

# TAMILNADU WATER WEEK 2014

## Water Management for Sustainable Development

December 8-12, 2014

Bulletin

Day 2: December 9, 2014

### Agriculture and Irrigation: water management for sustainable development



Dr. Chinnusamy, Dean, AC&RI inaugurating the Workshop

As part of Tamil Nadu Water Week, a workshop “Water Management for Sustainable Development: Agriculture and Irrigation” was organised at the Agriculture College and Research Institute, Madurai. Water Technology Centre and DHAN Foundation hosted the event. Dr. C. Chinnusamy, Dean, AC&RI, Madurai welcomed the gathering and Dr. B.J. Pandian, Director, Water Technology Centre and Dr. Raviraj, AC& RI coordinated the workshop.

While the land and water finite resources, the increasing trend of population, rapid industrialization and urbanization poses serious threat on the future of farming. Lack of enabling policies for water management contributes to poor water management, said Dr. B.J.Pandian, Director, Water Technology Centre, Tamil Nadu Agricultural University. Speaking at the inauguration of the workshop, he said “The history of water management could be viewed as two distinct periods, the first one was era of water conservation, which was a golden era, wherein our forefathers in ancient periods, created water harvesting structure for water conservation and governed them well. Secondly, an era of inefficient water management, where we are living today,

characterized by lack of stakeholder involvement and inappropriate practices leading to poor water management”.

He further said that nearly 90 percent of the surface water has been exploited in Tamil Nadu. Out of 385 blocks in Tamil Nadu, nearly 185 blocks have been declared as over exploited blocks. Integrated water resource management and participatory irrigation management only can reverse this scenario.

### Irrigation in Periyar-Vaigai Command: Issues and Challenges



Dr. Veerapadran, former Professor, TNAU presented on the issues and challenges in Periyar Vagai command area, He said that the Periyar-Vaigai Command has 17 Branch canals, 71 Distributaries, feeding 2100 tanks. It serves cultivable command area of 81069 Hectare. He listed the constrains faced by the farmers such inadequate water supply, uncertainty in time of water release, structural deficiencies, issues in water distribution, land abandonment and diversion. He explained about farmers’ participation in system management.

Water management in this command is characterized by inadequate water supply, uncertainty regarding

time of release of water, structural deficiencies in distribution channels, ineffective control over water distribution, and premature termination of water supply, insufficient institutional support on technical and administrative issues. The absence of local management contributed to deterioration of tank system. Land abandonment and diversion for non-agricultural uses are the recent issues posing serious threat to this area.

He expressed his concerns on the poor adoption of water management system despite imparting a lot of trainings and investing resources. He suggested that the farmers need to think on crop diversification and cultivation of small millets. Tamil Nadu as a disadvantaged state face a lot of issues in interstate transfer of water that creates social issues and it needs to be handled by dialoguing with the stakeholders and community concerned. He concluded that water resources are finite, fragile, depleting and highly stressed, need of the hour is vision and action.

### **Water Management in Tank-fed Agriculture**



Professor C.R. Shanmugham, presented the water management in tank-fed agricultural system, which is facing a decline today. Tank irrigations system's share fell from 37 percent of irrigation in 1950-60, to 19 percent during 2000-10. Usage of tank is reducing because of usage of wells for agriculture, and he shared the importance of tank irrigation. While the Supply enhancement Increased access to conventional water resources-surface ground water, the demand management raises the overall efficiency reduce water losses.

A Tank is a Bank. It captures rainfall, stores it and supplies to the farmers and others in accordance with their needs. Tanks are dispersed over a large

geographical area, mostly in interior, remote and often drought-prone regions. These tanks provide multiple uses for the local people who have no access to major irrigation systems. They benefit mainly the monsoon dependent small and marginal farmers with supplemental water, provide life-saving irrigation, improve productivity and alleviate poverty.

Tanks require only locally available construction materials and labour, needs low capital investment and less gestation period to provide benefits. Tanks are more cost effective than major irrigation projects, where gaps upto 15 percent occur between irrigation potential created and utilized. Being gravity system of irrigation does not require energy to lift water. Tanks are the excellent sources of recharging ground water and they facilitate conjunctive use. Unlike other sources, tanks do not create water logging, salinity or other environmental hazards, or least of such problems.

Compared to other irrigation sources, tanks provide high water use efficiency – conveyance loss is insignificant. When situated in cascades, tanks capture and store entire runoff from the micro watershed without wastage. Tanks are individually small but in the aggregate they act as flood moderators and drought mitigators. These tanks were traditionally operated and managed by local villagers; they ensured equitable water distribution and sustainability through local management.

Tanks bring about cohesion among water users and resolve conflicts and it provides opportunities for building the capacity of community decision making and self-reliance. As a whole, tanks have a made a tremendous impact on rural economy.

Professor C.R. Shanmugham suggested a few of the researchable areas in tank system:

- On- farm irrigation water management to enhance water use efficiency by about 5 to 10 percent from the current level.
- Standardization of micro irrigation and fertigation systems with minimal maintenance problems.
- Development of cost effective drainage technology including bio-drainage for saline and water logged situations to reduce cost of reclamation.

- Development of more sophisticated water management practices to control insect vectors.
- Cost reduction of remote sensing technology application in water resource management to an affordable level for the rural communities.
- Refinement of technology for economical utilization of poor and marginal quality water for agriculture.

He concluded that with the governments' inability to maintain the large number of tanks spread over in entire Tamilnadu, it is only through the turnover of complete management with the farmers including the rights for fishing and other usufructs we can improve its better operation and maintenance.

### Managing Future Water Demand: Sustaining Technological Options



Dr. K.Palanichamy, Director, International Water Management Institute (IWMI), South Asia Office at Hyderabad presented on managing the future demand on sustaining the technology options.

He said, Tamil Nadu accounts for total availability of water resources to the tune of 46,540 Mcm, which includes surface water resources contributing 24,160 Mcm. Among this, we have 16,769 Mcm within the state and receive 7,391 Mcm from neighbouring states, which accounts for 30 percent. Groundwater constitutes 22,380 Mcm., whereas our total water demand is 57,725 Mcm, of which 86 percent is needed for farming. The supply-demand gap exist is 11,185 Mcm, which amounts to 24 percent.

#### Public Investment in Medium and Major Irrigation



schemes, which accounts for 15 percent of the annual water potential, was Rs 5,461 crore in constant prices of 2000. After spending Rs 3300 crore for rehabilitation and new construction, net irrigated area under canals has declined by about 130,000 ha (14%) from 1970's level. Whereas the tank irrigation, which account for 21 percent of the annual water potential, was allocated only Rs 560 crore on rehabilitation and new structures as per 2000 prices, net tank irrigated area declined by 400,000 ha (38%) from 1970's level. It shows the disparity in the attention paid on the tank irrigation system. Current water use efficiency (WUE) of canals is 35-45 percent, tanks account for 30-50 percent of WUE, and wells record 45-65 percent of WUE. Even one percent increase in WUE would ensure water to additional area of 1.4 m.ha.

Dr. Palanisamy highlighted the results of the "More Crop & Income per Drop of Water" Farmers' Participatory Action Research Program (FPARP), FPARP initiated by the Ministry of Water Resources, during 2008-2010. As such 63 institutes in 23 states covering 2001 villages undertook 5000 action research programs, and each program covered a minimum of one ha and implemented in a participatory mode, and Rs 250 million was spent on it. The FPARP tested 402 technologies including SRI, micro-Irrigation with Fertigation, soil health enhancement, integrated farming system, water and land management technologies and crop diversification.

He concluded that the major emphasis should be on technology transfer, research validation of local practices should be given more priority. Capacity building programs should be built in with each technology. We have to attract more and more public private partnership. He stressed that the policy stream should pay attention on system improvement and come out with a performance bench marking. All the irrigation programmes should be converged and conjunctive use must be promoted.



## Upscaling of SRI in Tamil Nadu



Dr. B.J. Pandian, Director, Water Technology Centre, TNAU presented about SRI Technology adaptation in TN-IAMWARM Project and he explained the various stages of SRI. He shared that the challenges are farmer’s traditional mind set, lack of awareness and timely availability of implements.

He suggested that we need to identify niche area for SRI promotion and standardize the SRI components to suit the needs of each region. Also we need to encourage farmers to practice SRI in their own way without forcing them.

In technology improvement, we should develop mechanical trans-planter or modify existing trans-planter to suit SRI principles. While calculating the yield, we should project only actual plot yield and not the sample harvest; also we need to do a detailed analysis on yield variation in SRI adoption. The need of the hour is intensive capacity building and exposure visit to understand the SRI.

### What they say...

#### Dr. B. J. Pandian, Director, Water Technology Centre

Tamil Nadu Water Week observed today is to bring together different stakeholders such as Agricultural University, NGO’s, and Civil Societies, farmers, public and private institutions, and policy makers in a single platform for efficient water management.

#### Dr. Sakthivadivel, Emeritus professor, Anna University, Chennai

It brings all the stakeholders together. It is ultimately the farmers, who will decide the success of water demand management practices. Emerging concept of bottom up approach is the need for the hour to tackle all the managerial issues in water.

#### Dr.K.Palanisamy, Director, International Water Management Institute, Hyderabad

Water is the one of the key inputs for everything. Countries are facing Flood, drought or deficit rainfall, and water can easily be managed by supply management and demand management systems. What is more important is demand management.

#### Professor. C.R. Shanmugham, Former Dean, AEC & RI, Chennai

Tamil Nadu Water week is like celebrating Deepawali and Pongal. Bringing awareness about water in common forum with the help of experts and water users and knowledge transferring is the main focus of this event. Earlier days we celebrated National water day and world water day, and we are celebrating water week today.

#### Dr. Veerapadran, former Professor, TNAU

“Water and Land are very precious resources. Many human development activities are dependent on water. We cannot create water and land, they are scarce. But, we can manage water by recharging what we have depleted the harvest the water from rainfall. No single institution can address the issues of water; it needs unified efforts of farmers, scientists, politicians, and other stakeholders. Tamil Nadu Water Week provides platform for it.

### Organised by



### DHAN Foundation

1A. Vaidhyanthapuram East, Kennet Cross Road  
Madurai – 625016, Tamil Nadu, INDIA  
(+91) 452 2302500/520, 557, 598, 599  
Fax: (+91) 452 2602247, Email: dhanfoundation@dhan.org  
Website: [www.dhan.org](http://www.dhan.org) [www.tamilnaduwaterweek.org](http://www.tamilnaduwaterweek.org)

### Jointly Organised by

