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

- Annual Per capita Water Resources 650 Cu.M
 - (National Average 2000 Cu.M)
- 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

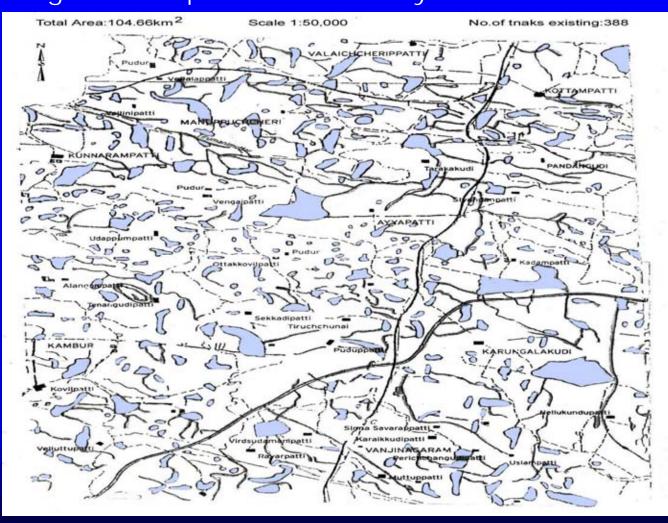
- > 79 reservoirs & account of 15% of the annual water potential
- Total expenditure in M&M projects: Rs 5,461 crores (2000 constant prices)
- Annual expenditure on staff salaries: Rs 106 crores.
- Rehabilitation and new construction: Rs 3290 crores.
- ➤ Net irrigated area under canals has declined by about 128,000 ha (14%) from 1970's level.

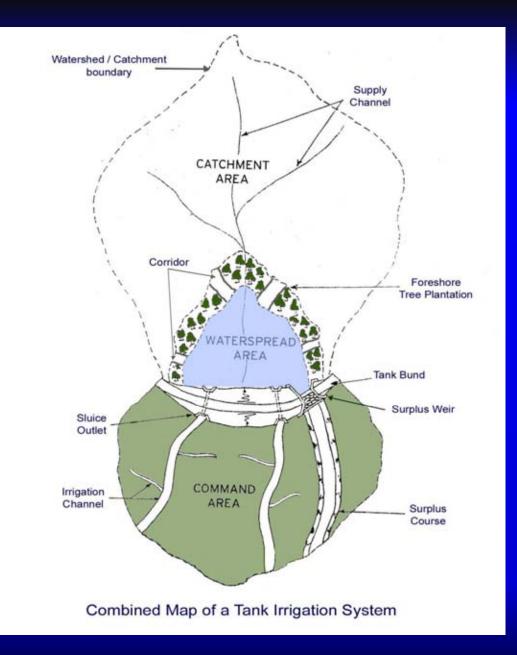
Tanks

- 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





Net Area Irrigated under Tanks in India

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

TN: From 1960 to 2009: area decline is 45.5%

Tanks





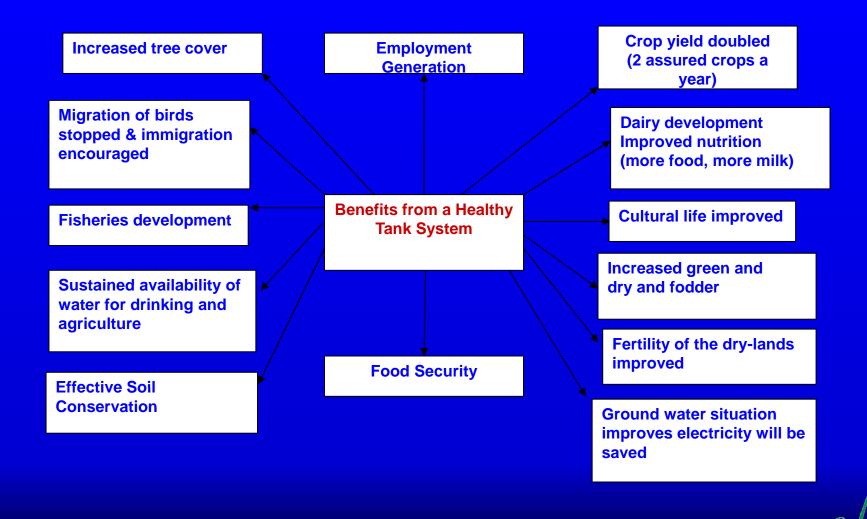
Rainfall & Tank Storage- Tamil Nadu

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

Average wet-season rainfall (mm)	State of tank storage	Probability of occurrence
> 500	Surplus or normal	0.10
450 – 500	Full or normal	0.20
300 – 450	Deficit	0.50
< 300	Failure	0.20

Note: Based on 52 years rainfall data.

BENEFITS FROM A COMPREHENSIVE TANK SYSTEM MANAGEMENT



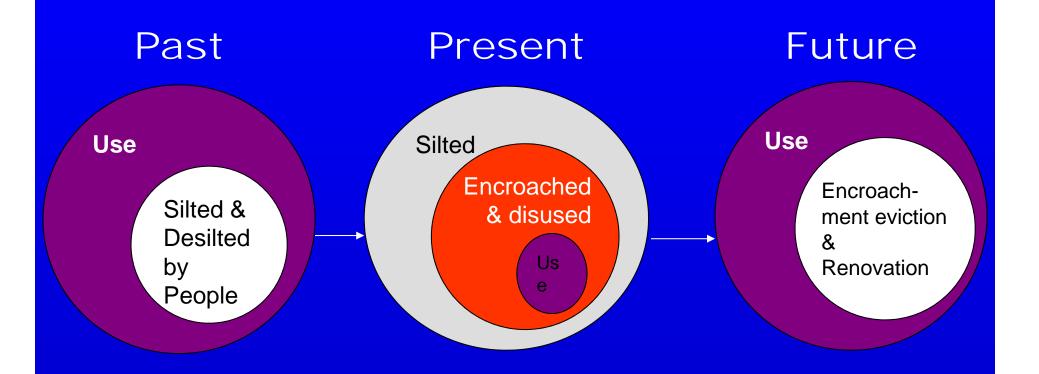
Significance of Tank Systems in Water Use

- 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



DHAN Foundation's approach on its programmes



"Enabling the community rather than delivery of services"

People Centered Planning and Implementation of Tank works

- > To build stake & ownership of water resources.
- To ensure self management of the water bodies regularly.
- Prioritizatising 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

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





Participatory tank appraisal in Vellakulam tank cascade



Tank Deepening works





Structural development to arrest water leakage





Thank You