bathing water quality standards
- Counterfactual; but for NRCP, problem would have gotten worse; further deterioration arrested
- Step in right direction, inadequate investment, resources thinly spread
Shortcomings

- Town centric, focussed on interception, diversion and treatment schemes
- Implementation slow
- Sub-optimal utilization of assets
- Weak enforcement by State Pollution Control Boards
- Lack of civil society involvement
Challenges

- Huge treatment capacity deficit
- Focused attention required on critically polluted stretches e.g. Kannauj to Varanasi on Ganga
- Tackling non-point sources (agricultural runoff, solid wastes, cattle-wallowing, idol immersions, etc.) and fecal coliform
- Restoring natural ecosystem of the rivers
Challenges

• Technical, managerial & financial constraints of ULBs & implementing organizations

• Strengthening capacity of SPCBs to address weak compliance & enforcement

• Community involvement for improved sanitation

• Augment flows through water conservation, reuse of treated wastewater, storage projects
Challenges

• Industrial hotspots along the rivers

• Concentration of polluting industries: Sugar, distilleries, paper, tanneries, chemical, etc

• 30% by volume, toxic and non-biodegradable

• Major problem with small scale industries; lack of common effluent treatment facilities
New Initiative: NGRBA

• Constituted on 20.02.2009. Joint Centre-State structure. Empowered under EPA. Chaired by PM. Includes CMs. Strong presence of experts and civil society

• Planning, financing, monitoring & coordinating body. Implementation through States and SPVs
Functions of NGRBA

- Development of river basin management plan
- Planning, financing and execution of programme for abatement of pollution in the river Ganga
- Maintenance of minimum ecological flows
- Creation of special purpose vehicles, as appropriate
- Promotion of water conservation practices
How new approach is different

- Empowered Authority
- Shift from town centric to river basin approach
- Integrated approach, no standalone investment
- Sewerage infrastructure, catchment area treatment, tackling industrial effluents, river front development
- Dovetailing with JNNURM & UIDSSMT schemes
- Emphasis on minimum ecological flows
Institutional Redesign

- Apex Council chaired by PM
- Standing Committee under Finance Minister
- Empowered Steering Committee; fast track project approval mechanism
- State River Conservation Authorities
- Implementation by States, ULBs and SPVs
**Action Program**

- Development of river basin management plan
- Mission Clean Ganga
  - No untreated sewage or industrial effluents to flow into Ganga by 2020;
  - Estimated investment of Rs 15,000 crore over next 10 years required
- Identifying initial portfolio of projects
- State Governments preparing DPRs
Finance

• Centre and States committed to provide required resources for Mission Clean Ganga

• Rs 100 crore provided in the FY 2009-10, and Rs 500 crore for the FY 2010-11

• 13th Finance Commission approached to help meet O&M needs

• External finance – World Bank, JICA

• Private capital through PPP in SPVs
Engagement with World Bank

World Bank has in-principle agreed to

• support NGRBA as a priority project

• mobilize initial funds for creation of a world-class executive, knowledge base and Basin Management Plan

• mobilize substantial resources for a major investment program
Measures for Improving Outcomes

- Projects based on comprehensive approach
- PPP models proposed in States for better implementation
- Tripartite Memorandum of Agreement
- Project appraisal by reputed independent institutions
Measures for Improving Outcomes

- Empowered State River Conservation Authorities
- Third party evaluation by independent institutions
- City-level citizen committees
- Community mobilization
Measures for Improving Outcomes

- Water Quality Monitoring by reputed institutions like IITs
- Online data transmission, public access to WQM data, additional parameters & bio-indicators to be included
- Research Advisory Committee set up to encourage Innovative technologies
Vision

- Gaumukh to Ganga Sagar: a clean river
- Return of Gangetic Dolphins at Sangam
  (Gangetic Dolphins are facing extinction, only few hundreds survive, apex of the food chain of Ganga ecosystem)
Thank You