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MANAGING WATER RESOURCES THROUGH USERS ASSOCIATIONS

BY

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HISTORICAL BACKGROUND

Nineteenth century witnessed inundation systems for irrigation. Managed wholly by users from river diversion structures to tail ends. Most of the existing canal systems are their substitutions with vast extensions.

Socio-economic and political system was tribal headed by chief tains with overall head of all head of govt. being king who was replaced by colonial rulers. Concepts of rulers and the ruled. Prevailed with minimum or nil intervention from Govt. Agricultural activity was restricted to one crop.

Start of twentieth century saw rivers harnessed by weirs and barrages and all weather canals and head regulators with main canals, secondary and tertiary canals.

Main canals and head regulators were gated and rest of the canal system was designed for proportional distribution of available supplies.

Canal systems were designed for irrigation intensity varying from 40-70%. These were perennial or non perennial depending upon type of area and availabilities of water in the rivers. The system achieved their designed intensities in mid century i.e.; 30 to 40 years time.

The whole system was run of the river system till early sixties. With Indus basin replacement accord in 1958 two main storage Dams were constructed with storage capacity of about 12% of the available surplus as part of replacement works against three eastern rivers namely Ravi, Sutlej, and Bias. Consequently irrigation intensities rose to 120-153% with an average of 125% and river diversions from 35 maf to 105 maf by nineties.

These increases were mixed fortunes. Twin menace of water logging and salinity soon made its appearance with the completion of Dams. It was tackled by salinity control and reclamation projects which are a mix of vertical and horizontal drainage. So far a total 13500 SCARP Tubewells (STWs) have been installed through eight SCARP schemes. 80% of which are located in Punjab. A total of thirteen SCARP schemes have been identified and ninth SCARP is under construction in D.G. Khan.

These schemes helped achieve their targets of reducing and even eliminating water logging and salinity. In FGW areas these provided the much needed irrigation water which feel short of rising requirements. Average/normal life of a T/W is 10-12 years but these STWS have been working for the last 20-30 years. Coupled with lack of maintenance, rising costs of electricity and overall inefficiency in management each STW is now costing Rs.

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150,000/-p.a. It has become impossible for govt. to continue to maintain/run these STWs which are a continuos drain on govt. finances.

It necessitates redefining the Government role. The process was started in 1988 with a pilot project (213 STW) followed by "Second Scarp Transition (STP) (1340 STWS) and now comes Punjab Private Sector Groundwater Development Project (4266 STWS)".

Winds of change are blowing all over the globe and the prime focus of Punjab Private Sector Groundwater Development Project (PPSGWDP) is beneficiaries participation. It is also based on experiences of previous projects.

PROJECT OBJECTS

1. The stated goals of this project are "ensure sustainable farmers organization," "improve surface irrigation." "Establish a base for participation in the management of canal system," "Rationalize public expenditure on O&M," "Develop a regulatory frame-work" for ground water, and finally, "Redefine Government's role" and "Provide assistance to facilitate change."
2. This project has potential to achieve improvements in irrigation because; it opens up the possibility for management of both surface and groundwater, starts all activities from organization of water users, is genuinely interdisciplinary, and is not confined to just one Government Department but is under a separate Project Manager Unit (PMU).
3. The main specific tasks are: mobilization of farmers to form Water Users Associations (WUAs) on the 5266 water courses in the project areas, installation of 6160 Community Tube Wells (CTWs) while dis-investing 4266 SCARP tube wells; The project consultants providing engineering services to OFWM for watercourse improvements and for lining small canals in the saline zone and installing some drainage tube wells, and finally, creation of a ground water modeling program and ground water regulatory framework.

FORMATION OF WATER USER ASSOCIATIONS (WUAs)

Under the project, in each SCARP tube well command formation of WUAs is required before other activities are under taken. WUAs will be the basis for improved irrigation practices and building up of institutions.

Project is heavily geared to mobilization of farm families on the water-courses. Farmers have little experience forming voluntary or public service associations, but with effort it is possible, and it also enhances the quality of "Civil Society". This is being done through project implementation consultants staff consisting of 30 Social Organizers (SOs) and 15 after-care organizers using participatory techniques proven in many countries. The rate of WUA formation is calculated as 200 every quarter.

A water course assessment survey on all the 5266 water courses in the project, using teams of sociologist, irrigation engineer, agri-economist, surveyor, patwari and OFWM engineer is being carried out. They also consult with farmers to make preliminary observations about improvement needs on minor/distributary canals. ; It will take 4 such

teams 3 years to complete this survey. The data will be used to prioritize subsidies for CTWs and improvements, and may grow into a permanent water course database in Punjab.

Every effort is being made to strengthen the WUAs and tube well groups institutionally through training in procedures of holding meetings, electing office-holders, keeping records and accounts, planning and budgeting etc. WUAs and tube well groups are encouraged to keep logs of water supply an water distribution to the members.

Model terms of association and bylaws have been prepared for WUAs and tube well groups. One difference from earlier efforts is that a suggested member of the WUAs committee is water manager (instead of pump operator), as he is to implement and record equitable water distribution, keep records, and monitor physical structures. A manual for SOs has been produced as a field guide.

With the installation of so many PTWs, the concept of "transition" from STWs to PTWs has become less important, while building up capacity for wider user management of both surface and groundwater has become more important.

WATER USER ORGANIZATIONS (WUOs)

The project includes formation of higher level Water User Organizations (WUOs) such as minor canal committees and distributary committees in the saline zone where lining of small canals will be done, and perhaps in other areas also preparatory to canal improvements.

PREVIOUS EFFORTS AT MOBILIZATION AROUND WATER COURSES

The USAID pilot project of OFWM (1976-81) was the first opportunity for farmers to share in supplying skilled and unskilled labor for watercourse improvement, while the Government bore the cost of material for pakka nakkas (masonry turnouts). But farmers were not organized or trained for sustained management and improvement of the watercourses. The World Bank supported further programs of OFWM, building on lessons learned from the USAID- sponsored efforts.

In Punjab, directorate of OFWM in agriculture department has helped farmers organize into WUAs. These proved to be effective for civil works, and some 20,000 WUAs were established only for getting farmers to give labor and repayments for watercourse lining, and in that they were somewhat successful. But the office-holders were not trained in organizational matters, nor to take much role in maintenance or in water management - even though there has been some increase of supply at tail ends, and water losses from operational waste and theft by outlet tampering have been reduced. Farmers were not trained in how outlets are designed to certain sizes.

These older WUAs as institutions has little influence aside from their role in water course lining. All these previous projects were target-oriented, and OFWM staff have been

too busy achieving their targets on a single activity, water course lining, and have not trained the WUAs in water management and organizational structure.

During colonization in Sahiwal, Khanewal and Multan Districts farmers got percales of land measuring 8 acres on lease. They were organized in co-operatives which worked well for over thirty years. They would purchase tractors seed and other inputs jointly. With time farmers got propriety rights of land and these co-operatives become less effective. Some of them still exist in the form of a union.

Incentives to Form a WUA

1. Possible subsidy for CTW.
2. Ending the STW extra abiana (irrigation assessment based on land area and crop).
3. Possible subsidy for water course improvement.
4. Improvement of structure on the minor/distributary canal above.

Broad Potential of WUAs

Despite the statement above, we feel from experience in other countries and in Pakistan, that there are many rich possible activities that WUAs can undertake. They can be engines of rural development. The following are possible activities identified for WUAs in this project:-

1. Water management, with equity- the core activity.
2. Assessing and collecting water charges, or at least collecting abiana (through not possible yet); assessment and collection of CTW water charges.
3. Stopping the extra abiana. When a WUA is formed, it may apply to the project director to close/disinvest the SCARP tube well and stop its abiana.
4. Maintenance and improvement of the water course.
5. Resolving disputes or problems (one study shows that 19% of factional problems on SCARP water courses are irrigation matter (SSTP Evaluation Dec. 1995. P.xxvii)).
6. Approving and co-ordinating one or more CTWs on the water course.
7. Monitoring the patwari and other officials- to avoid bribe and false records.
8. Management of common resources. A registered WUA can own property. In practice it also controls the water course and structure, reeds and grass, buffalo wallows, trees and grass along the bank, bottom mud, etc., which can be leased for income. It can construct and own a fish tank (very profitable) and tanks for storing water.
9. Management of the watershed, hill torrents, ponds, tanks, streams, and drainage connected with water course.
10. Management and improvement of soil quality and prevention of erosion.
11. Monitoring the transformer against overuse and electricity theft__ because if the transformer burns out or is stolen it takes many months to get a replacement.
12. Joint crop planning to make best use of available water.
13. Joint purchase of inputs such as seeds, fertilizers, pesticides, and nursery.
14. Purchase and lease of equipment. The WUA may buy and lease out a tiller, sprayer, thrasher, truck, etc., to members and at a higher rate to non-members.

15. Agro-processing, quality control, packaging, and marketing- to improve value.
16. Measurement of surface water. The water manager should keep a log of water entering the water course measured in flume, and ultimately a log of its distribution to the fields. Armed with this, the WUA can substantiate complaints. This will also reduce water theft because the records have to be open.
17. Measurement of groundwater. The water manager should keep a log of groundwater levels, taken periodically as requested by PPSGDP. This will build up awareness and lead to local or regional institutional management of groundwater level and quality.
18. Joining to form higher tier WUOs (minor canal committees, distributary committees, and canal councils); participation in their management, O&M, and finance.
19. Provision of credit to farmer members, taking reasonable interest. The WUA will also earn interest on its reserve fund in the bank.
20. Commercial activities. The core purpose of a WUA is water management, but once it gets well established, the members may operate a workshop to repair farm equipment, lease out machinery and truck, run restaurants and hotels, etc (as in China, where income from such enterprises sometimes pays for all O&M and the farmers are free of water charges).
21. Liaison between farmers and agencies, the WUA will find out what incentives, facilities, and advise are available from government, NGOs, and other agencies; bring in experts, and arrange training.
22. Improvement of infrastructure, as roads and paths, culverts, small bridges.
23. Welfare activities___school, women's enterpreneurship, etc. so that a "civil society" is locally built up, which in itself will have far-reaching effect on the farmers' lives.

HOW WATER COURSE ASSOCIATION CAN RAISE MONEY

The next question farmers ask is how a WUA can raise money. Around the world where WUOs, water districts, etc, are successful, the first and often the main sources of their income is overhead on sale of water. There are many other possible sources of income too especially for a mature WUA.

The following list of how WUAs raise money and resource has been compiled from actual experiences in Asian countries. Most of them are applicable to Pakistan too.

Water charges. The normal main sources of income to water districts, WUAs, WUOs, etc, in different countries is sale of water by flow-time to farmers, with overhead from its bulk purchase price from the canal. WAs in Pakistan may initially find it easier to buy the water for the canal by volume but assess farmers by land area. Alternatively, the WA may collect abiana on behalf of the government with agreement to turn over part and keep the rest for maintenance and expenses. There is no provision yet in Pakistan for these measures.

Contributions of Farmers

- ☐ Membership and/or annual fee
- ☐ Land area fee
- ☐ Cash assessment by the WUA

- ☐ Donations of cash of materials
- ☐ Labor, or labor assessment by the WUA for maintenance

Common Resources; Income from Managing

- ☐ Grass, brushes, and trees in public places, and from the watershed
- ☐ Water storage tank, fish tank
- ☐ Mud and sand (may be sold for construction etc.)

Profit-making Activities

- ☐ Leasing out of equipment (car, truck, sprayer, etc.)
- ☐ Running pump or machine repair shop
- ☐ Running agricultural supplies shop or agency
- ☐ Running restaurant or hotel
- ☐ Any other enterpreneuship

Interest on bank savings and loans to members; bank loans for investment.
Subsidies (as in PPSGDP), but this should be a minor source of income.

MOBILIZATION THROUGH VOLUNTEERS

With time, social organizers be replaced by local leaders trained for the purpose, as has been done in the irrigation sector in Philippines and other countries.

This trend has already been started by IIMI on several pilot projects in Pakistan, and the experiences has been documented in 2 IIMI publication (Hassan et at 1996, and Bandaragoda and Memom 1997). The development philosophy IIMI is pursuing is that as long as one has to pay people for local mobilization, it is not in the long run sustainable, sustainability only come when local residents themselves take the initiative to organize, plan and implement. This is correct. In PPSGDP later in the project a program to raise up local male and female volunteer leaders will be pursued.

POTENTIAL OF WUAs IN PAKISTAN

It is well known to social scientist that Punjabi people, in both Pakistan and India, have a society that throws up very few voluntary associations, co-operatives, development NGOs, and public service organizations. Nevertheless, it is sure that WUAs can be formed ---- and many will be sustainable if their authorities and powers are clear.

The presence of biradaris and castes is often cited as a deterrent, but this can be overcome. Our attitude survey found that 78% of farmers think that the biradaries (kind groups) on their watercourse can co-operate. Another study reported that 78% of farmers are of the opinion that the biradari system would facilitate rather than hinder TW Group formation (SSTP Evaluation December 1995, p.xxix). During formation of the WUAs, the

SO may advise the farmers that by different biradaris joining to gather for practical resource management, there is real possibility that tension among them can be reduced.

Even if half the WUAs fail, if a good number survive and farmers in other watercourses see that they are useful, there will be natural diffusion. We are optimistic that farmer can organize. The real issue is sustainability.

SUSTAINABILITY

It is not difficult to Form Water User Associations. The real question is sustainability. In order to address the question of sustainability activities of the Farmers should generate profit. The concept of external catalyst may work only for a short time. In order to sustain Farmer Associations for a longer time we must guide them to one or more of the following activities:-

1. Flour Grinding machine.
2. Rice Husking machine.
3. Cotton Ginning machine.
4. Cold storage.
5. Preservation, storage and Packing of fruits, vegetables etc.

Item 1 to 3 above could be packaged with Community Tubewell (CTW) primemover. Item 4 & 5 require specialist services and are capital intensive.

Moreover Water User Association (WUA) should work in social democracy so that every one shares the benefits without interference by external agencies.

If Water User Association is given the authority or teeth, as it is called, it would mean taking away one authority and imposing another which may not work. No hard and fast rules can be laid at present; sustainability of Water User Associations, remains open-ended and unanswered.

CONCLUSION

Looking back, nineteenth century was of participatory management of Water Resource.

It was replaced by Govt. controlled system in twentieth century with partial participation in Watercourse command area.

Now we will be entering twenty first century strengthening participation at tertiary level of irrigation system taking upwards to secondary and primary level with time.

This turn over is not going to be a short time affair of 5 years. It may take 50 years or even more.

Participatory management of water is being pitched as messianic in scientist's zeal but has to be tested in local environment.

Farmers of Punjab Pakistan (& even India) are not accustomed to these approaches unlike China, Korea and Japan so strive, we must, but keep the figures crossed and expect no magic touches or miracles.