



Grassroots organizations for farm water and management



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"WATER MAY SEEM to be everywhere, but for a rising portion of the world's population, there may soon be hardly a drop to drink – or to use for growing food, supporting industries and cities, and preserving life-giving ecosystems." – *anon.*

As world population expands by a projected 2.6 billion people over the next 30 years, and as consumption levels spiral upward, water problems are bound to intensify. With the best dam sites already developed and many rivers and groundwater reserves already over tapped, opportunities to solve these problems by exploiting new sources are limited. A fresh approach is needed, one focused on using water more efficiently and allocating it more equitably.

A global crisis of freshwater is also likely to worsen due to a growing competition between agricultural and its municipal uses. Many countries like Pakistan are not able to provide adequate access to fresh water per individual as laid down in international standards. Pakistan is now fit to be considered as an arid country. It has exhausted almost all the available resources of water. And the only way left is conservation and judicious use of limited quantity of water available for exploitation. The mega cities are in the offing and concerns exist for recycling of municipal water waste. The reallocation of water from farms to cities is well under way in both industrial and developing countries; and Pakistan shall have to make a choice that blends international experience with local socio-economic scenario.

As regards water stored for agriculture, Pakistan is also ceased with energy options as well because the country depends heavily for electricity generation through hydropower upon the same water storages. The increasing demand for electricity results in excess releases of water than is demanded by agriculture. The dualpurpose dams are regulated to maintain balance between the two sectors - agriculture and energy; but quite often, as occurs during canal closures for silt clearance, there is load shedding; and some one some where feels the pinch. The industry is the worst sufferer. Sometimes, the tubewells used for irrigation also trip off for want of electricity. The government has therefore to buy electric power at higher rates and sell to the consumers.

After emergence of Pakistan, the water sector underwent a great turmoil. The confusion was worst confounded, when the USAID and World Bank, in a bid to increase Pakistan's agricultural production, floated an idea of increasing cropping intensity due to enhanced water availability and regulation of water, on lands with poor drainage quality. They forgot that the system as originally designed

took cognizance of this fact and made no provision for drainage. The rise in water table or wastage of water was not expected. Adequate safeguards were made to take care of such a situation. For example the canals meant to irrigate high delta crops were in cutting and made non-perennial. However, instead of meeting the shortages of hard hit areas and opening up of new areas to irrigation, more water was pumped viz., remodeling, etc., in canal command areas.

Freshwater as a crucial physical national resource needs to be fully understood and well-managed. As most developing countries are agriculturally based, there is inherent conflict between the need for water to supply irrigation and supply drinking water for the poor. Moreover, water, land, forest, biomass and livestock are interdependent and the benefits of water development spread across the social and economic sectors. Thus, the issue of water cannot be studied in isolation or in a narrow sectoral fashion.

Pakistan has right to claim largest contiguous irrigation system in the world. The marvel of engineering ingenuity is however pouring its waters on lands irrigated in primitive manner. Agriculture is mainstay of Pakistan's economy and hence water is a very crucial inputs and required efficient management. And who also but the beneficiaries can be the best managers. However, Pakistan is land of stark contrasts in water availability and its use. With the exception of Indus Basis the rest is arid and without assumed supply of water. Only per cent of area is commanded by the canals, of this 65 to 72 per cent of GCA is utilized by the crops, having a cropping intensity varying from 81 to 110. The continuing of water storage has afforded a degree of regulation but this has to accommodate both irrigation and power generation as most of the electricity for industries is supplied through hydropower.

The beneficiaries belong to the oldest irrigation culture of the world, and, are sandwiched between traditional and modern technology. There is a school of thought that the water charges realized from unmetered water use are not enough to meet the AM&R costs of the systems. The others advocate that the increase in irrigated areas has added to indirect income of the government in the form of tax revenues. Some feel that the system has realized its construction cost and may now be used as a social service.

But the land distribution pattern is such that the benefits are reaped by 6 per cent of the families who own 94 per cent of the land. The Tenancy Laws give more rights to the tenants i.e. they have the first right to buy the land if owner wants to sell it. There are however no permanent tenants shown in the record of rights and hence the Tenancy Laws

do not provide any relief to the tenants. The agricultural labour is also not well organized and thus the irrigation system is hostage to feudal lords who control the government and its policies. Any attempt to privatise the system will tighten their grip on the system at the cost of small farmers and poor peasants.

The operation of the system and the efficient use of water are two different issues. Whereas the operation systems need highly trained engineers, the farm water use needs extension work to promote know-how about soil-plant-water relationship. Since a water course is supposed to be maintained by the farmers there is need to organize these farmers and guide them about farm plans, quantity and time of water application, etc. so that every farmer gets water as needed. Two different models of water distribution (warbandi) are practised at the moment. Both are based on acreage-time nexus. These give rise to unauthorized practices as a result of wrong crop selection which is the farmer's prerogative. Some experts suggest crop licensing to curb this. Others advocate metering of water to fixed charges. Both appear to be complex solutions to a simple problem, which if understood by the farmer would be its own solution.

Though not very difficult to bring a change, a sizeable effort is needed to organize these farmers to join hands for the efficient use of irrigation water which includes maintenance and operation of the water course. The supply line must, however, be maintained by experts and without interruptions. For this there exists a system of feedback through abdards (water keepers) and daroghas (water controllers).

The imperatives for such organizations are:

- Cooperation
- Institutionalization
- legalization
- education

Cooperation

A village is a complex land-livestock-vegetation ecosystem in which the land, the water, the livestock, and the energy sub-systems all interrelate. Sustainable development must be based on the holistic enrichment of the entire village ecosystem without destroying the synergy between the various subsystems. OFWM which aims to promote economic growth and rural development for poverty alleviation focuses on the integrated management of the complex village ecosystem. The water management cycle cannot be complete without a balanced approach towards the management of the entire ecosystem. The cooperation in a village where centuries old traditions of cooperation have been developed is not a new activity. This tradition was made the basis of Water Users' Associations.

There were however individual needs and priorities, which are evident from:

- land holding pattern
- tenancy

- the location on the water course.

Land holding pattern

The traditional law of inheritance has divided the lands not only in scattered pieces but in small compartments as well. The efforts of the government to consolidation of land holdings and cooperative farming have not shown encouraging results, because of the individuals spiritual attachment to the land. The land holding pattern necessitates division of water on the basis of location of the land and not the total land owned by any individual.

Tenancy

Since the majority of the landowners own land below subsistence level, they tend to cultivate others lands on share cropping basis. There are three patterns : self croppers, self plus share croppers and peasants. In order to ensure that the peasants are not ejected from the land they till, the tenancy laws ensure that they will not be ejected; and, even if the landowner sells his lands, the first choice of purchase will go to the tenants.

Location on the water course

Location of the land on the water courses is very important. The farmers are usually divided in three classes; head, middle and tail. The farmers at the head get their full supply of water, those in the middle are also satisfied. It is the tail enders who are the worst sufferers. Therefore for any improvement in the water courses, those head are least interested and have to be induced to participate. This also appears to be the biggest handicap in organization of water users associations.

Efforts were made to minimize the risks and to encourage the farmers to understand their stakes.

Institutionalization

Till 1978, it was generally felt that provision of irrigation was governments responsibility and hence it was to manage it as a service. This could be true to some extent as far as design, excavation and operation of Barrages and canals was concerned. But to regulate water supply at water course level, though within the purview of Canal and Drainage Act, was very difficult to oversee and implement. Thus it was left to the farmers to decide a system of water distribution and get it authenticated by the canal officer. As said earlier, all the farmers at head, middle and tail could not be satisfied due to falling discharge due to seepage, etc, there was constant conflict and frequent disputes which led to murders.

Although in the hydrological cycle the linkages of surface and ground water are clearly established, groundwater is often not accounted for as a potential national resource base. Aquifers store large volumes of water with almost no evaporation loss. They are generally pollution free and a source of safe drinking water unless contaminated by fluoride, arsenic or salinity due to over drawl. In extreme dry spells the only source of water is the groundwater. The

conjunctive use of ground and surface water is ideal for balancing the recharge of the aquifer.

Many individuals operate tubewells and sell surplus water to other farmers. Public tubewells proved to be of more menace - financially and operationally, than the remedy to water-logging and a boon to the farmers. These were decided to be privatized. These are fated to be abandoned. Water Users' Associations make use of groundwater as common property and benefit from it as supplement to canal water.

Privatization or commercialization is seen as a way to increase both efficiency and capital mobilization. But the solution is not so simple, for privatization often means 'cherry picking' of the profitable segments of the sector leaving poorer areas to fend for themselves. To attract foreign capital, governments are often eager to surrender their rights on bulk water pricing and control, agreeing to conditions and clauses which sacrifice the national interest and the right of people to safe and sufficient water use.

Water is a complex issue, difficult/impossible institutionally to manage in one entity at macro level. It was therefore decided that the operation and maintenance of water courses below mogha be entrusted to beneficiary farmers.

Legalization

The water users association needed legal cover. According to constitution of Pakistan water and agriculture are provincial subjects. The total water has been apportioned between provinces to give them freedom of its use. During early eighties while I was providing leadership to on farm water management program, it was decided to promulgate ordinance to give legal cover. The consultants were employed to draft the ordinance and five seminars were held to elicit public opinion. It was finally decided that all the provinces will make necessary modification in the draft to meet their specific administrative and legal requirements. Thus, the four provincial water users association ordinances came into being and continue to remain in force.

Education

Capacity Building at the community level

While the importance of the participatory role of the community is recognized, often the policy makers put forward arguments on the lack of capacity and capabilities at that level. These myths are reinforced by the fact that capacity building exercises are often confined to the national level and neglecting the needs of local institutions and communities only perpetuate this myth. The community can take the control of management of water, then gain

out of it and control their own development process. Thus capacity building at the local level is very important. In Pakistan, it existed as voluntary and the promulgation of ordinance paved way for transfer of irrigation system to the beneficiaries. The problem however remained to build capacity of WUAs to formalize the system. For this, it was necessary to educate them in the proper water use. These activities remained to preparation of farm plans, agronomy, conjunctive use of tubewell and canals water, and, maintenance of renovated water source.

The education is project responsibility which provided for building local capacity for manufacturers of nuccas, fabrication of implements, development of local contractors, and, establishment of farmers clubs. Though the demonstration plots were established as part of extension work, other activities still remain to be accomplished.

Sustainability

A good example of the failure of water users association lies in the limitation of its activity to single objective i.e. Water course management. Though the watercourse, as explained above, looks very insignificant in the whole setup of irrigation, it is the drop which makes the oceans. Just walk along the water course and you will find that all the investment in dams, barrages, canals, etc. is being ruthlessly going down the drain. And this is common all over the country. Sustainability is the key issue and can be achieved not by the conventions, conferences and seminars, but by setting practical examples.

There is a variety of organizations and agencies who do not recognize the gravity of the situation and if they do, they leave the job unfinished. The farmer thus loses faith in the governments capability and its bureaucracy. This has been appreciated by the donors and other aid giving agencies, and, are therefore entering in direct dialogue with the community based organizations. This is not a good omen for soft governments who choose to remain unaware of the gravity of the situation. They are ever ready to accept, like disappointed sick man, to try every prescription suggested to them; and more so, if money to buy the medicine is attached with it as soft loan. The history of water sector development is replete with a chain of complex solution to very simple problems, ultimately ending in worst maladies. The only solution lies in proper understanding and benevolent partnership between government and the community of authentic irrigators.

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