

BELOW THE THIRD TIER: WATER USERS ASSOCIATIONS IN INDIA

By Rakesh Hooja
Joint Secretary
Ministry of Home Affairs
Government of India
New Delhi.

&

Officiating President Indian Network on Participatory Irrigation Management (IndiaNPIM) Delhi

Note: The ideas expressed in this article are purely personal and academic and do not represent those of the Ministry where he is presently posted

I. Introduction:

This article looks at the institution of the water users association (WUA) which is being created through State level legislation in many Indian states to manage canals and irrigation systems. Each water users association operates at a level lower to, or in parallel with, the *panchayati raj* bodies that comprise the Constitutional third tier of India's federalism.

II Historical Background About Third Tier in India

As India's Constitution declares India is a "Union of States". However the Constitution as adopted and enacted in November 1949 had granted the legislatures of the various states to, among other things make laws for the State pertaining to local self-government. Accordingly many states had, through state laws, provided for local bodies at the local level in rural areas and, following the adoption of *Panchayati Raj* in 1959, many states had legislated for two-level or three-level *Panchayati Raj* Institutions (PRIs) whereby there were provisions for the constituting of *Zila Parishads* (or district councils), *Panchayat Samities* (or block councils) and *Gram Panchayats* (or village councils) and related *Gram Sabhas* (or village assemblies) within the States.

With the 73rd Amendment to the Indian Constitution, *Panchayati Raj* was granted constitutional status and a uniform model of *PRIs* was prescribed for all States. The 73rd Constitutional Amendment calls upon the legislatures of State Governments to endow the *Panchayat* bodies with appropriate powers and responsibilities and has suggested a list of activities or subjects in an Eleventh Schedule of the Indian Constitution for States to consider entrusting schemes related to those activities to the *Panchayat* bodies. This was somewhat different to the Seventh Schedule of the India Constitution, which contains lists of central subjects, of state subjects and of concurrent subjects.

Thus the *panchayat* bodies became the third tier of Indian federalism. However the state governments, which comprise the second tier, continue to have their own departmental functionaries at the district and village levels in parallel to those of the *PRIs*.

III Need for Bodies Below, or in Parallel to, The Third Tier

The third tier, or its lower most institution the *Gram Panchayat*, actually covers a number of rural habitations. India follows the concept of a ‘revenue village’ constituted from the point of view of fixing and collecting land revenue- and thus the area of each village contains a significant quantum of land and a number of hamlets (or *dhanis*) along with the main village habitation. Thus a village may normally comprise of a population of between 1500 and 3000 persons- while particular villages may even have a population of up to 15000. A particular *Gram Panchayat* may even cover 1,2 or 3 villages. For example, Rajasthan comprises 40,000 villages but only has 9184 *Gram Panchayats*. While the average population per *Gram Panchayats* in Rajasthan as per the 2001 Census is 3695- such an average can range from about 1100 in one State to about 21000 in another- with most States having an average *Gram Panchayat* population of between 2000 and 6000. And these populations continue to increase each year. Thus the real grassroots in India today is the smaller hamlet or a ward of the *Gram Panchayat*, rather than the larger or more heterogeneous village, or the even still larger *Gram Panchayat*.

This indicates the need for institutions at levels below the lowest component of India’s third tier (i.e. below the *Gram Panchayat*).

It has also been noted that many development programs have promoted a variety of beneficiary groups, self-help groups and user groups to ensure better utilization of local resources. Such groups include watershed committees, afforestation or pasture development groups, water users associations (WUAs), women’s self-help groups, artisans groups, farmers’ cooperatives etc. There is some overlap between the functions being performed by such “parallel” bodies and those assigned to, or suggested for, Panchayati Raj Institutions as per the Indian Constitution, state laws, or State Government orders and administrative instructions.

There is a group of activists, thinkers and scholars who feel that such parallel bodies should either not be permitted to exist or should function as subordinate entities of the *Panchayati Raj* Institutions. This is because their dream is to see the panchayati raj bodies functioning as district level, or third tier, governments. However the *Gram Panchaya* – even where it is very active (which may not always be the case) - has various types of concerns other than water management (or watershed development, or afforestation, as the case may be), which it is bound to give priority to.

Both by tradition, and in view of the nature of most of its other activities, the *Gram Panchayat/Gram Sabha* meets only occasionally- while for a body like the Water Users Association (WUA) which has to operate, manage and maintain the canal system (or at least one minor canal) as part of PIM (Participatory Irrigation Management), the type of interaction required is much more intense and frequent and during the cropping or irrigation season daily contact amongst individual WUA members may be a must and the WUA members may be called on to undertake day-to-day coordination (and even at times adjudication). Not every member of the *Gram Panchayat* is a user or beneficiary, while in the case of a WUA every member is both a user and a beneficiary as well as an implementer-cum-manager. Thus the relationship between member and body in each case is very different thereby influencing the dynamics of how each of the two bodies functions. Further the boundaries of Panchayati Raj institutions like the *Gram Panchayat* or *Gram Sabha* are based on boundaries of land- revenue villages which have evolved over time. By contrast the WUA has to follow hydrological boundaries which depend

upon the alignment of the canal (itself a determinant of topography) and the extent of the area commanded by the canal regardless of whether it cuts across revenue village, or gram panchayat, boundaries. Similar geographic considerations are relevant for watershed committees or afforestation/pasture development committees.

Despite the above, *panchayat* bodies, which themselves complain that State Governments do not decentralize enough and retain all powers for themselves, are most keen that within their area-based jurisdiction (the village) all powers are concentrated in them and that user groups like WUAs should (if at all allowed to exist) function like subordinates to the Gram Panchayats. However PIM practitioners know that WUAs need to have autonomy to carry out their activities and need to work out direct working arrangements with State Government's departments of irrigation, command area development (CAD), agriculture, groundwater etc. Thus it is encouraging that either through irrigation legislation like Andhra Pradesh's APFMIS Act or through arrangements as in Karnataka where, in view of amendments in irrigation Acts, WUAs are registered under either the Cooperative Act, or the Societies Act, more and more States are providing statutory status to WUAs whereby they can function independently of the PRIs. (It may be pointed out that the Seventh Schedule of the Indian Constitution has placed agriculture and water supplies including irrigation canals and drainage in the State list of subjects and the Eleventh Schedule of the Indian Constitution, which pertains to activities whose schemes may be assigned to PRIs by the State Government, lists agriculture, minor irrigation, water management and watershed development amongst such activities.)

The rest of this paper would look in some detail at the WUA as an institution functioning at the level below, or in parallel to, the third tier of PRIs.

State Level Acts Regarding Management Role for Water Users Associations

Andhra Pradesh Farmers Management of Irrigation Systems (APFMIS) Act 1997

Bihar Irrigation Act 1997

Karnataka Irrigation and Certain other Laws (Amendment) Act 2000

Madhya Pradesh Farmers Management of Irrigation systems Act 2002

Orissa Pani *Panchayat* Bill 2002

Rajasthan Farmers Management of Irrigation Systems Act 2000

Tamilnadu Farmers Management of Irrigation Systems Act 2000

* Note: Both the State Governments of Gujarat and Maharashtra have got expert groups to prepare draft Participatory Irrigation Management/ Farmers Management of Irrigation Systems Acts, which are under consideration. Where a special Act has not been in existence, the Societies Registration Act, or the Cooperative Societies Act of the concerned State has been made use of to register WUAs as a society or a cooperative society. In all such cases WUAs have the status of an NGO.

IV. New Acts Pertaining to WUAs and Elections

As indicated in the box, a number of India States have enacted laws related to Participatory Irrigation Management (PIM). PIM involves the taking over of at least one level of irrigation channel or canal above the outlet- that is the operation and maintenance of the canal. . In the early 1990s, before any PIM law was enacted, a number of pilot WUA projects were undertaken where the WUA was either an informal body, as was registered under the Registration of Societies Act or the Cooperative Societies Act. States which have used this device include Madhya Pradesh, Gujarat, Maharashtra, Orissa, Uttar Pradesh, Tamilnadu, Karnataka, Rajasthan and Andhra Pradesh.

However following the promulgation of the Andhra Pradesh Act (APFMIS Act 1997) a number of States have provided statutory or legal status to WUAs converting them from NGOs based on Registration of Societies Act/Cooperative Societies Act to GOs. The Andhra Model has been followed, with only minor variations, by Rajasthan, Tamilnadu and Madhya Pradesh. It provides for WUAs at the minor level, Distributories Committees (DCs) at the next higher level, which would take over management of Distributories, and Project Committees (PCs) at the level of the irrigation project with different lists of functions for WUAs, DCs and PCs. Andhra Pradesh had constituted 10,292 WUAs and 174 DCs before conducting elections to WUAs in June 1997 and to DCs in November 1997. Before the second round of elections to WUAs in October 2003, the APFMIS Act was amended. Thus, unlike in 1997 when elections at all levels were direct elections, the 2003 elections provide for direct elections only at the WUA level and thereafter indirect elections with the territorial constituency members (TCs) electing the WUA President, all WUA Presidents electing the DC President, and so on. For the October 2003 elections the number of WUAs was 10,933.

Madhya Pradesh was the second state to complete elections to 1470 WUAs in April 2000 and to 90 DCs in February 2001. Madhya Pradesh went in for indirect elections to DCs. Recently (in 2003) some PCs have also been constituted and have taken over management functions related to irrigation projects in Madhya Pradesh.

Karnataka is following a different model, despite having gone in for legislation related to WUAs, in that, while the Act lists the functions to be performed by WUAs, each WUA is registered under the Registration of Societies/Cooperative Societies Act. The Karnataka Act also provides for federations of WUAs to be formulated.

Tamilnadu is facing the problem of 1041 WUAs that were registered before the TNFMIS Act came into force needing to be converted into WUAs conforming to the new Tamilnadu Act

V Two Approaches to Propagation of PIM

There are two broad approaches to the propagation of PIM in India

One approach also called Big-Bang Approach was initially tried out in Mexico and has been adopted in Andhra Pradesh, Madhya Pradesh etc. The Big-Bang Approach involves simultaneous and uniform adoption of PIM throughout one region or state usually based upon legislation or government orders.

The second approach is a bottom up, slow and steady, flexible, “cafeteria” approach. In this only if the water users so decide do they set up a WUA. In the cafeteria approach, the WUA itself decides about which functions it wants to take up at a given point of time. The WUA may subsequently add on more functions. In the cafeteria approach each WUA decides about its internal structure and working practices. This is different from the Big-Bang approach where a uniform structure and uniform working practices are prescribed for all WUAs.

It is theoretically possible for legislation to provide for a flexible, bottom up, “cafeteria” approach; though presently almost all the Farmers Management of Irrigation Systems Acts in India have followed the uniform, Big-Bang approach.

VI. Functions that WUA Should Perform

There is difference of opinion whether WUAs should only perform irrigation and canal management activities, which they take over from the irrigation agency, or whether they should also perform other tasks related to irrigated agriculture and the governance of irrigation.

The Andhra Pradesh Farmers Management of Irrigation Systems Act provides for the following functions for WUAs: preparing and implementing a warabandi (or water distribution schedule based on turns for receiving water) schedules, planning and implementing the maintenance of the irrigation system, regulating the use of water amongst various outlets, promoting economy in the use of the allocated water, monitoring flows of water, water budgeting, and resolving disputes between members and water users in its area of operations (besides functions related to maintaining records and the internal administration of the WUA). The Tamilnadu legislation has followed suit. Rajasthan has added the task of preparation of demand and collection of water charges, as has Madhya Pradesh (for Lift Irrigation Schemes only), and (though they have gone in for a different pattern of WUAs in their legislation) Karnataka. The Orissa Pani Panchayat Bill however enables the WUAs to also perform agriculture related functions.

By and large PIM legislation in India has followed the views of those who feel that the functions of WUAs should be limited to only irrigation department related functions; namely, the maintenance of the canal and its structures, distribution of water, resolving disputes related to water distribution and collection of irrigation charges.

Many experts, however, feel that WUAs can achieve institutional sustainability and both economic and institutional viability only if they undertake various irrigated agriculture related tasks including even input management and post-harvest activities, in addition to canal management.

We tend to agree with the view that WUAs should undertake a broader set of functions. What it means is that there should be two sets of tasks enumerated: One a core or compulsory group of tasks related to the management and maintenance of the canal (or lift) system which is the bare minimum that a WUA has to take up as part of PIM, and the Second a list of additional and optional agriculture and land-water management related tasks which the WUA could adopt either at its inception or gradually add on as time passes.

The core or compulsory activities could be as follows:

- Acting as an interface between the farmers and the main system management of the irrigation project as well as other concerned State Government agencies (Command Area Development/Rural Development/ Agriculture/Ground Water/Cooperatives Development/ (Land) Revenue and Irrigation Departments).
- Water distribution; Irrigation scheduling including both rotational running of canals and warabandi; ensuring that water reaches to all members (as also non-members) as per their due shares.
- Operation and maintenance of the irrigation and drainage system.
- Collection (and assessment) of water charges and other user charges or special charges that the WUAs may levy.
- Resolution of local disputes amongst members- if necessary setting up of an internal system of penalties and other incentives or disincentives.
- Conflict resolution between members and non-members.
- Drainage.
- Provision of drinking water from canals.
- Design and construction of new works (irrigation works, OFD works, drainage works) as well as rehabilitation of canals and structures (deferred maintenance works).
- Maintenance of commercial, financial and water accounting records.
- Cooperating with other WUAs to form federations of WUAs to take over larger canal sub-systems.

The additional and optional tasks could be as follows:

- Agriculture extension and farmers training
- Recommending of cropping patterns and package of agricultural practices suitable for the WUA's farmers.
- Helping to arrange for other inputs besides water, and for credit supply, to members for undertaking irrigated agriculture.
- Irrigation extension and propagation of better on-farm water application and better intra-outlet command water management.
- Encouraging and taking up of conjunctive water use, including community lift irrigation.
- Post harvest practices (grading, packaging, storage, marketing)
- Any other task as mutually agreed upon by the members (e.g. canal side plantation, construction/maintenance of farm tracks, providing of matching funds on behalf of the command area to the District Rural Development Agency, or to *Zila Parishad/ Panchayat Samiti* for taking up of rural development work).

A WUA's function would differ depending upon whether the WUA is for a canal system, or for a largish tank scheme, or for a community lift,

VI State Government Role in PIM

As WUAs take over many functions including the management of canals, the State government Command Area Development (CAD) or Irrigation Department would have to gear itself to look more to construction and management of dams and the main canal system or drainage works, providing technical advice, training, introduction of new technologies, major repairs, creation of an organization for interfacing with WUAs and other State government departments, and for motivating and catalyzing the formation of WUAs, as also undertaking long term water resource planning.

The State Government has to create an enabling environment through (a) policy resolutions, (b) specific programs, projects and activities to be implemented or sponsored by the government, (c) providing intellectual, administrative and implementational leadership, (d) putting into place legal and administrative provisions and procedures including Acts, rules, government orders, (e) undertaking mass awareness building and promotional efforts, (f) providing technical advice and technical back up, as well as funds, to WUAs for selective activities while continuing to perform many tasks on its own and initiating newer tasks which were not being undertaken earlier in the pre-PIM era by State government agencies, (g) ensuring attitudinal and behavioral change amongst employees of all government departments directly or indirectly concerned with Canal (and Community Lift) irrigation, (h) enabling the taking up of pilot PIM projects and PIM demonstration projects (i) creating nodal points of PIM in all concerned government departments both at the Central Government and State Government levels with a multidisciplinary PIM unit supported by an advisory group of experts being located in the Water Resources or Irrigation/Command Area Development Department, (j) creating multi-disciplinary mobile PIM propagation teams to move from project to project, motivate as well as orient and train farmers and field /project level government staff, obtain feedback about changes required at the State government level, and generally take steps to ensure that PIM takes off and functions properly, (k) preparing guidelines and field manuals, (l) arranging for various sorts of PIM related training, (m) helping WUAs to rehabilitate old irrigation systems to bring them up to at least a minimum operational level, (n) involving NGOs and Community Organizers, (o) providing incentives, monetary, or otherwise for (i) farmers to undertake PIM, and (ii) government staff to facilitate it, (p) helping WUAs in conflict resolution with other agencies as also by putting into place transparent provisions for interaction or arbitration between WUAs and government agencies.

VIII What a PIM Act in India Should Contain

PIM legislation should specify that regardless of whether the source is lift irrigation (from rivers, water bodies or community tube wells), or a tank system, or a conventional irrigation system based upon storage and water distribution through canals, wherever water is to be distributed between 30 or more farmers, the PIM and WUA approach should be mandatory.

As long as water rights continue to be linked to land ownership (as is the case in India) each land holder drawing water from the canal minor (or from the river lift irrigation schemes, community tube well, or the channel of a tank scheme) would be a member of the WUA .

The legislation should specify the rights and duties of both members and non-members within the command area.

The provisions regarding internal organization of WUAs should provide for some flexibility from WUA to WUA.

As regards functions to be performed by WUAs the legislation should provide for both core or compulsory tasks and additional optional tasks.

The PIM Act should contain provision for each WUA to sign two sets of Memorandum of Understanding (MOUs)- one related to core and compulsory tasks with representatives of Irrigation/CAD/Water Resources/Ground Water Department, and the second related to additional optional tasks with representatives of Agriculture/CAD/Rural Development/Panchayats Department.

A list of functions that State government agencies would need to perform to make PIM effective, as well as an indication of the type of enabling or facilitating role that the State government should play regarding PIM, and the changes required within government agencies should form part of PIM legislation.

PIM legislation should specify that WUAs shall work independently from, but, if so required, in coordination with the Constitutional Panchayati Raj bodies.

Each State government department having some bearing or influence on PIM should be mandated to designate a nodal officer for PM. The main department responsible for PIM should constitute a multi disciplinary PIM Cell at the department level to manage all PIM related work.

Multi disciplinary PIM propagation teams should be constituted by State Government to move from Project to Project to take all required steps for the propagating of PIM and to obtain feedback for use in refining various State Government policies and strategies pertaining to PIM.

A State level PIM Support Group at the State Secretariat Level, a State level Water Users Council for Coordination of PIM, a Committee of Experts on PIM to help arbitrate disputes/differences of opinion and a PIM Training and Advocacy Advisory Group are some of the types of bodies that a PIM legislation could describe and empower.

IX Goals and Prospects of PIM.

Farmers willingness to undertake PIM is dependent upon whether the returns from PIM provide them enough of an incentive to offset the costs (monetary or otherwise) of participating and undertaking managerial responsibilities.

The goal of PIM is not the mere transfer or turnover of irrigation systems or sub-systems to WUAs- such transfer is only a means and not an end. Nor is the goal merely to ensure deferred maintenance or rehabilitation of canal systems.

Nor should PIM be viewed merely as a mechanism to pass on governmental responsibilities to WUAs, or to make WUAs agents for implementing government schemes. Saving of government funds is also not a goal of PIM.

Similarly PIM should not be introduced due to abstract and theoretical or idealized concerns for decentralization or for privatization.

It should also be borne in mind that PIM is not a panacea for all the difficulties being faced by irrigation systems. Many issues have purely technical solutions. Others would require government action. However the technical fixes or government action by themselves may not suffice without PIM.

The goal of PIM is improved and integrated management of water and agriculture through a joint partnership of water users associations at various levels with the concerned State governmental agencies.

X Conclusion

WUAs are the most institutionalized of the user groups functioning at levels lower than, or in parallel to, the third tier of PRIs since they have legal or statutory backing deriving from special State level Acts, and since at least in the State of Andhra Pradesh, which pioneered law based introduction of PIM, a second round of elections has just been completed in October 2003. The various issues involved in turn-over of irrigation systems have also been debated, discussed in workshops and experimented with in the field for over 15 years.

While we have discussed why WUAs are a necessary institution at a level below, or in parallel to, the third tier in India; similar arguments would hold true for watershed committees, joint forestry groups etc. Presently while WUAs have the backing of State laws, watershed committees function under the supervision of *panchayat* bodies as per guidelines for watershed programs prepared at the central level as part of centrally sponsored schemes accepted for implementation by State governments. Whether backed by law, or by administrative government instructions, such bodies of user/beneficiary groups need to develop a smooth, and positive, working relationships with both the PRIs and with lower level State government functionaries .

REFERENCES

- (a) related to Panchayati Raj Institutions- the Third Tier of Indian Federalism

Arora, Ramesh K. (ed.) 2001 People-Centred Governance, Aalekh, Jaipur .

Hooja, Meenakshi 2001 "Panchon ka Raj, Mange Janta Aaj"(in English) The Pioneer, Thursday 23 August 2001.

Hooja, Meenakshi and Rakesh Hooja 2001 “Institutions of Self-Governance or Agencies of Development: Panchayati Raj in India” in South Asian Journal of Socio-Political Studies, Vol. 2 No. 1, Jan.- June 2001.

Hooja, Meenakshi and Rakesh Hooja , Forthcoming “Beyond Constitutionalization- Panchayati Raj in India” in Paul Flather (ed.) Recasting India’s Democracy: Essays on A Functioning Democracy, Palgrave (UK) 2004

Hooja, Rakesh 1995 Bibliography on Multilevel and District Planning , Madhya Pradesh Institute of Social Science Research, Ujjain.

Hooja, Rakesh and Meenakshi Hooja 2001 “The Status of Panchayati Raj in Rajasthan- Reflections in the Context of the 1994 Act” in Administrative Change Vol. 28 No. 2 & Vol. 29 No. 1, Jan. Dec. 2001

Hooja, Rakesh and B. Yerram Raju (ed.) 1993 Decentralised Planning in a Multilevel Framework, Rawat, Jaipur.

Institute of Social Sciences 2000 Status of Panchayati Raj in the States and Union Territories of India 2000, Concept, New Delhi.

Jha, S.N., and P.C. Mathur (ed) 1999 Decentralization and Local Politics Sage, New Delhi.

Journal of Rural Development 1997 Special Issue on Panchayati Raj (Rural Local Self-Government) Vol. 16, No, 4, Oct-Dec 1997.

Mishra, Sweta 1994, Democratic Decentralization in India: Study in Retrospect and Prospect Mittal, New Delhi

Palanithurai, G., (ed) 2002 Dynamics of New Panchayati Raj in India, Concept, New Delhi.

Rajiv Gandhi Foundation 2000 Panchayati Raj in India –Status Report 1999 , RGF, New Delhi.

Voluntary Action Network 1995 State Panchayat Acts: Critical Review, New Delhi

(b) related to PIM and Management by WUAs

Brewer, J. *et al.* 2000 Irrigation Management Transfer in India Oxford & IBH , New Delhi.

Groenfeldt, D. 1998 (and earlier editions) Handbook on Participatory Irrigation Management, The Economic Development Institute of the World Bank, Washington, D.C.

Hooja, Rakesh 1997 “Promoting Water Users Associations in Participatory Irrigation Management: Some Reflections” in Indian Journal of Public Administration, Vol. 43 No. 4, Oct-Dec. 1997

Hooja, Rakesh, 2000. “Administering Water in India in 2050 AD”. in Water and Energy International Vol. 46 No. 2 April-June 2000.

Hooja, Rakesh, 2001 (a) Multidisciplinary and Participatory Water Management for Irrigation Command Areas, IndiaNPIM Working Paper/Monograph No. 2, New Delhi.

Hooja, Rakesh 2001 (b) Guest Editorial on PIM in Water and Energy International Vol. 58, No. 2, April-June 2001.

Hooja, R. 2003(a) “Two Approaches to Participatory Irrigation Management: Reforming Irrigation in India” in S.N. Mishra, A.D. Mishra and Sweta Mishra (ed) Public Governance and Decentralization , Mittal Publication, New Delhi.

Hooja, Rakesh 2003(b) “Revisiting Participatory Irrigation Management in India” in Indian Journal of Public Administration Vol.49, No. 3 September 2003.

Hooja, Rakesh, G. Pangare 2002(b)-“Participatory Irrigation Management: Issues Related to Policy, Implementation and Research” paper presented at Workshop on Policy Futures for Water Resource Management in India; From Prescription and Impact Assessment to Strategic Analysis organized at Hyderabad from 3 to 5 October 2002 by IWMI India Office, SaciWATERS and Wageningen University (being published by Workshop Organizers)

Hooja, Rakesh, G. Pangare and K.V. Raju (ed.) 2002. Users in Water Management- The Andhra Model and Its Replicability in India , Rawat Publications Jaipur

Indian Network on Participatory Irrigation Management (IndiaNPIM), 2002 Comparing PIM Legislation in Various States , IndiaNPIM Working Paper No. 11 New Delhi.

Joshi, L.K. and Rakesh Hooja (ed.) 2000. Participatory Irrigation Management: Paradigm for 21st Century (2 volumes), Rawat Publishers, Jaipur.

Maloney, C., and K.V. Raju. 1994. Managing Irrigation Together: Practice and Policy in India, Sage Publication, New Delhi.

Meinzen Dick, R. 1997. “Farmer Participation in Irrigation-20 Years of Experience and Lessons for the Future” in Irrigation and Drainage Systems Vol. II, 1997

Meinzen Dick, R., M. Mendoza, C. Sadoulet, G. Abiad Shields and A Subramanian, 1994 Sustainable Water User Associations: Lessons from a Literature Review presented at Water Resources Seminar Landsdowne, Virginia USA and reprinted in A. Subramanian, N. V. Jagannathan and R. Meinzen Dick (ed.) Users Organizations for Sustainable Water Services World Bank Technical Paper No. 354 , Washington, D.C.

Ostrom, E. 1992 Crafting Institutions for Self-governing Irrigation Systems Institute for Contemporary Studies, San Francisco, California

Oblitas K. and J.R. Peter 1999 Transferring Irrigation Management to Farmers in Andhra Pradesh World Bank Technical Paper 449, Washington DC.

Parlin, B.W., and M.W Lusk (ed.) 1991. Farmers Participation and Irrigation Organization , Westview Press, Colorado.

Prasad, Kamta 2002 Farmer Participation in Irrigation Management in India Uppal, New Delhi.