

Water matters

GS Ranganathan, Chairman of Ion Exchange, deems a creative synergy between the Government, NGOs and agriculturists essential for surviving the current water crunch

WHY THE SCARCITY?

Water is essential for agriculture as it is for all life. Rain and snow are the main sources of all water. India is more fortunate than most other countries due to the levels of rainfall that it receives and yet we seem helplessly dependent on the monsoons. Why are we helpless when our history shows that for centuries people managed their water resources much better than we have been able to? There was much more forest cover and forests are among the best rain storage systems. They provide natural watersheds for rivers to flow longer. The state of Karnataka alone has over 30,000 such tanks, but most of them are ruined and silted or put to other use. This deplorable condition exists entirely due to the gross neglect of water management.

India has a geographical area less than half of either US or China but our cultivated area is only 43 per cent, which exceeds the cultivated land in China and is about the same as in US. It is much more than it should be because more than half the forest cover has been removed in the last 60 years.

The agricultural productivity of China and US is almost double compared to ours. A third of the cultivated land is irrigated in India and the Green Revolution is currently in a decline because the 20 million tube wells it created have caused ground water levels to fall precipitously since more water was extracted than replaced by rain. Due to excessive seepage the canal network has caused ground water to rise to the surface increasing the level of dissolved salts in water and in the soil where they concentrate on evaporation, so that 15 per cent of such land has been salinised and made unfit for cultivation. It is not difficult to understand the State of the World Report-1999 of the Worldwatch Institute which predicts India's harvest will be reduced by 25 percent by 2025 if water scarcity continues.

WHAT IS THE SOLUTION?

The solution is to give wartime priority to water management techniques practiced for generations, now neglected. Reforestation of watersheds and

of Baroda, the audience was witness to presentations by DB Mogul, President, MGGA, S Sivakumar, CEO, ITC International Business Division, PC Kesavan, ED, MSS Research Foundation, S Sridhar, ED, Exim Bank, and and G Chandra Shekhar of *The Hindu Business Line*.

“Who should do it (lend) is a question of debate; how to do it is a question of understanding” – K KANNAN

Mr Sivakumar, lauded for ITC's path-breaking implementation of e-choupals in about 12,000 villages across India, said, “The paradox is that we have bountiful resources but low productivity.”

Mr Kesavan introduced his objective with a quote from the Father of the Indian Green Revolution, MS Swaminathan: “This Green Revolution is not sustainable. What we have to do is change this to an evergreen revolution.” Explaining this, he said that in essence the 'evergreen revolution' would be a green revolution rooted in the principles of ecology, economics, and social and gender equity.

Speaking on 'Moving from farm to market', Mr Chandra Shekhar too mentioned the lack of post-harvest practices and essential infrastructure like

“The problem is not being number one in agriculture, the problem is to ask ourselves how we have become number one” – PC KESAVAN

roads and warehouses. He stressed the need for value addition of products and changing the existing system of marketing.

The session ended with comments from S Sridhar, ED, Exim Bank. Putting out his 'Global Perspective 2010', Mr Sridhar said, “The increase in world demand is going to come from the developing countries. China is likely to be a major importer of cereals.”

The day's intensive deliberations left the 200-strong audience with a lot of food for thought. It left us, at the TAJ, in no doubt that agriculture is the business for the future.



BoB's AC SHAH (R)
PRESENTING A MEMENTO
TO S SIVAKUMAR OF ITC



AN INFORMED
INTERJECTION



THE TIMES TEAM



desilting and renovation of all existing tanks must be done and new ones constructed. There is a very large tank of several hundred acres I visited in Penukonda Taluk, Anantpur District of Andhra Pradesh two years ago that has been in existence from the time of the Vijayanagar Kingdom. It requires desilting to serve its purpose. There are 80 tanks in the historic fort of Chitorgarh alone.

Priority should be given to watershed development for our arid agricultural land, which receive low rainfall and where the poorest half of our people live. These are regions capable of increasing agricultural production to make up for the decrease which would otherwise be inevitable. Many, nutritional crops like millets and pulses could be grown with the additional irrigation possible with constructing effective watershed structures. Rural incomes would as a result eventually rise.

MICRO IRRIGATION

While ensuring water security, water conservation is also necessary. Drip irrigation is the new version of pot irrigation known for centuries where an earthenware porous pot of water with a small hole at the bottom is buried near a plant, a foot or so deep near the root-zone, with a lid to keep the soil out and to replenish the water once in several days. A mulch of stones, leaves, twigs and grass would slow down evaporation and keep the soil around the plant moist, so irrigation can be reduced. This method still in use, is suitable for small holdings where a family can attend to the irrigation. It needs more labour but less expense and reduces waste.

REDUCTION OF SYNTHETIC INPUTS

Pesticides have recently caught public attention because of their presence in bottled water. Much greater attention must be focused on pesticides in water used for irrigation. It has been reported for several years, more in the international press than Indian, that high levels of pesticides exist in Indian wheat, rice, vegetables and fruit and DDT levels being the highest in the world, it is reportedly also present in high quantities in mother's milk. This is another extremely important reason for rainwater harvesting as it would greatly reducing pesticides in agricultural produce, which are hampering exports. All the countries where the market for agricultural produce is growing fast like the European Union,

US, Japan and Australia are very strict about testing for pesticides and recently Netherlands have stopped import of grapes from India. All these factors point to the crucial relevance of phasing out chemical fertilisers and pesticides.

PARTICIPATION ENSURES SUSTAINABILITY

A collaborative project carried out by the NGO SHARE and the village community of Vihule Kond and Ion Exchange resulted in the construction of two rainwater ponds with 2,000 m³ of water storage capacity. Vihule Kond is a typical hill village in this region. Maximum soil depth is two to eight feet with an average depth of five feet. The soil is

NATIONAL WATER RESOURCES AT A GLANCE

Items	Quantity (Cu km)
Annual Precipitation Volume (Including snowfall)	4000
Average Annual Potential flow in Rivers	1869
Per Capita Water Availability (1997)	1967
Estimated Utilisable Water Resources	1122
(i) Surface Water Resources	690 Cu km
(ii) Ground Water Resources	432 Cu km

Source: Union Ministry of Water Resources

highly permeable. Moreover, the layer below the soil is hard, composed of almost continuous, sparsely fragmented basalt. This rocky layer slopes towards the north and the west, making groundwater run through the soil and reach the impervious layer quickly after it runs down the slope and is lost to the village. More than 2,500 to 3,000 mm of rain falls annually.

The monsoon stream near the village is shallow with a relatively small catchment area, and flows only until December. Villagers use a nearby well for drinking water and rainwater streams for washing clothes and bathing during the monsoons. Wells are used when streams start drying up in November. Usually one borehole is brought into use from which water is pumped into the nearest dry well from where they obtain water. By mid-March, this source diminishes, forcing villagers to walk about four kilometres to another village for water. After March, most of the villagers' energy and time is spent in travelling long distances to

obtain water for the family and livestock.

Clearly, no quick-fix solution could solve this recurring water scarcity, so Ion Exchange and SHARE proposed the following solutions:

- ◆ Creation of ponds at indicated sites, including a pond upstream
- ◆ Constructing a stream bund near Fanasoni – a place with a monsoon stream flowing on basaltic depression
- ◆ Lining of ponds with stone masonry
- ◆ Waterproofing the tanks, if necessary

A COLLABORATIVE PROJECT CARRIED OUT BY THE NGO SHARE AND THE VILLAGE COMMUNITY OF VIHULE KOND AND ION EXCHANGE RESULTED IN THE CONSTRUCTION OF TWO RAINWATER PONDS

- ◆ Lining the water holes on the dry side
- ◆ Introducing bund plantations, farm ponds, roof top rain water use
- ◆ Making trenches in upper forests
- ◆ Recharging bore wells.

The NGO and Ion Exchange advocated a participatory approach for the rainwater-harvesting project, which involved a variety of skills, disciplines and competencies. The villagers accepted the proposed solutions with minor changes and began excavating two ponds. The villagers were motivated to dig two rainwater-harvesting ponds, built two bunds across a stream and construct structures, such as trenches and gully plugs. SHARE funded Rs 2,30,000 for the project and Ion Exchange provided technical consultancy. Villagers contributed more than 5,000 days of work, free of cost, which if valued, would be equivalent to Rs 3 lakh. In addition, village students worked an equivalent 40 days, making minor gully plugs and small gabion structures. During the next two years, additional work, such as pond lining, seepage control and development of tree plantations consolidated the work. The Rotary Club in Bombay and a few philanthropists are financially supporting this phase with a grant of Rs 2 lakh. In addition, villagers are contributing 500 days of labour.

Involvement in the project has increased villagers' awareness of water-related problems, their causes and ways to mitigate these problems on a long-term sustainable basis. Consequently, villagers have resumed second-cropping of pulses, legume seed crops that act as a protein source in a predominantly vegetarian diet, and are debating on the possibility of stall-feeding cattle and raising milk-producing animals, such as cows and goats. There are several thousands of NGOs working in rural India, who are involved in improving agricultural practices. Outstanding among them are Baba Amte's Anandwan, Bunker & Aruna Roys' Tilonia in Rajasthan and Rajendra Singh's Tarun Bharat Sangh in Rajasthan too, Anna Hazare's Ralegan Siddhi and Popat Rao Powar's Hirve Bazaar near Ahmednagar both in Maharashtra. There are several corporates who have undertaken rural projects. Some like the Tatas have done such work for seven or eight decades, but there are several others like the Indian Aluminium Company Limited, Excel Industries, Godrej and Ion Exchange too. Their contribution includes watershed development, health care and education including providing for computers usage in rural areas. What is lacking is an effective networking system that would put all these agencies in touch with one another and develop a synergised joint effort that could lead to be an effective instrument of change.

INITIATIVES FOR THE GOVERNMENT

Rural poverty remains a constant and shameful reminder of every government's failure to solve our country's biggest problem which is also a severe drag on the economy. The main reason for this is poor water management and the consequent degradation of cultivated land. Although much money has been spent by the government for providing water, the results are negligible. There has also been opacity in providing information relating to budget, target, and performance. If there is to be an improvement, the government should not continue to be solely in control of project planning, expenditure and implementation. They should be much more proactive and follow the example of the International Water Management Institute, which works in collaboration with the village and NGOs also using the help of corporates who are undertaking similar work.

