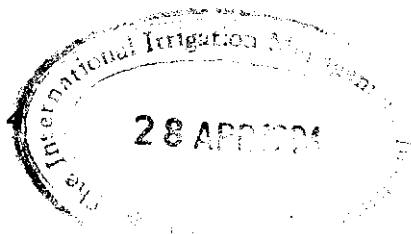


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Short Report Series
on
Locally Managed Irrigation*

Report No. 4



IRRIGATION MANAGEMENT TURNOVER
IN THE PHILIPPINES:
STRATEGY OF THE
NATIONAL IRRIGATION ADMINISTRATION

C.M. Wijayaratra and Douglas L. Vermillion

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Local Management Program

INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE

* (Formerly entitled, "Short Report Series on Irrigation Management Transfer")

Purpose of the Series

The *Short Report Series on Locally Managed Irrigation* is designed to disseminate concise information on the role of local management in irrigation and irrigation management transfer or turnover experiences and policies. The Series is distributed worldwide to a broad range of people—policymakers, planners, researchers, donors and officials in both public and nongovernmental organizations—who are concerned with the irrigated agriculture sector. The goal of the International Irrigation Management Institute (IIMI) is not to promote policies such as irrigation management transfer, but to enhance the knowledge base available to decision makers and advisors as they face questions of policy adoption and strategies for implementation.

The title of the Series was recently revised due to suggestions from Network members who saw the need to broaden the scope of the Series to also include issues of the sustainability of locally managed irrigation and support systems.

Locally managed irrigation can be of many types, such as traditional farmer-constructed diversion or tank schemes, indigenous and often new lift irrigation, government-constructed but farmer-managed irrigation systems and systems where management is or has been transferred from an outside agency to a local user organization.

By “irrigation management transfer” we mean some degree of transfer of responsibility and authority for irrigation management from the government to farmer groups or other nongovernmental entities. This generally involves contraction of the role of the state and expansion of the role of the private sector and water users in irrigation management. In other words, there is a shifting upstream of the point where management responsibility and control of the water supply is transferred from the irrigation authority to local management. This may involve changes in policies, procedures, practices and the performance of irrigated agriculture. It may or may not involve “privatization” of ownership of the assets of the irrigation system. The *Short Report Series* addresses questions such as the following:

What are the necessary conditions which support viable locally managed irrigation?

What socio-technical conditions, institutional arrangements and change processes lead to sustainable locally managed irrigation?

What is the range of different models that are being applied worldwide for turnover or transfer of responsibility for local management for recently developed irrigation?

What are the effects of management transfer on the productivity, profitability, financial viability, equity, efficiency and sustainability of irrigated agriculture?

What are the perspectives of farmers, managers, policymakers, urban consumers and other stakeholders in irrigated agriculture about irrigation management transfer?

What adjustments in government may be needed as a result of turnover to provide support to locally managed irrigation systems and to improve productivity in the public sector?

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Dr. Douglas Vermillion or Dr. Sam H. Johnson III,
Program on Local Management, IIMI,
PO Box 2075, Colombo, Sri Lanka.
Fax: 94-1-866854; Telex: 22318/22907 IIMIHQ CE;
E-Mail: IIMI 157:CGI129; Telephone: 94-1-867404.

Editors' Note

Numerous countries around the world are attempting to formulate policies or implement programs to transfer management for irrigation systems from government agencies to local farmer organizations. The first motivation for this is often the inability of governments to finance and manage irrigation by themselves. Upon failing to recover enough costs through irrigation fees, governments then often take the step to transfer management responsibility to farmer organizations. Management transfer normally gives rise to numerous problems and questions. How can farmers be organized and motivated to take over management of irrigation, particularly if this involves an increase in cost to the farmers? Should the process be gradual (allowing time for capable institutions to evolve) or should it be abrupt (in order to perhaps send a clearer message to farmers and civil servants)? What changes are necessary in the government agency responsible for irrigation so that its own staff will support the process and the agency change to a new and appropriate role in the future?

The Philippines is one of the earlier developing countries to begin the process of management transfer. The Philippine experience has much to offer to help answer the above questions. The move toward making the irrigation agency largely financially autonomous; the considerable effort placed upon organizing and training farmers; the gradual and flexible nature of negotiating involved; the legal status of irrigator associations; the extensive use of negotiation between the agency and individual irrigator associations; the changes made in NIA itself and the extent to which farmers have taken over management for irrigation and often improved management performance all make for a distinctive experience worthy of our careful examination.

IRRIGATION MANAGEMENT TURNOVER IN THE PHILIPPINES: STRATEGY OF THE NATIONAL IRRIGATION ADMINISTRATION

C. M. Wijayaratra and Douglas L. Vermillion¹

INTRODUCTION

The turnover of management responsibilities for irrigation systems to irrigator associations (IA) has been a primary policy objective of the National Irrigation Administration (NIA) of the Philippines since the late 1970s. Instead of treating "turnover" as a distinct program, NIA has officially treated it as an integral component of its Institutional Development Program. The goal of this program has been the development of viable associations capable of managing the operation and maintenance (O&M) of irrigation systems (either fully or for parts of systems) under formal contract with NIA.

Communal irrigation systems (CIS), constituting 47 percent of the total irrigated area in the Philippines, are generally managed by farmers. While systems vary in size, most serve less than 1,000 hectares of farmland. Traditionally communal systems are constructed and developed jointly by NIA and irrigators associations. When completed, systems are turned over to farmers. Most National Irrigation Systems (NIS) are managed jointly by NIA and irrigated associations. Upon obtaining legal status the associations can enter into contracts with NIA. They are supposed to first prove that they are capable of managing their affairs, maintaining the systems and collecting irrigation service fees (ISF).² Three types of contracts govern the NIA-IA partnership in the management of national irrigation systems. The first type entitles the association to undertake canal maintenance on a contract with NIA. The second type allows the association to collect the ISF, handle O&M work and retain a portion as agreed in the NIA-IA incentive schedule. The third type stipulates that the association both conducts O&M, collects the ISF and amortizes the cost of construction. This type of contract can be executed either for entire systems or for sections of them (such as for branch or distributary canals). NIA's official objectives are to achieve full turnover (i.e., the third type of contract) in the majority of NIS.

The objective of this paper is to document the different approaches used and identify some results observed from irrigation management turnover in the Philippines. In this paper the term "turnover" means the transfer of responsibility and authority for irrigation management from the government agency (NIA) to irrigators associations. This leads to direct

1 C.M. Wijayaratra is currently Head of the Sri Lanka Country Program. Douglas L. Vermillion is Project Leader for the Privatization and Self Management of Irrigation Project in IIMI's Local Management Program.

2 The ISF is a standard 3 cavan per ha in the wet season and 2 cavan per ha in the dry season. 1 cavan = 50 kg of rice.

control by the association over the management of at least operations and maintenance (O&M), which can be for the whole system of subsections of it.

Agriculture Approximately 40 percent of the Philippines' gross domestic product is generated by agriculture. In recent years the gross value added from this sector has increased at a rate of over three percent annually, being 3.5 percent in 1988, 4.6 percent in 1989 and 2.3 percent in 1990. Almost two-thirds of the labor force is employed in agriculture, which is characterized by extensive land use, intensive labour use, relatively low yields and low per capita incomes.

The Philippine islands are generally mountainous but with lowlands, valleys and also broad plains. The majority (about 1.5 million) of farm-holdings in the Philippines are in the one-to-three hectare (ha) range, and 60 percent of farms are not fragmented. Under the most common tenurial pattern, small family farms are cultivated by the owners. Large holdings owned by rich individuals or corporations can be found in areas of Mindanao and Luzon.

Irrigation in the Philippines Like many parts of South and South-East Asia, investment in irrigation was considered crucial to development in the Philippines. Between 1968 and 1988, irrigated area increased from 700,000 to 1.47 million ha. Today, approximately 650,000, 700,000 and 160,000 ha. are covered by large scale national systems, small-scale communal systems and pump systems, respectively. Area irrigated amounts to 20 percent of total cultivated area. The area currently under irrigation is estimated to be half the total potential and the Government is planning to increase irrigated area by 50 percent by the turn of the century. The turnover and self-management of system is considered to be a necessary part of the irrigation development strategy.

The increase in irrigated area and the use of high yielding crop varieties combined with fertilizer and other agro-chemical application and management inputs has helped increase the country's grain production substantially. Between 1968 and 1988, paddy (rice) production, grew from 2.3 million tons to 6.1 million tons. Not surprisingly, yields in irrigated areas are higher than in rainfed areas; average paddy yields are approximately 3.2 metric tons per ha in irrigated areas and 2.0 metric tons per ha in rainfed areas. However, irrigated yield levels are low in comparison with yields in other countries in East Asia.

Indigenous irrigation societies Participatory irrigation management is an approach which has received some inspiration from indigenous irrigation societies and has been promoted by the government using various institution—building techniques. Rice terraces in the mountains of Northern Luzon were first built at least 2,000 years ago. Construction and management of rice terraces have traditionally been developed and enforced by councils of elders, called *ty nibah*. No one was allowed exclusive right to water. Although those who owned the top-most terraces had priority rights (in time), they were obliged to release water so that succeeding levels also benefitted. This type of system-to-system or field-to-field water distribution is quite extensive³ today.

Spanish records mention cooperative societies called *Zanjeras* (after the Spanish term for turnout) as early as 1630. Their function was to supply and operate a reliable source of water for members, who were either landowners, tenants or a mixture of both. Sharing of labor and other costs for system construction and maintenance between members led to members

3 Paddy = individually bounded rice field / small plot.

receiving shares (called atar) of water rights in their system. The Zanjeras have survived until the present as viable local irrigation institutions.

State interventions and legal recognition of irrigation societies In 1908, the legislature passed Act 1854, which established an Irrigation Division (ID) under the Bureau of Public Works. This authorized the construction of irrigation systems in response to requests from local government units. Four years later in 1912, the legislature passed Irrigation Act (Act No.2152), authorizing the ID to manage irrigation systems it had built. It could also collect fees from water users (set at 12 pesos per hectare per year) to cover construction and O&M costs. The new law provided for the regulation of rights to public water, including water used in national, communal and private irrigation systems. The Irrigation Act formalized the concept of irrigator associations as legal bodies authorized to manage communal systems. Associations were registered under the nation's Corporation Law (Act 1459) with powers to manage irrigation systems, subject to approval by the Secretary of Public Works. Associations could also elect officials and compel members to contribute to management costs in proportion to benefits derived.

After independence in 1945, the ID was further empowered to provide construction assistance to IAs. Before providing such assistance to small scale communal systems, the ID had to ensure that the beneficiaries formed an irrigator association. Since the Division lacked an "institutional development orientation," farmers were simply given a standard set of articles of incorporation and by-laws which allowed registration with the Securities Exchange Commission (SEC). Efforts to create and strengthen the associations suffered built-in drawbacks: farmers were not consulted in system design and only a few associations could effectively manage systems; others lobbied for continued O&M subsidy.

NIA was created in 1963 with the mandate to achieve optimal and diversified utilization of water by constructing and managing irrigation projects. Initially, the agency concentrated on design and construction and minimal attention was given to participatory management. This in turn affected the quality of design and construction and over time farmers began expressing dissatisfaction with design and construction. They often refused to pay water charges due to complaints about inadequate maintenance. Destruction of NIA-built structures by farmers was not an infrequent problem.

EVOLUTION OF IRRIGATION MANAGEMENT TURNOVER

In the early 1970s, NIA was confronted with the problem of inadequate funding to support and sustain efficient O&M of "its" systems. The situation was aggravated by farmer reluctance to pay service fees and the destruction of irrigation facilities, as mentioned above. In addition, the government withdrew most of its central revenue to the NIA forcing it to become largely financially autonomous from the government. This posed a challenge to NIA's survival as a viable government agency.

In 1974, Presidential Decree 552 was issued, amending certain sections of the original NIA charter. Among other things it granted NIA power to:

charge and collect from the beneficiaries of all irrigation systems constructed by or under its administration such as may be necessary to cover the cost of operation, maintenance and insurance, and to recover the cost of construction within a reasonable period of time to the extent consistent with government policy; to recover funds or portions thereof expended for the construction and/or rehabilitation of

communal irrigation systems which funds shall accrue to a special fund for irrigation development under section 2. (Presidential Decree No.552, Sept. 11, 1974).

The decree also laid the foundation for NIA to minimize expenses by developing joint management of systems, with the associations covering the O&M needs of extensive sub-sections of systems and NIA focusing mainly on headworks and main canals. NIA's amended charter explicitly authorized the agency to delegate partial or full management of national systems to irrigators associations. For communal systems, the new policies aimed to neutralize the adverse effects of earlier approaches of government intervention in the systems which often alienated farmers from the development process.

NIA's Early Institutional Development Efforts

Institutional strengthening was officially considered a pre-requisite for the realization of NIA's objectives, especially in its need to both reduce costs and to recover them from farmers, since NIA was confronted with the problem of inadequate funding to sustain operations, a strong NIA-IA partnership was deemed necessary. Irrigation delivery requires a 24-hour service by NIA field staff, but because government workers are only paid for an 8-hour service, O&M staff had to work during prescribed hours or forfeit overtime fees. Also, as a result of a lack of funds for O&M, "inadequate functionality of systems" occurred and led to inefficient and inadequate water distribution in some systems. Foremost among the problems was the inadequate or non-participation of farmers in O&M activities. Some farmers were so dissatisfied and frustrated, they were reluctant to pay amortization and the ISF. They widely disregarded NIA's O&M policies and did not attend NIA-IA meetings in significant numbers. Farmers remained spectators rather than partners with NIA in its development efforts.

Low irrigation service and amortization fee collection efficiency was a major cause of NIA's financial predicament and posed the biggest challenge to its survival. To survive financially as an organization, and more importantly, to execute its mandate, NIA was forced to break the vicious cycle of heavily subsidized irrigation through recovering costs from farmers and encouraging farmers to take over some or all of the management of the systems. So it opted to strengthen the irrigators associations and operationalize the NIA-IA partnership concept. In the late 70s, NIA launched a program which encouraged farmer participation in all aspects of system management. The program was first piloted in the communal systems and is described briefly in the next section.

MANAGEMENT TURNOVER PROCESS⁴

Communal Irrigation Systems

In 1975, a year after the PD 552 was proclaimed, NIA entered into a contract with the Farm System Development Corporation (FSDC), an NGO, to organize farmers in communal

4 This section draws on material in Wijayaratna & Pintor, 1991.

systems. NIA concentrated on physical construction of irrigation systems⁵. In 1976, the participatory approach was launched in two communal systems in the province of Laur Nueva Eciija. Results were encouraging and NIA decided to expand the program.

NIA's CIS development and turnover program aimed at organizing water users into associations which could responsibly operate, maintain and own their irrigation systems. The program was implemented in four phases: 1) identification, investigation and selection; 2) pre-construction; 3) construction and 4) operation and maintenance. The phases were designed to prepare water users to carry out their responsibilities in O&M after turnover. There were two major components in NIA's CIS program: physical and institutional. Appendices 1 to 3 outline steps in implementing management turnover which involves physical and institutional activity. These steps are similar for communal and national systems.

Identification, investigation and selection phase During this phase NIA identifies projects for further investigation, selection and feasibility studies. Project identification is undertaken by the Provincial Irrigation Office (PIO) and the Regional Irrigation Office (RIO). During the feasibility phase, NIA's technical staff gather agro-climatic data to ascertain if water is sufficient to irrigate the potential irrigable area. A field worker describes the technical, institutional and socio-economic status of the proposed project. This profile is then used in the feasibility study and in the selection and prioritization workshop held first at the Provincial, and later at the Regional, NIA Offices. After final selection, the Regional Annual Program is prepared and submitted to NIA's Central Office for funding. It should be noted that NIA's technical personnel usually approach the barangay (village) captain to seek his and the community's assistance in the identification of a project.

Pre-construction phase During this phase, Irrigation Community Organizers, now known as Institutional Development Officers or IDOs, are hired and trained by NIA. They undergo orientation at the Provincial Irrigation Office. At this time training in group dynamics, organizational and financial management and cost "reconciliation" is given to IA officers. It is expected that this phase should normally take six to nine months. Before construction begins, NIA evaluates the IAs' capacity to take over management⁶.

Construction phase During this phase, the Project Engineer briefs both NIA and IA skilled workers while the organizers or institutional development officers mobilize the different committees to participate in construction activities. The time required for this phase depends on the extent of work to be done and availability of funds. Normally, it takes approximately one year to complete construction works in one CIS.⁷

Turnover, operation and maintenance and cost recovery According to Memorandum Circular No.22 (MC 22, series 1988), the turnover of communal systems to irrigators associations gives full responsibility for O&M to the associations. In reality, NIA continually develops and strengthens the capacity of the associations to operate and maintain systems using their own resources.

After turnover, NIA conducts system management training and workshops for the associations. This is aimed at formulating plans for O&M, including delivery of water to service areas and the proper selection of O&M personnel to implement plans. At this stage,

5 This arrangement, however, did not succeed: NIA learned that the engineering and organizing tasks must be closely integrated with each other. Consequently NIA used its own community organizers.

6 For details of major institutional and technical activities undertaken during this phase, see Appendix I).

7 For details of major institutional and technical activities under this phase, see Appendix II).

O&M policies formulated during the pre-O&M conference are during the meetings of the IA board of directors, association sections and general assemblies. Plans are implemented during the first cropping season following turnover.⁸

After two cropping seasons, institutional development officers are withdrawn from the area. In handing over the communal systems to the associations, NIA and the association decide to adopt either of two options for turnover and cost recovery. The first is the 30 percent equity participation option which could be availed by any IA, in place of the regular amortization of the chargeable cost. This may be done under the following conditions⁹ (Memorandum Circular, MC 27 s. 1991):

- 1) The IA is willing and capable of raising the equity within the construction and rehabilitation period, which is defined as the equivalent of 30 percent of chargeable costs;
- 2) The money value of the association's equity share may come from: a) the cost of labor valued at NIA rates, furnished by the association without payment from NIA; b) labor from the construction of diversion works, canals, and other works done by the association; c) the cost of construction material and supplies provided by the association; d) the cost of rights of way for canals, diversion works, structures, or access roads negotiated and acquired by the association, and e) cash contributed by the IA;
- 3) Where the association agrees to contribute a portion of members' wages and authorizes the Provincial Irrigation Office to withhold the amount from the payroll of IA members working on the project; and
- 4) If during the construction and rehabilitation period the required 30 percent equity is not met, then the IA shall be given a maximum grace period of one cropping season after project completion and turnover to raise the remaining amount.

It should be noted that at 30 percent equity, the loan is considered fully paid, hence there is a 70 percent direct subsidy on capital investment.

The second option is the amortization of chargeable costs. This option has been availed the most by the IAs. This is a long term arrangement and the association is required to invest equity of not less than 10 percent of the chargeable cost during construction and rehabilitation. The period of amortization shall not exceed fifty years. The equity participation of the association shall consist of the money value of the items mentioned under option 1.

National Irrigation Systems

In 1980, NIA piloted the Participatory Approach Program in the national irrigation systems. First named the "Irrigation Community Organization Program," it adopted the concept of fielding community organizers in irrigation systems. This pilot project yielded encouraging results such as: 1) most associations took over maintenance tasks at their level; 2) reduction of O&M costs through reduction of personnel; 3) obtaining partial or full management of

⁸ For details of activities under the turnover, operation and maintenance and cost recovery phase, see Appendix III).

⁹ Repayment can begin during project construction in the form of equity contribution, which may include labor participation, supplies, materials and cash.

irrigation systems by the associations; 4) equitable distribution of water; and 5) effective resolution of internal conflicts.

But in 1983, with NIA's policy on "viability" in force, the agency endeavored to reduce O&M costs and to search for ways to increase collection rates of the irrigation service fee (Jopillo and de los Reyes, 1988). NIA then planned to turn over O&M responsibilities to irrigators associations in national systems. As with communal systems, the irrigators associations in the nationals had to be developed before NIA could turn over O&M responsibilities. Once the associations are ready to takeover O&M, a NIA representative negotiates with the association the type of O&M contract into which the association should enter. There are three types of O&M arrangements or contracts, as follows:

- Type I the association undertakes routine maintenance works along certain lengths of the canal system, under contract with NIA;
- Type II the association undertakes operations and the collection of irrigation service fees (ISF) from members (keeping a percentage of the amount collected, if it exceeds a given amount) and;
- Type III the association assumes full O&M of systems and amortizes the required amount of construction costs.

Under Type I and Type II contracts, the associations is given incentives for their participation in O&M and ISF collection. Under Type III, the association amortizes the investment and rehabilitation costs of the whole or part of the system in not more than 50 years (MC 41, series 1990). (Data on numbers of systems under each type of contract is in Annex 1. Obligations of NIA and IAs for each type of contract are in Annex 2.)

Contracts for system turnover in the national systems are entered into on the assumption that water users are organized and duly registered with the Securities and Exchange Commission of the government. The type of contract chosen depends on association's capacity and willingness to undertake O&M responsibilities.

NIA has used various strategies in developing irrigator associations in the national systems. Under the ICOP, the agency used professional community organizers, specially hired for this purpose. After this approach proved too costly and impractical for national replication, the Farmer Irrigator Organizers Program (FIOP) was adopted. FIOP uses trained farmers as organizers. The cost of organizers is significantly lower under FIOP. Prior to FIOP the average area served by an institutional organizer was 419 ha in the communal systems and 3,991 ha in the national systems. Under the FIOP, the farmer organizers only served on the average about 175 ha but originally they were only paid a small honorarium by the government of 500 pesos per month (about US \$22). By now the honorarium has been dropped and the associations have begun paying honoraria in many locations.

Training in developing capacity of irrigator associations With the associations assuming responsibility and control for O&M, NIA (through its Institutional Development Program) recognized the necessity to provide long-term support to strengthen and sustain the capacity to the associations to manage irrigation systems. Training programs for irrigator association officers are considered major components in the institutional development effort. These training programs are provided to augment the organizational activities undertaken by community organizers. The process of developing the associations' capabilities is incremental—the activities are phased and iterative in nature and continuous as long as the association exists and chooses to participate.

Institution-building programs are provided both formally and informally. Informal training is operationalized in associations O&M planning meetings, during board of directors

meeting held to formulate association policies. The process is usually informal in the early stages of association formation and during the organizing phase. Formal training takes place once association officers have been selected and the association has gained legal recognition. A variety of training methodologies are employed to attain set goals. These methods emphasize experiential learning and include the use of lectures, group-sharing, the small group task, case analysis techniques, etc. In the implementation of the programs, NIA uses existing organizational units of the central office as well as regional, provincial and irrigation system offices. Under each office, a core group is organized to coordinate the management of training programs. Formal training for the associations includes: 1) basic leadership development; 2) financial management and 3) system management.

NIA organizational structure for institutional development and turnover Before 1986, several groups functioned within NIA to support its Institutional Development Program. In 1986, all institutional groups in both the communal and national systems were grouped into one department—the Institutional Development Department. The basic functions of the IDD are to:

- 1) Formulate policies, programs and operational guidelines for the organization and provision of assistance to the associations;
- 2) Formulate policies and procedures for preparing associations to assume O&M responsibilities or parts thereof.
- 3) Formulate guidelines for institutional development programs.
- 4) Design and conduct appropriate training programs for NIA staff in institutional development programs.
- 5) Develop guidelines for the monitoring and evaluation of institutional development programs;
- 6) Coordinate with other agencies to provide support services to users.

Present trends This section describes two important objectives of NIA's present efforts toward institutional development and turnover of irrigation systems. First, NIA plans to turn over full management for all national systems with service areas lower than 3,000 ha. to IAs or to federations of IAs. Full turnover means a complete devolution of O&M functions. According to NIA's plans, this will constitute the final phase of a 3-phase program very similar to the three types of contracts. Phase I will constitute IA development (including federating IAs). Phase II will develop joint NIA-IA management for larger systems. Turnover will be effected when the IAs or federations of IAs take over all O&M functions and NIA's role is reduced to a water "wholesaler" at the headgates. Finally, system-wide federations of irrigators associations will be established.

Secondly, since there is an interdependence between irrigation and the provision of other production-related support services, some innovative associations are currently enhancing their collective capacity to facilitate the acquisition of inputs such as fertilizer, credit and other services. Many are engaged in marketing and processing agricultural products. NIA encourages such efforts and has launched pilot projects to learn how it could support associations and federations of associations to enhance their capacity for supplying agro-support services to the farming community.

Annex I lists data on 139 National Irrigation Systems in the Philippines, by region. Data is available for 94 of these on up to what stage of management turnover the system has

progressed (Type I, II and III). Of these 54% have Type I contracts. Only 14 systems (15%) have progressed to Type III contracts, or full management turnover. The step to full turnover is apparently hampered or slowed by the problem of the disposition of NIA field operations staff in the systems. Also since NIA is largely financially autonomous, it depends to a large extent for its own funding upon the collection of the irrigation service fee. Under Type III contracts, NIA may lose some of its revenue potential. Since the fee is a standard rate across systems and since systems vary considerably in their actual O&M costs, NIA has a financial incentive to favor turnover of the more costly systems and go slower on the less costly systems.

COSTS AND OUTCOMES OF MANAGEMENT TURNOVER

NIA costs for management transfer institutional development are classified under three broad categories: 1) Salary, benefits and operational costs of organizers; 2) Cost of training; and 3) Cost of supervision. The Institutional Development Program employs three categories of staff: regular permanent staff, contractual staff and daily paid employees. Institutional development staff are on different salary rates and draw different allowances, incentives and benefits. Cost Category I includes only contractual and daily paid organizers because they undertake direct organizational work in both communal and national systems. The Farmer Irrigator Organizers (FIO) also fall into this category as they are paid a nominal monthly honorarium.

The cost of supervision includes all costs incurred in supervising organizers. Corresponding costs of supervision of FIOs include only the costs incurred at irrigation system levels. The cost of training includes the costs incurred by NIA in conducting training as described earlier. Appendix 4 summarizes the results of this exercise in 1989 prices, with data taken from Wijayaratra & Pintor (forthcoming). Annual costs of turnover institutional development in the communal systems were approximately US \$6 to \$7 per ha (for organizer, training and supervision costs). Annual costs per organizer (who served about 419 ha each) ranged from US \$2,574 to \$2,806.

In the national systems annual costs for NIA-recruited institutional organizers were between US \$2,366 and \$2,794 (who served about 3,991 ha each). Because of the relatively large service area for these organizers, the average annual cost per hectare was only between US \$0.60 to \$0.70 per ha (in 1989 peso/dollar equivalents). The cost of farmer irrigator organizers (FIO) was only about US \$440 per FIO per year. However, FIOs had much smaller average service areas (about 175 ha per FIO), so their annual cost per hectare was approximately US \$2.52. (Appendix 4) *Improvements in cost recovery* It is often said that the Institutional Development efforts of NIA have helped the agency maintain a relatively high rate of ISF collection and amortization payments with very little fluctuation. On the average NIA collects roughly half of the assessed ISF and one third of the assessed amortization charge. In 1990, the share from these sources to total NIA income was 60 percent. In 1979 it was 24 percent. ISF collection alone was 43 percent of total income in 1990. In addition to the increase in income to NIA, the turnover process has helped NIA reduce field staff in existing irrigation systems while the area covered by lower level staff has expanded. Early retirement for some staff categories is also encouraged, but not forced.

Indications of improvements in system performance The Institute of Philippine Culture (Jopillo, et al, 1988) conducted an in-depth study to assess the impact of NIA's institutional development efforts on selected aspects of system performance. Four national systems were included in the study: Bago in Western Visayas, Banurnur in Ilocos Region, Mahaba-Nasisi-

Ogsong-Hibiga (MNOG) in the Bicol Region and the Maramag in Central Mindanao. The Bago system is under a maintenance contract, Banurbur and Maramag systems are under joint management contracts, while the MNOH system is managed by farmers. Only the Banurbur, Maramag and MNOH systems will be discussed to illustrate the changes that have taken place after turnover of O&M responsibility from NIA to farmers. The findings are discussed under: 1) participation of farmers in operating the NIA-managed system before they formally operated the system, 2) organization and development of associations, 3) functions of associations after turnover, and 4) changes in system performance.

The Banurbur System was constructed by the Government. Four associations were organized and the system was turned over in 1984. The turnover brought about significant changes: the system reduced the number of management personnel, achieved O&M financial viability and improved the ISF collection rates. Farmers reported to researchers more satisfaction with irrigation services.

In 1982, before turnover, the system irrigated 850 ha and 486 ha during the wet and dry season, respectively. After turnover, this increased to 886 ha and 750 ha., respectively. The main reason identified for this expansion was the improved water distribution in the system. These improvements have been maintained under self-management. Also before joint management, canal and structure maintenance was done by NIA. This is now done by farmers. Each association is assigned specific lengths of canal to clean, with portions of the main and lateral canals assigned to different groups.

Another system under joint management is the Maramag system, built by the Bureau of Public Works. In Maramag two associations were organized and in August 1984 the associations entered into a joint management contract with NIA. As in the Banurbur system, actual area irrigated increased after the system was brought under joint management, from an average of 524 ha (for one year or an average over several years after transfer) to 719 ha in the dry season and from 638 ha to 698 ha in the wet season. Farmers were able to cultivate a third crop, mainly due to increased farmer participation in O&M. The MNOH system, in the Bicol region, is made up of four subsystems: Mahaba, Nasisi, Ogsong and Hibiga. Construction of the subsystems was funded by the government and completed in the 1960s. Currently the system is managed by six associations, organized in 1983. In 1985, the associations assumed full responsibility for management of the system.

Changes under farmer management include improvement in water use and distribution and an increase in area irrigated. During the wet season, an additional 390 ha was irrigated. 257 ha. during the dry season was served. A third paddy crop has been achieved in some associations. This study concluded that system performance improved after either joint or full farmer management. Improvements were seen in financial viability of system management, equity of water distribution, better maintained canals and fewer conflicts over irrigation water.

Farmer perceptions about management turnover This section reports briefly on the research findings conducted by IIMI and local institutions and universities in the Bicol, Western Visayas and Central Mindanao regions (see W&P; Forth; Wije & M.Ford). Indicators related to irrigator association performance were also assessed. These indicators covered such aspects as:

- * leadership and management of the associations,
- * Decision making and conflict resolution,
- * ISF collection by the associations,
- * member participation in association activities, and
- * member satisfaction with turnover.

In the Bicol region, 375 farmer respondents in 22 IAs were surveyed. In Western Visayas and Central Mindanao samples included 591 and 1,395 association members, respectively. Respondents were selected randomly from a large number of national systems and communal systems in the three regions.

Regarding farmer participation in different managerial activities, the studies revealed that 50-75 percent actively participated in voluntary work related to O&M; regularity in attendance at irrigators association meetings was 62 percent. A higher degree of participation was evident in the communal systems than in the national systems. On the average, 60 percent of farmers in communal systems participated in activities related to resource mobilization, including ISF collection and contribution of labor and materials. In the national systems, participation in resource mobilization or financing was minimal and the majority of systems are still under Types I or II contracts. In general, a group style of management was evident within most irrigators associations. Most of the respondents expressed satisfaction with associations leadership and the participatory management style.

LESSONS LEARNED

The Philippines is among the more progressive Asian countries in implementing management innovations in irrigation. However, the process of management turnover is a gradual process. The pace varies between systems, partly according to various factors such as: gradual retirement or transfer of NIA staff, actual costs and complexity of transfer of NIA staff, actual costs and complexity of managing the systems, fee collection rates, and the preparedness or willingness of farmers to take over management. In both communal and national systems, the Philippines experience offers important lessons to other countries interested in turnover and self-management. We list some of them below.

- 1) Management turnover has been implemented not as an isolated program but as an integral component of the general institutional development process in the irrigation sub-sector. It required a considerable amount of attention and resources of NIA in order to implement the change, especially in institutional development.
- 2) Institutional development was conceived not only as something for the farmers but also something which NIA needed to go through in order to be better able to adjust to the transition and to support farmer-managed irrigation after turnover.
- 3) The relative financial autonomy of NIA and the introduction of irrigation service fees have provided strong and necessary incentives for the agency to support management turnover and develop more of a partner relationship with farmers in management and support services. However, we are waiting to see whether the apparent slowness in implementing full turnover is an indication that some co-dependency has emerged in this relationship or whether the current widespread use of Type I and II contracts are leading consistently toward a gradual total turnover of management to farmers.
- 4) The problem of disposition of NIA staff appear to weaken NIA's ability and incentive to implement full turnover (i.e., Type III) expeditiously. The disposition of agency staff who are displaced by turnover should be handled well in advance of turnover through a comprehensive process of strategic planning for human resources, otherwise the staff question can become a key impediment to turnover.

- 5) The use of a standard rate for the ISF (as opposed to system-specific budget-based fees) appears to create financial disincentives for NIA to turn over less-costly systems, since retaining these systems provides more revenue for the agency. However, in this situation farmers may have more incentive to take over management. Whereas in systems which actually cost more to manage than is provided by the standard fee, NIA has more incentive to transfer the system but the farmers have less incentive to take it over. A key advantage to having system-specific ISF rates is that it reveals the actual cost of management to all parties concerned, which in turn clears the way for meaningful negotiations about locally-sustainable financing.
- 6) The principle of allowing negotiation about multiple options for turnover, such as for types of contracts and amortization arrangements, has apparently encouraged farmer support for turnover, as evidenced in the collection of irrigation fees, labor contributions and extent of functional irrigator associations.
- 7) The reliance on the irrigation service fee for the bulk of the revenues of the agency or the irrigator associations has made both kinds of organizations more accountable to serving the farmers, in order to be able to collect the fees.
- 8) Collection of the irrigation service fee could not have been done as effectively as it has been done (although it is still far from adequate) by NIA alone. The fees could only be collected through the irrigator associations and this could only be done by permitting the associations to retain substantial portions of the fee collected.
- 9) Management transfer could not have occurred without prior development of laws granting legal status to water users association and their general legal recognition. The associations were thereby enabled to raise revenues, apply sanctions and enter into contracts.
- 10) As noted above, research indicates that turnover has often led to significant improvements in system performance. Area irrigated often increases due to water savings invoked by farmers. Improvement has also been seen in the financial viability of irrigation and water use efficiency.

Appendix 1

Activities During Pre-construction Phase

The irrigation community organizer or institutional development officer has the following responsibilities during the pre-construction phase:

- 1) integrate with the community and begin social mobilization;
- 2) form or reactivate committees for pre-construction;
- 3) recruit and increase IA membership;
- 4) formulate and disseminate articles of incorporation and by-laws;
- 5) conduct meetings to form IAs and to ratify by-laws;
- 6) prepare and submit IA registration papers and water permit applications;
- 7) oversee processing of IA registration at SEC and water applications at the National Water Resources Board (NWRB);
- 8) conduct training needs assessment;
- 9) conduct training for the construction phase;
- 10) prepare first pre-construction conference and program of work and design presentation;
- 11) form and reactivate committees for construction;
- 12) formulate NIA-IA policies for construction and make arrangements for pre-construction meetings between farmers and NIA and/or contractors; and
- 13) prepare and submit certificates for project construction, final discussion and signing of memorandum of agreement.

Appendix 2

Activities During Construction Phase

Primary institutional and technical activities under the construction phase are:

- 1) evaluation of bids and awards on civil contracts;
- 2) canvassing and bidding for construction materials;
- 3) procurement and delivery of construction materials;
- 4) moving in of manpower and equipment;
- 5) construction of major irrigation facilities and canal structures;
- 6) IA and NIA organize equity generation arrangements;
- 7) after construction, NIA-IA jointly conduct an inventory of completed irrigation structures and facilities;
- 8) conduct a pre-O&M conference to reactivate the O&M committee and appoint O&M personnel;
- 9) conduct test runs to verify functionality of completed irrigation structures and facilities;
- 10) repair of defective canals and other irrigation structures and facilities by NIA;
- 11) joint preparation of final cost reconciliation and final statement of chargeable cost (FSCC); and
- 12) formulation of repayment schedule and turnover of irrigation system to the associations.

Appendix 3

Activities During the Turnover, Operation and Maintenance and Cost Recovery Phases

Activities undertaken by NIA and farmers during the turnover, operation and maintenance and cost recovery phases include the following:

- 1) implement and update system management plans;
- 2) implement and update financial management plans;
- 3) provide continuous education and training;
- 4) conduct regular IA meetings;
- 5) implement and update conflict management mechanisms;
- 6) issuance of water service bills, collecting irrigation fees and paying amortization to NIA;
- 7) monitoring and evaluation;
- 8) establishing linkages and coordinating with government and private agencies regarding O&M;
- 9) conducting annual post-evaluation and planning sessions through the association board of directors, sectoral and general assembly meetings; and
- 10) revising and amending association By-laws.

Appendix 4

Costs of Organizing Farmers

Annual Cost of Organizing Farmers per Organizer and per 100 ha (in 1989 Pesos, US dollar values in parentheses)

Cost Category	Communal Systems				National Systems					
	ICO	100 ha	IDO	100 ha	Per ICO	ICO Per 100ha	Per IDO	IDO Per 100ha	Per FIO	FIO per 100ha
1. Salaries & Benefits	57,600 (\$2504)	13740 (\$597)	52,260 (2,272)	12,480 (\$543)	57,060 (\$2,480)	1,430 (\$62)	47,220 (\$2,053)	1,190 (\$52)	6,600 (\$287)	3,740 (\$164)
2. Training (1st year)	5,120 (\$222)	1,222 (\$53)	5,120 (\$222)	128 (\$6)	5,120 (\$222)	128 (\$6)	2,855 (\$124)	1,634 (\$71)	2,855 (\$124)	1,635 (\$71)
3. Supervision*	1,824 (\$79)	588 (\$26)	1,824 (\$73)	49 (\$2)	2,076 (\$90)	52 (\$2)	2,076 (\$90)	52 (\$2)	2,076 (\$90)	52 (\$2)
TOTAL	64,544 (\$2,806)	15,550 (\$676)	59,204 (\$2,574)	13,751 (\$598)	64,256 (\$2,794)	1,610 (\$70)	54,416 (\$2,366)	1,370 (\$60)	10,127 (\$440)	5,799 (\$252)

Notes : ICO = Irrigation Community Organizer

IDO = Institutional Development Officer

IOW = Irrigation Organization Worker

Average Area Covered by ICO/IOW/IDO in Communal Systems = 419 ha

Average Area Covered by ICO/IOW/IDO in National Systems = 3991 ha

Average Area Covered by FIO in National Systems = 175 ha

* Cost of Supervision of FIO by Regional & Central office NIA personnel is not included

In 1989, US \$1.00 = 23 Philippine Pesos

Annex 1

National Irrigation Systems Classified by Type of Contract between the National Irrigation Administration and Irrigators Associations¹⁰

	<u>No. of Systems</u>	<u>Percentage of Systems</u>
Total No. of Systems for which data is available	94	100%
Type I Contract Systems	51	54%
Type II Contract Systems	30	32%
Type III Contract Systems	14	15%

(Figures refer to total data at national level, except for NIA Region 3, for which adequate data was not available.)

¹⁰ Under Type I contracts (maintenance contract), the irrigator association undertakes routine maintenance work for a certain length of the canal. Under Type II contracts (system operation and ISF collection contract), the irrigator association undertakes systems operation and collection of the irrigation service fees (ISF) from its members. Under Type III arrangements (turnover of a whole or a part of the system), the irrigator association assumes full management of system operations and maintenance. Investment and rehabilitation costs of the whole or part of the system are amortized over 60 years. (Source of Data: Provincial Irrigation Profiles, NIA)

Annex 2

NIA-IA Obligations Under Each Type of O&M Contract

Type I Contract (System maintenance)

Under this contract, the Irrigator Association (IA) undertakes routine maintenance works for a certain length of the irrigation canal systems.

IA obligations

- 1) Grass cutting, clearing, desilting and reshaping slopes for the entire length of canals at least once a month;
- 2) Filling potholes and open cuts along canal embankments and draining accumulated water from depressed portions of canal embankments;
- 3) Minor repair of irrigation facilities which do not require equipment and construction materials;
- 4) Oiling and greasing steel gates, including turnout gates (particularly the lifting mechanism);
- 5) Protect all irrigation facilities and structures;
- 6) Prevent any person from constructing open cuts or installing additional turnouts without joint clearance from both NIA and the association; and
- 7) Remove debris from canals and conveyance structures that restrict the normal flow of irrigation water.

In the Type I contract the irrigator association will be paid Ps. 1,100 upon satisfactory weeding, trimming canal embankments, reshaping and removal of debris for a 3.5 kilometer section of unlined canals, or 7 kms. for lined canals. Desilting activities will be paid by volume as per agreement entered by and between NIA and IA.

NIA obligations

- 1) Provide the association with a list of facilities and structures for maintenance as included in the contract inventory;
- 2) Repair and restoration of facilities and structures jointly as agreed with the association;
- 3) Provide the association regular supply of used oil and grease for the maintenance of irrigation facilities;
- 4) Build the organizational capability of the association, particularly in implementing the maintenance activities;

- 5) Conduct regular inspection of the facilities and structures under contract by the association and provide necessary guidance; and
- 6) Assist the association in the implementation of maintenance responsibilities.

Type II Contract (System operations and ISF collection)

IA Obligations for system operations

- 1) Formulate with NIA an operations and maintenance plan one month before the start of the cropping season and discusses monthly status of O&M plan implementation with NIA;
- 2) Disseminate information on water delivery and the planting schedule to the irrigation water users, within the IA contracted service area;
- 3) Deliver and distribute irrigation water equitably to the IA farmer members;
- 4) Monitor the status of farming activities and submits to NIA a weekly report of irrigated and planted areas;
- 5) Resolve conflicts arising from water distribution between and among IA members and other IA internal conflicts that may arise;
- 6) Inform NIA through its representatives, of problems and conflicts about operations which are beyond the association's capacity to resolve; and
- 7) Attend meetings and conferences called by NIA to discuss major problems encountered and formulate solutions.

IA Obligations for ISF Collection

- 1) Before the start of each season provide NIA an updated master list of farmer-member beneficiaries, should there be changes in the existing master list;
- 2) Formulate an effective and systematic ISF collection scheme with the concurrence of the Irrigation Superintendent;
- 3) Distribute promptly Irrigation Service Fee (ISF) bills to each of the farmers, including bills for payment of back accounts;
- 4) Collect ISF (current and back accounts) from farmers and remit to NIA such collection every Friday. The IA must obtain and use its own official Receipts for ISF collection and for financial control purposes, duly countersigned by the Irrigation Superintendents;
- 5) Assist NIA in the verification and assessment of farm lots requested for exemption from payment of ISF; and
- 6) Present to IA members, either through general assembly or at the turnout service area meeting a status update of members' ISF payments, within one month after the end of the cropping period.

Incentives received by the IA under Type II contracts in all national irrigation systems (NIS) are as follows:

Percent Collection Efficiency	Incentives remitted to IA
0 - 50	0
51 - 60	2%
61 - 70	5%
71 - 90	10%
91 - 100	15%

NIA Obligations in System Operations

- 1) Prepare water delivery schedules in consultation with the IA;
- 2) Provide the IA with all relevant training programs to enhance IA leaders' and members' capabilities to manage system operations and ISF collection effectively;
- 3) Provide technical assistance and recommendations to improve management and technical matters;
- 4) Appraise the IA on NIA's current policies relative to system operations and ISF collection;
- 5) Undertake all rehabilitation works and repairs of major damages to the main/lateral canals and other appurtenant structures including the access/service roads;
- 6) Authorize the IA to expand the service area of the system without sacrificing any portion of the programmed area;
- 7) Facilitate resolution of problems and conflicts beyond the association's capacity to resolve;
- 8) Formulate with the IA the system operations plans within one month before the start of the cropping season;
- 9) Assist in the preparation of plans and feasibility studies for projects the IA may wish to undertake;
- 10) Conduct regular audits of the IAs books of accounts;
- 11) Review and approve implementation plans for operations within one month after submission to NIA by the IA;
- 12) Monitor implementation of jointly-managed water delivery and planting schedules; and
- 13) Allocate and deliver adequate amounts of water up to the lateral headgate for the association's contracted area programmed for irrigation.

NIA Obligations in ISF Collection

- 1) Prepare Irrigation Service Fee (ISF) bills based on the verified list of irrigated planted area (LIPA) submitted by the IA President. The said LIPA must be duly approved by the Irrigation Superintendent;
- 2) Assess and verify farm lots requested for exemptions from payment of ISF;
- 3) Issue official NIA receipts to the IA for all collections remitted by the association;
- 4) Apply the present discounting policies under a procedure to be worked out between NIA and the IA; and
- 5) Grant to the Association a collection incentive bonus as provided in the contract.

Type III Contract (Turnover of all or part of the system)

In this contract, the IA assumes full management of system operations and maintenance. The cost of construction and rehabilitation of the whole or part of the system is amortized over a period not to exceed 50 years. Below are some of the obligations of both NIA and the irrigator association.

Obligations of the Irrigator Association

- 1) Take all reasonable steps to keep expenses to minimum consistent with sound financial practices;
- 2) Manage water allocation and distribution to the different rotational areas from the main lateral canal of the system. This includes water distribution from turnouts and its main farm ditches to the different supplementary farm ditches. The water distribution scheme to be adopted is based on NIA-IA jointly approved cropping pattern;
- 3) Maintain main and lateral canals and main farm ditches and supplementary farm ditches, including cutting grass and removing silt and other materials that obstruct normal water flow in the canals. Maintenance will cover the entire length of the main canal and laterals, including main farm ditches and supplementary farm ditches within the system;
- 4) Undertake repair works which are considered minor and within the capacity of the IA. Minor damages to canals will be repaired by the irrigator association provided, however that construction materials that the IA cannot provide shall be supplied by NIA while the labor will be provided by the IA. This provision by NIA of construction materials for repair shall be for a period of two years from the date of turnover of the system to the IA;
- 5) Undertake all maintenance and repair works of the terminal facilities;
- 6) Prepare the list of irrigated and planted areas through the rotational area leaders which shall be submitted by the IA President to NIA for preparation of bills;
- 7) Distribute bills for ISF to the farmers through the rotational area leaders;

- 8) Collect irrigation service fees (ISF) from irrigation users at the rate of 1.5 cavans of paddy for the wet season crop, and two cavans of paddy for the dry season crop, or its equivalent in cash based on the prevailing government support price of paddy. Collection shall be done by rotational area bill collectors who shall remit the same to the IA treasurer, who in turn, shall remit the same NIA every Friday or any day that may be agreed upon;
- 9) Resolve conflicts between and among IA members arising from water distribution and allocation, organization management, and other IA internal conflicts that may arise;
- 10) Inform NIA through its representative of problems and conflicts in operation and maintenance which are beyond IA's capacity to resolve;
- 11) Attend meetings and conferences called by NIA to discuss major problems encountered and to formulate solutions;
- 12) Make available to NIA for training all persons who shall be ultimately responsible for operation, maintenance and management of the irrigation system; and
- 13) Submit for approval to NIA all plans for management of operation and maintenance of the system two months before the start of the cropping season and submit reports on implementation as required by NIA from time to time.

Obligations of NIA

- 1) Provide available managerial and technical training and development programs for all levels to the Irrigator Association necessary in managing the operation and maintenance of the system and development of the Irrigator Association towards its viability;
- 2) Appraise the IA of current policies of the contracting agency and/or laws and decrees affecting NIA concerning irrigation and organization management;
- 3) Authorize the IA to expand the service area of the system without sacrificing any portion of the programmed service areas;
- 4) Undertake all rehabilitation works and repairs of major damages to the main and lateral/sub-lateral canals and other major appurtenant structures, including the access and service roads, subject to repayment in accordance with NIA policies;
- 5) Provide the IA necessary and available supplies, tools, equipment and vehicles and other resources based on the approved plans, provided the IA will shoulder the cost for such supplies and other resources including equipment rentals, in accordance with existing NIA policies;
- 6) Provide technical analysis and recommendations to improve its management and technical activities based on the submitted reports of the IA;
- 7) Facilitate resolution of problems and conflicts which are beyond the irrigator association's capacity to resolve by themselves;
- 8) Facilitate resolution of production and marketing related problems presented by the irrigator association to NIA; and
- 9) Review and approve implementation plans for operation within one month after submission to NIA by the irrigator association.

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