WATER: MANAGING CRISIS
RESTORING TRADITIONAL WISDOMS: DHAN’S GRASSROOTS EXPERIENCES

A.Gurunathan
Chief Executive
DHAN Vayalagam (Tank) Foundation
Madurai
Email: a.gurunathan@dhan.org
Water Scarcity: Tamil Nadu

- Share of Water Resources 2% of Country (Population 6%)
- Surface Water Potential 592 TMC
- Ground Water Potential 853 TMC
- State receives 260 TMC from neighbouring states
- 17 River basins (127 Sub-basins)
- 75%
Urban Water Management

- Water use at urban sector = 1082 Mcm,
- Sewage generated (75% of use) = 812 Mcm.
- Reusable sewage (90%) = 730 Mcm.

About 7% of the supply-demand gap could be met, but now less than 0.5% gap is only met.
Water Resources Development - Investment

- 79 reservoirs & account of 15% of the annual water potential

- Total expenditure in M&M projects: Rs 5,461 crores (2000 constant prices)

- Annual expenditure on staff salaries: Rs 106 crores.

- Rehabilitation and new construction: Rs 3290 crores.

- Net irrigated area under canals has declined by about 128,000 ha (14%) from 1970’s level.
Tanks

- Tanks are the traditional water harvesting structure, highly productive wetland eco-systems survived over several centuries.
- Small in size but large in number
- Flood moderators & Drought mitigations
- Spread over thousands of villages and ideal for decentralized management.
- Basic life supporting systems in rural areas - as drinking water pond in summer, livestock drinking, fishery, ground water recharge, grazing ground, center of village culture
Irrigation Tanks in a Part of Madurai district, Tamil Nadu,
Huge Water spread areas in Dry and Semi arid areas
Tank Complex

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## Net Area Irrigated under Tanks in India

<table>
<thead>
<tr>
<th>No</th>
<th>States</th>
<th>No. of tanks</th>
<th>% to total tanks</th>
<th>1990-91 Area irrigated (m.ha)</th>
<th>2008-09 Area irrigated (m.ha)</th>
<th>% area decline in 18 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andhra Pradesh</td>
<td>60745</td>
<td>29.15</td>
<td>0.97</td>
<td>0.84</td>
<td>13.40</td>
</tr>
<tr>
<td>2</td>
<td>Karnataka</td>
<td>20152</td>
<td>9.67</td>
<td>0.24</td>
<td>0.21</td>
<td>12.5</td>
</tr>
<tr>
<td>3</td>
<td>Maharashtra</td>
<td>12539</td>
<td>6.02</td>
<td>0.31</td>
<td>0.28</td>
<td>9.68</td>
</tr>
<tr>
<td>4</td>
<td>Tamil Nadu</td>
<td>39366</td>
<td>18.89</td>
<td>0.53</td>
<td>0.49</td>
<td>7.5</td>
</tr>
<tr>
<td>5</td>
<td>Sub total</td>
<td>132802</td>
<td>63.73</td>
<td>2.05</td>
<td>1.82</td>
<td>11.22</td>
</tr>
<tr>
<td>6</td>
<td>Other states</td>
<td>75579</td>
<td>36.27</td>
<td>1.19</td>
<td>0.65</td>
<td>45.38</td>
</tr>
<tr>
<td>7</td>
<td>All India</td>
<td>208381</td>
<td>100.00</td>
<td>3.24</td>
<td>2.47</td>
<td>23.76</td>
</tr>
</tbody>
</table>

*TN: From 1960 to 2009: area decline is 45.5%*
Tanks
Rainfall & Tank Storage - Tamil Nadu

Annual water storage potential:
79 reservoirs storage = 6895 mcm (15%);
39000 tanks storage = 9840 mcm (21%).

<table>
<thead>
<tr>
<th>Average wet-season rainfall (mm)</th>
<th>State of tank storage</th>
<th>Probability of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 500</td>
<td>Surplus or normal</td>
<td>0.10</td>
</tr>
<tr>
<td>450 – 500</td>
<td>Full or normal</td>
<td>0.20</td>
</tr>
<tr>
<td>300 – 450</td>
<td>Deficit</td>
<td>0.50</td>
</tr>
<tr>
<td>&lt; 300</td>
<td>Failure</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Note: Based on 52 years rainfall data.
BENEFITS FROM A COMPREHENSIVE TANK SYSTEM MANAGEMENT

**Benefits from a Healthy Tank System**

- Increased tree cover
- Migration of birds stopped & immigration encouraged
- Fisheries development
- Sustained availability of water for drinking and agriculture
- Effective Soil Conservation
- Employment Generation
- Crop yield doubled (2 assured crops a year)
- Dairy development
  - Improved nutrition
  - (more food, more milk)
- Cultural life improved
- Increased green and dry and fodder
- Fertility of the dry-lands improved
- Ground water situation improves electricity will be saved
- Food Security

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Significance of Tank Systems in Water Use

- Synergy in water harvesting as the tanks are connected in chain; the surplus of upper tank collected in lower tank; the command area of upper tank functions as the most effective catchment for the lower tank.
- Higher irrigation efficiency due to smaller distribution network with gravity flow.
- Higher water use efficiency with higher economic and social benefits due to multiple uses of tanks.
Problems affecting the tanks

• Large scale infestation of weeds
• Encroachments by the government and public
• Siltation in waterspreads and channels
• Choked or leaky sluices and damaged weirs
• Sluices with missing shutters
• Dilapidated and weak or cut down tank bunds
• Urbanization without consideration for ecology and environment
Rehabilitation / Revival of Tanks
A Concept

Past

Use
Silted & Desilted by People

Present

Silted
Encroached & disused
Use

Future

Use
Encroachment eviction & Renovation

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DHAN Foundation’s approach on its programmes

Community Organisation

Simplifying technology

Facilitating environment

“Enabling the community rather than delivery of services”

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People Centered Planning and Implementation of Tank works

- To build stake & ownership of water resources.
- To ensure self management of the water bodies regularly.
- Prioritizing items of Tank rehabilitation based on local context.
- To evolve public consensus in future maintenance of tanks.
- To resolve conflicts or vested interest arising during planning and implementation.
- Community contribution both as cash and kind
- People institutions is for sustainability

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Steps in implementing the tank conservation work

- Collection of secondary data
- Rapid tank appraisal.
- Participatory tank appraisal.
- Awareness creation and village meetings
- Tank association promotion
- Conducting the training
- Bank account opening
- Estimate preparation for tank work
- Getting No objection from Panchayat / PWD
- Surveying of the tank system
- Contribution mobilization
- Implementation of tank conservation work
- Conducting technological training
- Creation of endowment for association
Rapid tank appraisal visit by the project team

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Participatory tank appraisal in Vellakulam tank cascade
Tank Deepening works

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Structural development to arrest water leakage
Thank You