TAMILNADU WATER WEEK 2014

Water Management for Sustainable Development

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Economics of Water Demand Management

The third day of Tamil Nadu Water Week had a seminar on "Economics of Water Demand Management", which was organised by Madras Institute of Development Studies in DHAN Foundation. Dr.L.Venkatachalam, Associate Professor, Madras Institute of Development Studies, made a presentation on tradable water rights. In his presentation, he said, in Tamil Nadu, groundwater is over exploited in 142 blocks and many of the tanks are in degraded condition. The river Noyyal highly polluted because of discharge of industrial waste into it. The study done by MIDS indicates that the environmental degradation in Noyyal system has caused a loss of Rs. 320 million to the farmers and similar issues in Palar River has caused a loss of Rs. 280 million to the farmers.

The cost of agricultural inputs has doubled over years and the average income of the farmer in Tamil Nadu is Rs. 7980, against the Indian per capita farm income of Rs. 11,628. It indicates the farmers' distress in Tamil Nadu. Water scarcity is a major factor causing farmers' distress and therefore managing scarce water more efficiently within agriculture is a serious policy concern. Prof. Venkatachalam further elucidated the water conflict exist in Bhavani basin due to competing uses by different stakeholders, and the study taken up by MIDS to explore tradable excess water. The study concluded that water trade will take place at least among 63 percent of the farmers who are willing to participate in the tradable water rights system. Therefore the farmers should be provided permits to sell excess water to the needy and it should be formalised. The farmers having traditional rights can initiate such practices. This process was already experimented and successful in countries like, USA and Mexico.

Dr. S. Janakarajan, ICSSR Professor, MIDS, Chennai presented on "*What could be the long-term strategy for sustainable water supply in urban areas?* Emerging key issues and Challenges in *Supply Versus Demand management*." He shared that urbanization is happening at faster pace, 48 percent in Tamil Nadu against the national average of 31 percent. Urbanization has resulted in conversion of nearly 20 percent of land for non-agricultural purposes in Cauvery Delta region. Peri-urban areas are expanding due to immigration. Migration is happening under distressed condition in rural areas of Tamil Nadu. Nearly 50 percent of urban population is living in slums with stress for the water, sanitation, solid waste disposal, basic amenities, job, healthcare. It induces ecological and environmental stress. The impact of climate change increases the vulnerability further.

Dr. Janakarajan cautioned the mismatch in supply versus demand in urban areas. There is a need for a paradigm shift from the conventional supply side approach to demand management approach. Demand side management is now recognized as one of the best solutions for a sustainable and equitable supply of water. Pricing is used as a tool to regulate and manage water supply, the consumers are forced to pay because of poor quality of water supplied to

them. Non-price measures like water conservation techniques and increasing water use efficiency by using automated water supply system could be used. The existing water supply network needs to be revamped to detect leakages, ration water during drought, and compulsory metering of abstractions. It is through appropriate pricing of water and imposing dis-incentives on those who over-use water and those who misuse water.

Dr. Narayanamoorthy, Department of Economics, Alagappa University, said in his presentation that by adopting micro-irrigation farmers can reduce cost and enhance production. In Tamil Nadu the area under irrigation is highly volatile when compared with the national average. The studies reveal that if farmer invests Re.1 he will be able to earn Rs.1.8 to Rs.3.00 by using micro-irrigation. He suggested reducing cost of drip irrigation unit, providing subsidy under central government scheme, providing varying subsidy for the farmers adopting different method of irrigation, pricing of canal irrigation, formulation of state level policies according to their water potential.

Revival of Urban Water-bodies

A workshop on Revival of Urban Water Bodies: A Strategy for Sustainable Urban Water Resources Management was organised by Thiagarajar College of Engineering, Madurai. Dr. Arunachalam, the Head of the Department of Civil Engineering with Dr.S. Chandran, Associate Professor facilitated the workshop. Dr. Abhai Kumar, Principal, in his keynote address said that environmental impact is very high in the water resources, which needs concerted efforts by all the stakeholders. In the Technical Session experts have presented on various aspects of urban water resources.

Revival of water bodies in urban areas

Dr. M. Kaarmegam, Professor and Head, Department of Civil Engineering, Dhanalakshmi College of Engineering in his presentation said, "In 2005 the one day flow of water in Cauvery River was equal to feeding the Chennai population for more than a year. The Brahmaputra River which is 6 km wide gives 72 lakh cusec and if water diverted then Indian economy will go up and even power supply for the whole of Asia could be generated. He expressed concerns that many of the tanks in the urban areas are vanishing and either converted to bus-stand or residential area. In Chennai there were 380 tanks and many of them have vanished. The famous Valluvar Kottam is on a tank in Nungambakkam. He also shared the case study of Ambattur tank in Chennai, wherein 40 percent of the water spread area is encroached by Tamil Nadu Housing Board and the public. At least the remaining water spread area could be saved. Roof water harvesting in urban areas is to be focused and the typical rain water harvesting could be seen in the Chettinad houses. He reiterated that in the urban areas the water bodies should be protected and used as percolation tank/ponds.

Bio Industrial Watershed Management Experiences of MSSRF

Dr. R.S.S. Hopper, Director, Eco-technology Centre, MSSRF, Chennai said that science and technology to bring sustainable and equitable development, and they should be pro-poor, pro-nature and pro-women. He showcased the MSSRF experience in the new concept of bio-industrial watershed which includes the conventional watershed development along with the concept of bio-village and market linkages through farmer producer organizations/companies. The MSSRF suggests policies for creating more income and jobs per drop of water. He further elucidated how MSSRF works together with MNREGA programme for creating ponds, open dug wells/treadle pump, tank renovation, converting *Casuarina* to pulse lands, usufruct rights and integrated intensive farming system where farm ponds, agriculture and animal husbandry are included. He concluded that 5Cs - Convergence, Coordination, Capacity Building and Community Action are the need of the hour with Cost efficiency, which will result in 5Es – Employment, Ecology, Environment, Economics and Equity.

Groundwater management in overexploited zones of Tamil Nadu

Dr. A. Subburaj, Senior Scientist-D, Central Ground Water Board, Chennai, presented on challenges and technological options for groundwater management in overexploited zones of Tamil Nadu. He narrated the growth in dug wells and bore wells. During 1950 there were more of dug wells or open wells but now it more of bore wells and tube wells. In areas near Chennai and Pondicherry the sea water intrusion is seen and at many parts of the state the water table is already depleted. He said only 10-15 percent of rainwater goes as groundwater and another 10-15 percent is stored as surface water and balance goes to sea. The challenges in groundwater are management both at demand and supply side. Artificial recharge of groundwater is the only available option.

Environmental Accounting

Dr. S. Janakarajan, has made a presentation on environmental accounting concepts, cases and issues in the context of river and water bodies. He introduced the concept of Greening National Accounts which is similar to the GDP. He established the need for environmental accounting. The industries calculate the cost involved in production but ignore the costs like the pollution done to air or water. Similarly, the dam building is positive but deforestation costs, damage costs are not considered. He explained the case of Gadilam River in Cuddalore, where the SIPCOT industrial effluents are let inside the river; similarly, in Palar basin there are a lot of tanneries which draw water from it and discharge the polluted water into it. There were more than 617 spring channels existed in Palar basin and today nothing is there and many of them are used to discharge the effluents. He also shared the case of Walajapet Anicut where 317 tanks were fed and today we see only effluent let into the tank. Similarly, in Noyyal basin the Orathampalayam dam near Tiruppur was never opened for irrigation as it contains only polluted water. In Chennai, Cooum, Adayar River and Buckingham canal (422 km) all had good water in the past is now highly polluted. The need of the hour is widespread promotion of the concept of environmental accounting and creating awareness for change.

Policy Seminar on Demand management in tank irrigation system

Mrs. J.Kanagavalli, Program Leader, DHAN Vayalagam Foundation made a presentation on demand management in tank irrigation system for sustainable development. She pointed out the decline in area under tank irrigation that reduced from 36 percent to 18 percent in the last 50 years, whereas the area under well irrigation increased from 5 percent to 50 percent. The major issues faced by the tanks in Tamil Nadu are siltation, encroachment, urbanization and diversion of supply channels. She concluded that reviving of tank irrigation systems, undertaking sub-basin level treatment of all the tanks, promoting dry-land horticulture, micro-irrigation for water conservation, and turnover of the management to community organisations, allowing Panchayats to approve removal of tank silt for farm needs.

Mr. Sebastian Britto, Agricultural Engineer, DRDA, Dindigul stressed the need for people functionaries of Panchayat to know their water sources as it is important for planning the water management. He highlighted the usefulness of trench cum bunding, farm ponds and check dams for effective harvesting of rainwater.

Mr. E.P Mohan, Assistant Executive Engineer, Madurai, explained about impact of urbanization on water management in tank. He expressed concern

over conversion of tanks in Madurai city into housing complexes and supply channels being diverted, seepage and ditch water is polluted through supply channels. Mr.Sabarinathan, Agronomist from NETFIM Company, explained about drip irrigation and its benefits in common community level water management.

Professionals from DHAN namely Mr. U.Vellaiyappn, Ms. Saral Navroji, Mr. V.Vediyappan, Mr. Sankaravel, Mr. Prakash have made presentations on various aspects of tank systems. After a detailed deliberation by the Farmers, following resolutions were adopted pressing the government to come out with needed policies.

Resolutions...

Government to come out with polices for,

- Placing higher priority for reviving the tank system.
- Regulating the use of ground water in the tank command area by enforcing micro-irrigation for the ground water users.
- Conducting more researches for developing micro-irrigation technologies suitable for tank systems.
- Delegating powers to village Panchayat for the maintenance and management of the tank systems with the help of water user's associations.
- Creating farm ponds only in the surplus catchments without affecting the water flow to the existing tanks from the catchment.
- Maintaining reliable data at the respective Gram Panchayats on water resources and command area and cropping.
- Integrating cascade approach of the tank development for effective supply and demand management in all the tank development projects of the State.
- Creating community wells in the water deficit cascade rather than going for the individual wells and priority should be given for the power connection to these wells. These wells should adopt micro-irrigation.
- Creating access to affordable finance for the poor farmers through various banking institutions to take up natural resource management works such as tank silt application, erection of pipe lines and other techniques of water demand management.
- Appointing the traditional water managers and it should be made mandatory for all the tanks, cascades and sub-basins. These water managers should be become the part of the Gram Panchayat.
- Tank deepening works both by the PWD-WRO & Rural development department should be combined with the tank silt application to the lands where the productivity is low and with porous soil.

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