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Background Paper on

Participatory Irrigation Management

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Introduction

For the past two decades, irrigation agencies around the world have been involved in transferring some of their management roles to farmers. The process has been highly varied, but the overall trend has been quite consistent: Governments have very deliberately attempted to reduce their management roles, particularly at the very lowest ends of large systems, and have encouraged farmers to do more. The process of actually transferring specific management responsibilities from government bodies to organized groups of farmers has become known in the literature as *irrigation management transfer*, (IMT). The trend of promoting increased management involvement of farmers, either through formal management transfer or through other less formal mechanisms, has become known as *participatory irrigation management* (PIM). This paper provides an overview of both trends using the PIM nomenclature as a shorthand description of both PIM and IMT. Following a discussion of the rationale for PIM, the paper presents an overview of different expressions of PIM, identifies some issues and challenges, and offers some recommendations for future action.

1. Rationale: What is PIM and Why Is It Important?

Participatory Irrigation Management (PIM) is an approach to irrigation that emphasizes the Dublin principle of *subsidiarity*: Do as much as you can locally, and reserve government support for those levels of the irrigation system that cannot be managed effectively through local resources alone. The definition of "local management" is context-specific, depending on many factors; the division between local and non-local management is necessarily relative and dynamic. A viable water users association (WUA) in one area might be limited to a few farmers from one part of one village, but in another context, a WUA might encompass dozens of villages, thousands of farmers, and take the form of a multi-tiered business with a complement of technical staff.

PIM is more than an approach to irrigation management; it is also an approach to rural development that focuses on people: participatory rural development. A participatory approach is not the only option to development; indeed it is a rather recent trend. Nor is PIM

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the sole option for improving the performance of irrigation systems, or even irrigation institutions. Institutional reforms in the irrigation sector can include many non-participatory actions such as organizational streamlining, improving staff competence through training and capacity building, improving information flows, etc. This paper focuses attention on processes that seek to empower local communities through transferring management functions into their hands.

Why is PIM important? There are two different types of rationale for giving attention to PIM. The first is a political rationale: PIM is a major topic "in the news", and we need to understand what it's about, because in one way or another, we (irrigation policy makers and other stakeholders) will be asked to have an opinion about it. The second reason is more substantive: Participation is an important way to increase overall development and livelihood impacts from irrigation investments. There are very sound, substantive reasons for adopting a PIM approach, and there are also situations where PIM is unlikely to work. Understanding the nature of PIM can help orient new investments towards greater effectiveness and efficiency. Both levels of rationale, the political and the substantive, have their own importance, as discussed below:

Rational #1 - The Politics (and Economics) of PIM

PIM holds the promise of significant cost reductions to the government (by transferring expensive management functions to farmers), and improved water management. Farmers are more willing to pay for their irrigation service when they are in control, and the total cost recovery picture tends to improve, helping the agencies that manage the main system become financially self-sustaining, or at least minimizing their financial losses. The economics of PIM is highly attractive to international finance agencies such as the World Bank who want to ensure that irrigation loans yield adequate rates of return and provide a basis for profitable irrigated agriculture.

This message, that PIM provides a "win-win" solution to the negative feedback loop of [poor maintenance => poor water control => poor cost recovery => poor maintenance] lies at the heart of PIM's current popularity with donors and governments. The social benefits of participatory development (see below) are inconsequential in this perspective, but the economic benefits are adequate to justify enthusiasm for the PIM approach. World Bank irrigation investment projects, for example, nearly always include a "PIM component" that prescribes transfer of certain management functions to WUAs which are established expressly for this project purpose. PIM as a visible outcome or *product* has become part of mainstream irrigation thinking, while the complicated social *process* of promoting participation and stimulating establishment of WUAs receives much less attention.

Rationale #2 – The Substance of PIM

The participatory approach places greater reliance on farmers' own resources and initiative, with less reliance on outside (government) services. In a very direct sense, farmers' labor and skills substitute for technical staff of the irrigation agency who were previously in charge. The irrigation agency continues to have an important role, but the focus shifts to "upstream" services: main system management, technical regulation and guidance, training, etc. The basic concept of *subsidiarity*, that water management should be handled locally where this is possible, is consistent with a wealth of social science findings about the advantages of local decision-making and community empowerment (Cernea 1991). From a perspective of rural development and

livelihood security, strengthening local capacity for resource management is a key objective of development actions. In economic terms, PIM processes build two kinds of capital: (1) *productive capital* (better maintained irrigation infrastructure) and (2) *social capital* (new institutions such as WUAs, and strengthening of existing community-level institutions).

The success of PIM outcomes – sustainable WUAs that can manage irrigation water and infrastructure – depends on the nature of the PIM processes – establishing the enabling conditions (incentives) and organizational capacities within which WUAs can become established and flourish. However, the very popularity of PIM outcomes has created a sense of impatience about the process. In many irrigation investment projects, the attention given to PIM is very visible in the project concept, but is poorly supported in the actual implementation, and even more rarely reviewed in post-project evaluations.

2. Overview and Stock-Taking

Stakeholder participation gained popularity among some donor agencies (e.g., USAID) and governments (e.g., The Philippines) in the late 1970s and early 1980s when it was conceived as organizing groups of farmers in community-based systems, and at the lower end of large canal networks, to cooperate with each other and with the government irrigation department which operated the main system. The 1984 FAO "Expert Consultation" on *Participatory Experiences in Irrigation Water Management* outlined the desired role of farmers as follows: "The farmers...must organize themselves to deal with water scheduling, distribution, system operation and maintenance, and related issues of distribution of work, assessment and collection of farmers' contributions. The timely and efficient interaction of the organizations of water users with local authorities, irrigation agencies and agricultural extension services is another factor of major importance" (FAO 1985, p. 1). Case studies featured in the 1984 Consultation included national programs in Indonesia and the Philippines, and pilot projects in Gal Oya, Sri Lanka (Wijayarathna 1985), and Pochampad, India (Singh 1985).

While these programs were considered successful in improving maintenance, deliveries, and cost recovery, they did not attract significant interest from the major bilateral agencies such as the World Bank and ADB, or from major professional bodies such as the International Commission for Irrigation and Drainage (ICID). This complacency changed when Mexico embarked on a program to transfer management of large irrigation "modules" to the control of farmer associations which were established expressly for the purpose of accepting management responsibilities from government. These associations were large enough to allow a dramatic reduction in the professional workforce of the National Water Commission (CNA in its Spanish acronym), while providing farmers with management autonomy. Farmers elected representatives to oversee the technical staff hired by the association, who performed management functions previously handled by the CNA.

Mexico's transfer program began in 1989, the same year that the socialist paradigm was undergoing the shock of the dismantling of the Soviet Union. Assumptions about the necessary role of government in even large-scale irrigation management were called into question and PIM became part of the answer to the new question: What is the proper role of government in resource management? A new set of PIM challenges became evident in the former Soviet Republics where water user institutions were needed to take the place of dismantled central agencies and the decentralized multi-functional collectives and state farms. Major PIM programs were initiated as components of irrigation rehabilitation loans to Kazakhstan,

Uzbekistan, Azerbaijan, Tajikistan, Kyrgistan, and to the surrounding former communist countries of Bulgaria, Romania, Slovenia, and Albania. One of the models used in developing these programs was that of Turkey's PIM program, itself inspired by Mexico's experience.

While PIM was being introduced in Eastern Europe and Central Asia, PIM programs in other parts of the world, many having been initiated during the 1980s, took on a sharper focus as both donors and host country policy makers embraced PIM policies as central components of irrigation reform programs. In 1995 the Economic Development Institute of the World Bank launched an International Network on PIM (www.inpim.org) with founding country members from Egypt, Morocco, Mexico, Albania, Turkey, India, Pakistan, Nepal, China, Vietnam, and Indonesia, all countries where PIM programs were being pursued on a national level. A workshop organized in 1997 by the World Bank and IWMI to review "second generation" challenges of PIM, focused on the cases of Mexico, Colombia, Argentina, Turkey, and the Philippines (Groenfeldt and Svendsen 2000). Other important PIM programs were taking place in Tunisia, Senegal, Niger, Madagascar, Kenya, Sudan, Jordan, Lebanon, Syria, Yemen, Iran, and Sri Lanka.

Nearly every country with an irrigation sector has now adopted deliberate measures to strengthen the management role of farmers in an organized fashion. These countries include not only the recipients of development assistance, but also many OECD countries such as the USA, Canada, France, Japan, Australia, and New Zealand. The logic of PIM transcends national, cultural, and economic boundaries; it is a good idea for many reasons. However, the nature of each PIM case reflects a unique blend of local conditions and national priorities. Three general categories or levels of PIM can be distinguished:

Type 1 - Transfer of assets and management to the farmers

Type 2 - Transfer of management but not assets to the farmers

Type 3 - Strengthening farmer management capacity without management transfer

A fourth option is that of transferring assets and management not to the farmers themselves, but to a private company. Third-party privatization, in contrast to a privatization to the farmers themselves (PIM Type 1), lies outside the topic of *participatory* irrigation management, since the farmers' management role is, in principle, unchanged when there is a simple substitution of private owner in place of the public sector owner.³

Type 1 PIM - Transfer of Assets and Management to the Farmers.

The most dramatic form of PIM is the transfer not only of management functions, but the legal ownership of the irrigation facilities (canals, pumps, diversion structures, dams, reservoirs, etc.). This is a form of privatization, but directed to the farmers themselves, who become cooperative owners of the system they are using. While considered an extreme policy step, this kind of privatization actually mimics the management arrangements found in traditional, community-managed irrigation systems which have always been in the hands of the farmers who use and operate them. The case of New Zealand stands out as a rare example of this type of PIM,

³ The only examples of 3rd-party privatization, which this author is aware of, are in Chile, where in at least one system, the government has contracted with a private company to operate a reservoir, and distribute water to farmers, and in France where Ondeo (formerly Lyonnaise des Eaux) is serving in a similar capacity in one irrigation system, on a trial basis. France also offers a number of cases of public-private irrigation partnerships that have many private sector features while offering farmers the security of the public sector.

where government has removed itself from the management of all irrigation facilities, maintaining only a regulatory role. The key feature of this approach is that government forfeits any future claim to the infrastructure on the 105,000 ha of irrigated area which it formerly built, owned, and managed.

The (1990) Irrigation Scheme Act allowed the government to sell all its irrigation projects and to put an end to public involvement in irrigated agriculture. The privatization process was finalized in 1996, when irrigators became the legal owners of the irrigation projects in which they operated. The government's policy was generally favorable to irrigators. Many projects were handed over along with an initial subsidy, either because the projects were downsized, or because significant rehabilitation was required. The sale prices resulted from direct negotiations between the government and a team of irrigator representatives, where the government's objective was to quickly abandon its involvement in commercial irrigation, rather than to maximise the financial returns from the sale of assets (Farley and Simon, 1996).

Type 2 PIM - Transfer of Management but not Assets

The "standard" type of irrigation management transfer arrangements, as found in Mexico, Turkey, Andhra Pradesh (India), and Albania, provides for legal transfer of management roles, as well as some transfer of assets. In most cases, the management transfer is presented to farmers as an option, with the possibility of maintaining the current arrangements of agency-management if that is the desire of the farmers. However, since the PIM option always comes with incentives to attract the interest of the farmers (e.g., promises of rehabilitation, more assured water supply, etc) it is only very unusual cases where farmers refuse to participate in the program. More common than outright refusal is the inability to organize locally to take advantage of the PIM program.

An exception to "optional" PIM has been the reforms introduced in Andhra Pradesh in 1997. The new law enacted to support establishment of WUAs (the Farmer Managed Irrigation Act) created a new boundary between the management authority of the WUAs and the state Irrigation Department. According to the new law, the Irrigation Department is no longer authorized to finance maintenance of the canal network that lies within the jurisdiction of the WUA (typically having a command area of about 500 hectares). Farmers do not have a choice about becoming a member of the WUA or accepting responsibilities for irrigation O&M of their secondary canal, just as those same farmers do not have a choice about being residents of their communities. They may choose to participate or not participate in the decisions of the WUA, but they cannot ask the government to intervene in making those decisions, or provide the financing for O&M. In practice, there is a great deal of government support to the WUAs to help them undertake their new level of management, as discussed below.

Four examples of "Type 2" PIM are presented in this section, to illustrate the range of approaches being taken to transfer management to farmers, while retaining government control of the infrastructure itself: (1) The case of Mexico is discussed first. Here the government promoted the establishment of new organizations -- water user associations (*modulos*) -- to which irrigation management below the main system level could be transferred. (2) The second case is that of Turkey where a similar process was followed. The important difference between the approaches in Turkey and Mexico was that the water user associations created in Turkey were based on existing local government structures. Typically the WUA president is also the mayor of a town within the irrigation area, and the WUA becomes almost a branch of local

government administration. (3) The third case is that of Andhra Pradesh, India, where, as noted above, WUAs have been created by law, and every irrigation system is now managed either wholly (for small systems) or in the lower reaches (for large systems) by the WUAs. Because the transfer is not voluntary, the support functions of the state become especially critical to the overall success of the program. There is no option for a problematic system reverting to direct management by the Irrigation Department. (4) Finally, a fourth case is from the USA, the Columbia River Irrigation System, which is almost a case of "Type 1" PIM except that the infrastructure is not turned over to farmers. The WUA is responsible for all O&M from the headworks on down, but the government retains ownership of the water control structures, and ultimate responsibility for implementing necessary rehabilitation or replacement.

PIM in Mexico

By the end of February 2000 Mexico's IMT⁴ program had transferred irrigation infrastructure commanding 3.2 million hectares to 474,000 water users organized into 427 Civil Associations (*Modulos*). The area represents 95 percent of the intended target. Of the 82 irrigation districts in the country, 72 districts have undergone total transfer, 7 districts have undergone partial transfer, and 3 irrigation districts are still pending. The program has also resulted in the creation of 10 umbrella organizations grouping some of the *modulos* into larger entities (Garces-Restrepo2001). At the national level, the Association of Water Users Associations (ANUR, its Spanish acronym) provides training support to its members, partly replacing agency-led training efforts.

The new institutional arrangements require the WUAs to provide many support services previously handled by the government, such as legal procedures, provision of agricultural inputs, agricultural extension and financial management and training. The cost of O&M and administration of the transferred systems in 2000 was reported to be in the order of 1.3 billion pesos (roughly US\$ 139.78 Million at April 2000 exchange rate); this amounts to US\$ 43/ha. Of this amount, the farmers contribute 72% and the GOM the remaining 28%. Prior to transfer the payments percentages were almost reversed, with the GOM contributing 85% and users only 15%. Thus, the IMT has produced a dramatic impact in bringing down government public expenditures in support of irrigation districts. Cost-savings to government is also tied to staff reductions. By the end of 1994 when about 75 percent of the total area to be transferred under the program had been turned over, agency staff numbers had reduced from 7,808 prior to transfer, to 2,134.

Has O&M improved? Inadequate maintenance of the infrastructure was a major motivating factor in the transfer program, as the irrigation facilities were in danger of becoming unusable. Following transfer, maintenance continues to pose problems for the WUAs, primarily due to difficulty in collecting enough revenue from members and because of prior neglect of the lower end of the system prior to transfer. Farmers, however, appear satisfied with the results of transfer. A 1997 study shows a widespread perception by farmers that water management improved after transfer (Palacios 2000). Research and field-based oriented studies carried on by the International Water Management Institute found modest improvements in the quality of water services after transfer. Perhaps more importantly, the studies indicate there has been no deterioration of the O&M service since transfer.

⁴The term "IMT" is used in the Mexico example, because this is a direct translation of the Spanish term, *transferencia*. Elsewhere in this paper the term *PIM* is used to refer generally to processes of both IMT and PIM.

PIM in Turkey

In the early 1990s, Turkey began a concerted program of converting its department-run irrigation systems into locally-operated ones. Today, more than 80 percent of the large-scale irrigation in the country is managed by locally-controlled irrigation districts. The transfer was initiated by DSI, the Turkish national water resources agency, inspired by experience in Mexico and elsewhere. The primary driver for the change was labor costs which spiraled out of control in the late 1980s and early 1990, starving the agency of funds to maintain irrigation and drainage facilities. Transferring management to local control was seen as a way of containing these costs by devolving responsibility for employing staff (Svendsen 2001).

Turkish irrigation districts represent a variation on the standard model in that they are actually associations of relevant local governments rather than unions of farmers. However, because irrigated agriculture is a central feature of village life in affected areas, and because local leadership is directly elected by voters, many of whom are farmers, there are generally effective accountability links between irrigation district governance and the farmer clients of the systems. Systems are governed by a five-member executive committee elected by a general assembly of around fifty, comprising local government officials and some farmer representatives. Day-to-day management is in the hands of a technically trained manager and small staff, hired by the executive committee.

What is transferred: Under the transfer agreement, the WUA becomes responsible for providing, and financing, all O&M services within the irrigation system. Ownership of facilities is not transferred and remains with the state. Likewise because of the loosely-defined character of Turkish water rights, there is no transfer of any formal right to use water to the WUA. DSI local offices are given freedom to be flexible in reaching agreements with the WUAs regarding the amount of support that DSI will provide at different stages in the transfer process. DSI retains responsibility for operating and maintaining reservoirs and main canal facilities for most schemes. It coordinates with local WUAs on annual delivery schedules, but has ultimate control of bulk water deliveries by virtue of its control over reservoir operations. Presently no bulk water charges are levied by DSI for these services. DSI also retains *de facto* responsibility for cleaning main drains and for operating any drainage pumping stations required for disposing of drainage water. Transfer agreements between DSI and the WUAs call for joint annual inspections of facilities, and permission from DSI is required to modify or expand canals or other DSI facilities being operated and maintained by the WUA. One important unresolved issue is the financing of future rehabilitation work.

Results of Transfer: Staffing intensity on IA-managed schemes is only 56% of that prevailing when DSI was the sole managing entity, showing strong gains in operational efficiency from the transfer program. For DSI, the transfer program has resulted in significant declines in its own O&M staff levels, principally affecting unionized skilled and unskilled labor. The WUAs are currently charging about US\$78 per hectare in irrigation fees, which is 13% less than DSI charges farmers on the schemes which it still controls; however, the WUA collection rate is far higher. In 1999, WUAs succeeded in collecting 79% of the amounts due to them from water users, while DSI collected only 43% of its collectibles. Per hectare operating costs on the schemes still managed by DSI are roughly double those on IA-managed schemes. Maintenance quality on WUA-managed schemes is largely unknown; per hectare expenditure levels and the inherent incentives which promote maintenance deferral suggest the need for a program of regular maintenance monitoring by DSI (Svendsen 2001).

PIM in Andhra Pradesh, India

Andhra Pradesh is the fifth largest state in India, with a population of 73 million and nearly 5 million ha of irrigated lands. Faced with the familiar problems of deteriorating infrastructure, poor irrigation performance, low cost recovery, and increasing expenses, the government initiated a series of reforms, including: (1) Three-fold increase in water charges from 1996/97 season, (2) Passing of the Andhra Pradesh Farmers' Managed Irrigation Systems Act (APFMIS) in 1997; and (3) Creation of WUAs (as discussed below) with a capacity-building campaign. The objective was to build local organizations rapidly, from the WUAs at the minor canal level to federated WUAs at the secondary canal level, and later project (or scheme) level. The ultimate objective was to develop self-financing and autonomous irrigation schemes managed by WUAs. It was planned that there would be a farmers' apex committee at the state level, to integrate the network of WUAs into a forum for state-wide decision making. The short-term objective was that WUAs and the Irrigation Department should become financially autonomous for revenue generation for O&M. New investment would continue to be financed partly by the government, but with users or prospective users contributing through cost-sharing arrangements.

In accordance with the terms of the 1997 law, more than 10,000 WUAs were created in a state-wide election process that same year. The WUAs vary in size between 200 and 3,000 hectares. The elected presidents of WUAs form a higher-level Distributory Committee (DC) at the secondary canal level. Since the formation of WUAs, the emphasis of government support has been on large meetings and consultations with WUA presidents, training courses, short workshops and dealing with the WUA presidents as the chief contact person of the WUA. The WUAs have become influential, and farmers now go to the WUA president for concerns about water allocation, and not to Irrigation Department staff. At the same time, there is a growing sense of competition with some village governments (*panchayats*) which feel that it could have handled water management since farmers often belong to the same village (Raju 2001).

Results of the Transfer. Since adoption of the APFMIS Act of 1997, significant government finances have been passed through the WUAs as management subsidies and maintenance contracts. Users have identified and executed the works. Benefits are accrued in a short time and are distinctly visible. WUAs appear very satisfied with the process and results of the new participatory arrangements for maintenance and repairs. The high level of public awareness about the reform program has raised the aspirations of water users and has put pressure on WUA leaders and Irrigation Department staff to perform at a high standard. According to one senior-level irrigation department officer, the major achievements of the reform program are: a) water now reaches the tail ends of canals, often for the first time, b) WUAs are taking care of all O&M at the minor canal level, and c) the Irrigation Department is relieved from having to deal with routine O&M problems.

PIM in the United States: *The Columbia Basin Project*⁵

The Columbia Basin Project (CBP) is a large multi-purpose, reservoir-based project located on the Columbia River in the state of Washington in the USA. The irrigated area is about 230,000 hectares, which is divided into three districts. All water used by the irrigation system must be lifted 85 meters, from which point it is distributed to the command area, largely by gravity flow. Today, each farmer-controlled district consists of 2,000 to 2,500 landowners and is controlled by

⁵Based on the paper,

a five- to seven-person board elected from among the water users. Seventy-four percent of all landholders have less than 160 acres of irrigated land in the project. Districts purchase water from the US Bureau of Reclamation and then resell it to their members.

For over five years the districts negotiated with the Bureau over water and cost allocation and which works should be reserved by the Bureau, managed jointly between districts, and transferred to individual districts. After coming to agreement in 1969, the Bureau transferred management of the system to three farmer-governed irrigation districts. Farmers generally favored the transfer of management. Their primary interests were in obtaining more local control over water allocation, water fee structures, O&M expenditures, and drainage ways and in minimizing water charges. The Bureau's main interest was in shedding responsibility for delivering water to individual farms and handling special water sales. It preferred to focus mainly on construction and regulation of water and land use at the basin level. Full responsibility for managing the main and subsidiary canal network was transferred to the three districts. This also included responsibility to fully finance the cost of O&M and develop a capital replacement fund to pay for all future costs of rehabilitation. Farmers pay a 30% surcharge over the routine O&M fee to build up this fund (Vermillion 1997).

The districts have the status of semi-municipal corporations, legally constituted by the state government for the purpose of irrigation and drainage. They are tax-exempt, not-for-profit entities constituted by the water users. A formal water right is granted to each district by a concession from the state government. The right is divided into basic allotments for water users, measured in volume of water per unit of land per season. The districts have the powers to make their own rules and sanctions (subject to environmental policy and general regulatory constraints), plan and implement O&M, set budgets and water charges, hire and fire staff and apply very strong sanctions. Since transfer the districts have seized and resold more than 20 farms because of failure of owners to pay the water charge. Water is not delivered if water charge payments are in arrears. The districts can raise sideline revenue to help contain inflation of water charges. This includes the right to sell excess water to users outside the district. The districts agreed that the Bureau should retain ownership of system infrastructure, because they wanted to avoid liabilities attached to ownership. The Bureau has the right to take over management of the system again if the districts should fall behind in their agreed repayment schedule for construction, fail to pay the agreed costs of O&M for the works retained for management by the Bureau, or fail to properly maintain the system. The Bureau conducts technical audits every three years to ascertain whether the districts are maintaining agreed performance standards. The districts are obligated to comply with recommendations for essential and important preventive maintenance.

PIM in Japan

For more than 50 years, irrigation improvements in Japan have been implemented through water user associations established to help finance, operate, and manage the new facilities. There is no transfer of management, because the management is under the control of the association from the very beginning. The associations, called Land Improvement Districts (LIDs) are formed upon request from at least 15 farmers, who request an improvement to their irrigation. The request could be for a new irrigation diversion, improvements to an existing system, or the linkage of several existing system under a new diversion weir (a typical case). As part of their request, the farmers must agree to organize into a LID which is a legal body defined by a special law (in 1949). The LID agrees to pay a negotiable portion of the capital cost, and the full costs

of subsequent O&M. The LID share of rehabilitation costs is normally 50%. Today there are 7,700 LIDs controlling 3.2 million hectares and comprising 4.5 million members. The average size, which varies considerably, is 400 hectares and 600 persons. Most headworks and main canals, and all secondary systems, are managed by LIDs through a small technical staff, hired by the LID itself.

While the government provides no subsidies for O&M, LID budgets often depend in part on municipalities and private businesses who have an interest in assured water supply, e.g., in cases where municipal water is conveyed through LID infrastructure. Nearly half the country's total fresh water passes through LID-managed control structures. The LID arrangement is an institutionalized part of Japan's water management system, working closely with the Ministry of Construction as well as the Ministry of Agriculture, Forestry and Fisheries, and with local government bodies.

Type 3 PIM - Capacity Building Without Management Transfer

In many PIM reform efforts, the outcome, whether intentional or not, has been more one of capacity building and improved farmer participation in joint-management (with the agency), rather than genuine transfer to farmer control. This type of approach, based largely on the experience of the Philippines, takes a participatory development model as the paradigm. With the important exception of Andhra Pradesh (see above), this participatory approach can be referred to as the "Asian" approach to institutional reform in the irrigation sector, in contrast to the "American" approach based on IMT of the Mexican variety.

Since the early 1980s, the Philippine program has had an objective of full management transfer to WUAs at the secondary canal level (lateral canals), yet today less than 5% of these canal networks have been transferred. Is this a failure? There have been many changes in the way irrigation is managed in the Philippines, as a result of the "participatory approach" and a great deal of training and capacity building for agency staff and farmers. The results of such inputs cannot be measured simply by whether management contracts have been signed with WUAs or not. In this section we examine two examples of PIM that have resulted in significant positive change in the way irrigation is managed, but with little transfer of management responsibility.

PIM in the Philippines

When the National Irrigation Administration (NIA) was restructured in 1974, the goal was that NIA would become completely self-financed. The formation of irrigator associations (IAs), and the progressive devolution of functions became NIA strategies to balance costs and revenues. It was also anticipated that improved communication between NIA and the cultivators through the formally organized IA would result in (1) a better planned cropping calendar and sharing of water among farmers; (2) increased irrigated area; and (3) increased cropping intensity, which would then increase the willingness of irrigators to pay their irrigation service fees. Increased contact and communication between NIA and IA would lead to better system maintenance at the tertiary level, and subsequently, the contracting of IAs for O&M at the secondary level; and finally, the federating of IAs would lead to system turnover at the lateral (secondary system).

The focus on the PIM activities in the Philippines has been on formation of IAs at the level of secondary canals (laterals) varying between 75 to 1100 ha and from 40 to 850 farmer members. NIA, with initial support from the Ford Foundation, pioneered the use of social organizers in

forming IAs, and implemented a series of training programs for both farmers and NIA staff about the new arrangements of jointly managed irrigation systems. The innovative work of NIA in opening management to farmer involvement received attention from social scientists at the time, as documented in two publications from 1988. A field study of reforms in large-scale (national) systems, conducted by the Institute of Philippine Culture, was published under the title, "Partnership in Irrigation: Farmers and Government in Agency-Managed Systems."⁶ A second study reported on changes within NIA and was entitled, "Transforming a Bureaucracy: The Experience of the Philippine National Irrigation Administration."⁷ The paradigm of these studies, and of NIA's approach, was one of participatory management involving agency staff and farmers (organized into IAs) as joint managers of the irrigation systems. The contracts between the IAs and NIA were not seen as a "transfer" of management, but as a mechanism for clarifying their respective roles so they could manage the system in partnership.

Currently⁸ the formation of IAs is nearly complete. In 90% of cases there is one IA per lateral (distributary). The main functions of the IA are collecting irrigation service fees, and cleaning/maintaining the canals under a maintenance contract agreement with NIA. The IA receives a rebate as an incentive for the collection of fees. Currently, 15,20 IAs covering 456,536 ha have contracts with NIA for O&M and/or collection of irrigation service fees. As a result of the increased management role of farmers, NIA staffing in large national irrigation systems dropped from 5,660 to the 4785 (15% reduction) from 1992 to 1996 primarily from the replacement of ditch tenders upon retirement and the takeover of their functions by contracted IAs (Raby 2000).

Despite the increased rate of fee collection and the greater involvement of the IA in canal maintenance activities, however, the sustainability of the management arrangements is in doubt. A report by the Institutional Development Department of NIA states that approximately "10% of the IAs are very functional; 50% are moderately functional and 40% not functional". At the same time, international attention on irrigation reforms has shifted elsewhere, to the more dramatic cases of management transfer such as Mexico and Turkey, as discussed above.

PIM in Sri Lanka

In 1988, after a decade of pilot programs inspired by the Philippines experience, the government of Sri Lanka adopted a national policy of participatory irrigation management. The new program called for transfer of operation and maintenance of minor irrigation schemes and distributary canals of medium and major schemes to farmer organizations. The devolution of responsibilities did not include transfer of full control by farmer organizations over O&M plans or budgets, water charges or staff. Farmer organizations must obtain approval from the Irrigation Department before making special repairs other than weeding or desilting. All irrigation schemes greater than 80 ha would remain the property of the government. The Department of Agrarian Services exercises regulatory control over farmer organizations, including regulating elections, auditing accounts, and approving business transactions.

⁶by Sylvia Ma. G. Jopillo ad Romana de los Reyes, published by Institute of Philippine Culture, Quezon City, 1988.

⁷Edited by Frances Kortzen and Roberty Siy, published by Kumarian Press, Hartford, CT (USA), 1988.

⁸The research on which this report is based was conducted in 1996 and reported in Raby (2000). Unfortunately there has been little analysis since then, in spite of the historical importance of the Philippines in PIM reform efforts.

Farmer organizations have a mandate for O&M in distributary (secondary) canals, but under the approval of the Irrigation Department. Field channel (tertiary canal) groups of about 15 to 20 farmers were formed. Each group nominates a representative to the distributary (secondary) canal organization which is a legal entity registered with the Department of Agrarian Services. In some schemes, these distributary canal organizations are federated to the level of the entire scheme, but this ultimate body is not recognized as a legal entity. Government field operations staff generally remain assigned to the schemes after transfer and function under supervision of the Irrigation Department. The government continues to provide partial funds for maintenance and assumes responsibility for future rehabilitation. Government funds for maintenance are generally channeled through the farmer organizations as service contracts (Samad and Vermillion 1999).

Impact of the PIM Program. No significant changes in operational procedures were made following the PIM program; decisions about planting dates and irrigation scheduling are still taken in pre-season cultivation meeting attended by farmer representatives and officials of the irrigation and agriculture departments, the same as before transfer. Irrigation Department staffing is also generally unchanged, despite the turnover of the distributary and field channel networks to farmer organizations. However, farmer leaders interviewed agreed that the establishment of farmer organizations improved communication between farmers and the irrigation department and that agency staff were more sensitive to their concerns than before. Government spending on O&M has been significantly reduced after transfer, as a result of the cheaper maintenance contracts with farmers. Little of this cost is recovered from farmers, however. Cost recovery in transferred schemes remains very minimal and the cost of irrigation to farmers has remained the same as before transfer (Samad and Vermillion 1999).

In short, management turnover of distributary canals in Sri Lanka includes only weak legal status for the WUA, no binding agreements between the agency, WUA and farmers, continuity of government staff in the scheme and a continuing supervisory and financial role for the government in O&M and rehabilitation. The modest reforms have produced no significant improvements in total cost efficiency, quality of O&M or agricultural or economic productivity of irrigated agriculture.

Is PIM a failure in Sri Lanka? Or do the benefits not show up through conventional quantitative evaluations of impact? It would be interesting to survey farmer opinion about their perceptions and levels of satisfaction, as was done in Mexico (see above). There also the production benefits from the management transfer program could not be clearly documented, and the conclusion drawn was merely that the post-transfer management was not noticeably better or worse than pre-transfer management, there were significant cost savings to government.

Conclusions on Types of PIM:

The variety of PIM outcomes reflects a diversity of objectives and emphasis (e.g., management transfer in Mexico vs. joint management in the Philippines), as well as success and failure in meeting those objectives. The cases presented above can be considered successful, since their objectives have been substantially realized. Many more examples could be cited of PIM programs that failed to meet their primary objectives, yet have had some impact on the way irrigation is managed, and on the respective management roles of farmers and the irrigation agency. For example, the PIM programs undertaken during the late 1990s in several Indian states (Orissa, Tamil Nadu, and Haryana) as a condition of World Bank loans, are disappointing

in terms of the management functions actually transferred to farmers, yet there have been important positive outcomes: Newly established WUAs facilitate farmer cooperation in irrigation management, and agency staff have developed a new and more constructive working relationship with farmers through these new organizations. While the aim of these programs was to transfer management to farmers (as in Mexico) the actual result has been more of a "joint management" along the Philippines model.

3. Key Issues

All three types of PIM outlined above offer clear potential benefits to both farmers and irrigation agencies. The former popularity of Type 3 PIM (joint management) has been largely replaced by the current vogue of Type 2 approaches (management transfer). Type 1 PIM (New Zealand) remains the exception for reasons of farmers' capacity to take over full ownership, and government's unwillingness to relinquish that control. The option of privatization to 3rd party ownership is also a rarity (Chile, France) but an important dimension of the general trend of increased involvement of the private sector in water management. This section identifies two policy issues arising from the experience of PIM reforms over the past two decades.

Are there not more than two Key issues? It seems that every conference on IMT or PIM produces a long list of issues that need to be addressed for more successful projects in the future.⁹ Many of these issues can be addressed more effectively if two fundamental questions are considered at the outset of the PIM program: (1) What are we trying to do? and (2) How can we do it? The second question provides a check on the first; if no realistic strategy can be devised, then the objectives might need to be modified.

Issue #1. Clarity of Objectives

PIM reforms have mixed and often hidden objectives that need to be debated and clarified prior to the implementation process. What are the rural development objectives that PIM reforms are trying to meet? If the objective is primarily to minimize recurrent costs to government from irrigation O&M, then a reasonable PIM approach might emphasize management transfer without too much concern about the nature of the group to whom management is being passed. Are women represented? Do the poor have a voice? These are questions of limited concern in terms of implementing management transfer. Leadership of the WUA by the wealthiest farmers is acceptable if they can manage the irrigation system successfully. However, if "pro-poor" rural development is an objective along with cost savings and improved productivity (and most PIM programs reflect a similar mix of objectives), then transferring management to the WUA is only one step in a larger process. Ensuring that the WUA meets the interests of all segments of stakeholders becomes an important dimension of the PIM program. Building the capacity of the WUA members to meet their irrigation management obligations becomes integrated with broader objectives of building social capital through the process of forming the WUA. PIM becomes

⁹ A very comprehensive set of issues relating to IMT is found in the Overview Paper for the FAO-INPIM E-Mail Conference on Irrigation Management Transfer. The paper is available on the FAO website: <http://www.fao.org/ag/AGL/aglw/waterinstitutions/overview.stm>. Another source of current PIM issues is found in the keynote paper from the 6th Seminar on PIM organized by INPIM in Beijing, April 2002. That paper, "Options for Institutional Reform in the Irrigation Sector" (by S. Johnson, S. Svendsen, and F. Gonzalez) proposes eight "guidelines" for designing effective reforms. The paper is available on the INPIM website at www.inpim.org.

not only a means of improving overall irrigation system performance, but also a path to social development and capacity building.

Issue #2. Matching PIM Objectives with the Right Inputs

PIM reform efforts usually under-estimate the investments needed to realize the desired objectives. What kinds of inputs are required to transfer management in a manner that is both economically efficient and socially empowering to all segments of the local communities? The basic steps to implementing a PIM approach are well understood, based on a wealth of experience from around the world (Vermillion and Sagardoy 1999). These steps include:

- Building consensus and support for PIM among both farmers and agency staff;
- Reorienting irrigation agencies in attitude, skills, and structure;
- Organizing and capacity-building among farmers to help establish WUAs;
- Establishing supporting policies and legal frameworks;

These steps are well known, but are inconvenient to follow; they are complicated, slow, and expensive. Many externally financed PIM programs give strong emphasis to the last item (establishing supporting policies and legal frameworks) but try to cut corners in working with both farmers and agency staff to build the needed capacity for a viable program. The results are "paper" WUAs that lack both legitimacy and capacity, are controlled by the strong-men of the community, and are neither willing nor able to replace the management functions of the irrigation agency. This is the inherent danger of Type 2 PIM approaches. The danger of Type 3 approaches is that they focus too much on capacity building and remain hesitant to transfer real management functions to the WUAs that have been so painstakingly established.

4. Recommendations

The principles of participatory irrigation management offer tremendous potential for improving the lives of farm families, while saving the government scarce funds that are needed for other development priorities. PIM offers an important vehicle for “leveraging” rural development and making the whole process of social and economic development more effective. What needs to be done to realize more of the potential benefits of PIM?

- ***Broaden the policy debate on PIM to include other sectors of government and civil society.*** The management arrangements through which irrigation facilities are designed, financed, operated, and maintained have very important implications for rural development equity and opportunity among the diverse stakeholders of irrigated agriculture. Irrigation is not just about water and engineering, nor is it just about agriculture. Irrigation systems have far-reaching impact on the lives of farm families, and what is even more important to consider is the potential ways that irrigation systems can have a greater impact on rural livelihoods. The importance of participation to rural capacity building and community empowerment was not even imagined in the last generation of conventional irrigation projects. The objective of those projects was food production, and the government assumed management control because that appeared to be the only way to get the job done. Experience over the past two decades (and more) has shown that not only CAN farmers handle a great many management functions, but also that there are many kinds of benefits to greater participation: better management of the water and infrastructure (in many cases), the development of new skills and capacities among the individuals involved, and establishing new kinds of institutions (WUAs) that

enrich the development potential of rural areas. Just as the message of the 2nd World Water Forum was "Making water everybody's business," the recommendation for irrigation policy today should be to "make irrigation management everybody's business". The result would be policies that contribute *to* and are integrated *with* broad rural development objectives.

- ***Treat "participation" as a serious objective of irrigation development.*** While PIM has received generous lip-service and rhetorical support from nearly all the the key actors in irrigation development – donors, government agencies, consulting firms, NGOs, etc – the follow-up to this rhetoric needs to be strengthened. The problem is not a lack of sincerity about PIM so much as a lack of understanding about what is involved in shifting to a genuinely *participatory* mode of irrigation management. The root problem to this situation is traced to the narrow field of debate within the professional irrigation community. Specialists in social development, NGOs, and representatives of the farming community need to have much greater roles in setting irrigation policies and designing as well as implementing the PIM components of irrigation projects. These are the people who will ensure that the participatory objectives – which everyone can agree on – are matched by the right processes (awareness campaigns, trained organizers, well crafted laws, training for agency staff, reforms to the policies and structure of the irrigation agency, etc) to meet those objectives.
- ***Learn from experience.*** There is an urgent need for new ideas, information sharing, discussion, and debate about both the process of implementing PIM reforms, and new approaches to PIM so that hard-won experience can be shared and incorporated into new programs. Nearly every country is involved in some type of PIM reform efforts and there is a wealth of experience to explore, but we are still "information poor" regarding the results (and even the process) of PIM efforts. Recent initiatives to share experience, such as the FAO-INPIM E-mail Conference (FAO 2001) and the 6th International Seminar on PIM held in Beijing in 2002¹⁰ have been extremely valuable, but the PIM information base continues to be disappointingly small given the scale of irrigation investments. The International Water Management Institute (IWMI) ended its research program on irrigation management transfer several years ago. Donors and national agencies are reluctant to critically monitor and evaluate implementation of PIM programs which rarely work out as planned. Given the high level of investments in PIM-related irrigation reforms, it is irresponsible to give so little attention to evaluation and learning that could be applied to new programs. New PIM programs needlessly repeat the mistakes of the past, at great – but unaccounted – costs to both borrowers and lending agencies.

The PIM of tomorrow will not look like the PIM of today or yesterday. The context of agriculture is changing, and the nature of PIM will reflect these changes. New roles for the private sector can be anticipated through the as yet undocumented experience of Chile and France. The increasing availability of technologies that intensively control water application (e.g., variants of drip and sprinkler technologies) will relax the need for group management of the irrigation system, but may enhance the need for other types of cooperation, e.g., to ensure the sustainability of the water resource at the catchment level. As the number of part-time farmers increases (taking Japan as an illustration of this trend), the nature of farmers' management

¹⁰ The presentations made at the 6th Seminar in Beijing are available on the INPIM website, www.inpim.org.

participation will shift to more indirect modes of involvement in the irrigation service. Professional managers will do the work, and participation will come to mean the involvement of farmers in holding those managers accountable to farmers' interests (as in Mexico's transferred systems). As the nature of irrigated agriculture changes, there will be new opportunities for participation and new challenges in negotiating roles among farmers, system managers, and other indirect stakeholders.

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