

IIMI'S EXPERIENCE IN INDONESIA IN STRENGTHENING NATIONAL CAPACITY

(A) INTRODUCTION

IIMI had a presence in Indonesia from 1985, although full implementation of activities did not start until early 1986. This paper describes, IIMI experience mainly at the stages of data collection, diagnosis and pilot implementation of revised procedures.

In this period the main projects which have been undertaken are listed in Table 1. Three of these are regional projects based in IIMI Headquarters, and two which are specific to Indonesia. The focus of this report is on the two major projects specific to Indonesia. For convenience, the ADB funded Project on Improving Irrigation Management is referred to as Phase I, while the current ADB/Ford Foundation Project on Efficient Irrigation Management and System Transfer is referred to as Phase II.

(B) CONTEXT

It is important to provide an overall context of the way that IIMI has operated in Indonesia and identify both a few internal and external constraints that have had an effect on the pace of progress, if not the quality of the eventual output.

Stages of IIMI's Activities in Indonesia

The first stage in each new initiative that IIMI has undertaken has been one of observation and data collection. It has involved not only setting up of field data collection programs and collection of secondary data, but gaining understanding of what are the current formal and informal practices. It is from this stage that IIMI is able to present most of its major findings concerning irrigation management requirements.

In Phase I this was not an easy task because IIMI was an unknown quantity, and it took several months before there was sufficient trust and openness so that Public Works felt comfortable about suggesting further activities that merited attention. Partly this was due to a natural suspicion about "researchers", partly a defensiveness about having outsiders nosing around within the irrigation agency and potentially exporting results without proper consultation. This is particularly true when the focus is on performance, which carries with it an implied value judgement that performance is sub-standard. Even after four years not all of these concerns have completely vanished. It also took time to convince Public Works that many problems were located above the tertiary block, and that IIMI would make recommendations that directly affected cooperating staff. The second stage is one of diagnosis where initial results and experiences are translated into problem identification statements and, in most cases, some initial suggestions for how to improve the observed performance level. In this stage IIMI can concentrate on making recommendations or suggestions for ways to overcome the perceived management constraints.

At this stage in each activity IIMI has to overcome a significant psychological barrier between the cooperating agencies and IIMI before additional progress along the sequence can be achieved. Many of the reasons for this barrier are obvious: raising questions about the data base and methodologies used, concerns over potential costs, reluctance to redefine job descriptions or tasks, and a general conservatism inherent in a large bureaucracy. Upgrading the data base has proved easier than trying to change well established procedures, particularly when these have financial implications for individuals.

The third major stage has been the pilot testing of revised procedures that will lead to improvements in irrigation management performance, but which do not in themselves lead to major changes in operational procedures. Some of these are simple changes that merely make procedures more efficient, while others, either implicitly or explicitly, challenge current policy or operational objectives. However, the underlying process of irrigation management does not change in this stage. From this third stage IIMI can produce evidence workable practices for adoption.

At this point, IIMI hits another barrier which relates to wider adoption and dissemination. This implementation barrier has two dimensions: lateral and vertical.

The lateral dimension represents the transition from implementation of revised procedures on a pilot basis to wider adoption in areas where IIMI has not had a field presence. The vertical dimension of implementation barrier addresses the issue of adoption of procedures that not only change operational procedures but also change operational policy. It covers activities such as new approaches to irrigation management, changes in design guidelines or standards to support different management systems, and institutional changes requiring different job description, changed responsibilities, decentralization, or privatization of the irrigation agency. The vertical barrier has not yet been scaled in Indonesia, and achievements have to be viewed in light of this situation.

Despite the difficulty in progressing through each stage, IIMI has had a significant impact, as described below. This is partly because of the deliberate policy of using seconded staff (48 of 70 full-time staff are seconded) which helps build long term knowledge within Public Works.

It is also recognized that IIMI's ability to make recommendations at local, provincial and national level based on intensive field monitoring and pilot testing of alternative procedures is both unique and valuable.

Institutions

During IIMI's time in Indonesia our primary collaborators were Directorate General of Water Resources Development (DGWRD) and specifically Directorate of Irrigation I in whose office IIMI was housed in Jakarta. DGWRD was the formal home for IIMI as per the ADB grants which financed our presence during the entire time we were in Indonesia.

However, in order to implement the content of their technical assistance IIMI worked with a number of other government agencies: the Provincial Irrigation Department of West Java, Central Java, East Java, West Sumatra and Lampung.

IIMI co-operated with the Provincial Agriculture Departments in the same provinces. Also associated with IIMI activities under the ADB Technical Assistance was a NGO (LP3ES) with a particular focus on the Small Scale Irrigation Turnover Project. IIMI maintained close links with several Universities in Bandung, West Java and Padang, West Sumatra. IIMI had linkages with the Centre for Agro Economic Research (CAER) in Bogor and weak linkages with the Ministry of Agriculture.

Under the Rockefeller Project on Crop Diversification IIMI developed linkages with the Agricultural Research Division, particularly Sukamandi Research Institute and with the University of Gadjah Mada in Yogyakarta. This project gave IIMI the opportunity to strengthen linkages with provincial, regional and district agricultural and planning offices under the auspices of the civil administration (Ministry of Home Affairs).

(C) PROGRAMS

Modalities

IIMI did not have a Consultative Committee in Indonesia. In the first phase of the ADB TA we had a Study Advisory Committee chaired by the Director General of Food Crops. Members of this committee includes the Planning Ministry, BAPPENAS, DGWRD and Agriculture. However, this committee did not function effectively in the second phase of the TA.

IIMI's presence in Indonesia was solely on the basis of technical assistance grants from ADB. IIMI received supplementary assistance from the Ford Foundation but these were under the umbrella of the ADB.

Activities

Of IIMI work in Indonesia the most important was collective research which, probably occupied eighty per cent of our time. The remaining twenty per cent was split between workshops and seminars (for both the ADB and Rockefeller work within the context of the research activities) and strategic dialogue. This last category was generally undertaken as an informal set of linkages between IIMI and policy makers within DGWRD and indeed led to a proposal by DGWRD to establish an Irrigation Management Centre that would focus on research, training and management dissemination within Indonesia. Unfortunately the untimely departure of IIMI meant that we no longer are associated with this initiative.

The primary findings on the major issues that IIMI has studied in Indonesia with regard to the operation of agency-managed irrigation systems are summarized below. Most IIMI field sites were chosen in cooperation with Public Works because they were reasonably complete, in good condition, and that management was "above average". It is therefore reasonable to assume that issues identified are not unique.

- a) The data base available to system managers is not sufficiently accurate to permit proper implementation of the pasten system.

- b) Irrigation infrastructure is inadequate to permit proper implementation of current operational objectives, based on pasten and faktor-k
- c) System management inputs are inadequate to permit proper implementation of operational plans
- d) Monitoring of water distribution and allocation is weak
- e) Evaluation of operations that would enable changes to seasonal or annual plans are not properly conducted
- f) Annual and seasonal plans are poorly linked to national objectives

From this stage of understanding and diagnosis, IIMI moved into a second period that covers recommendations and plans for their field testing.

Given this overall approach, IIMI made six recommendation sets that are aimed either at implementation of alternative operational procedures or at the institutional framework required to support effective O&M. The first three recommendation sets are aimed at system level, the remaining three at provincial and national staff of Public Works. Wherever possible, the recommendation has been accompanied by detailed instructions on implementation, and production of basic materials required for implementation.

System Level Recommendations

- a) Field level monitoring must be improved if irrigation objectives are to be met
- b) Improve the Data Base
- c) Modify Rotational Irrigation Practices

Provincial and National Level Recommendations

Unlike recommendation sets for field level implementation that can be adopted without major changes in existing operational procedures, recommendation sets for provincial and national level staff of Public Works cannot always be adopted without accompanying changes in operational objectives, procedures, and policies.

In recognizing that field level improvements have a finite potential if there are no changes in supporting objectives, procedures or policies, IIMI provided the three following recommendation sets at the end of Phase II.

- d) Redefine of Operational Responsibilities
- e) Farmer Assistance in System O&M
- f) Needs-Based Budgeting for Irrigation

(D) RESULTS

IIMI has been successful in having many of the components of the first three recommendation sets adopted on a pilot basis in a number of the systems in which intensive studies have been carried out. The primary highlights of these activities are described below.

a) Improving the Data Base

A major program (locally referred to as BMIP) was undertaken that covered four irrigation systems in West Java, with a total command area of about 16,000 ha. This program was field-based, involved sub-section chiefs, irrigation inspectors and gate keepers, and focussed on four activities.

- mapping of 32 tertiary blocks covering 1,520 ha;
- identification of the location and importance of additional water sources in 8 tertiary blocks served by suppletions;
- a complete inventory of the condition and functionality of 353 control structures and their associated measuring devices;
- calibration of 190 measuring devices and gates;
- monthly measurement of conveyance losses in 16 sections of main and secondary canals; and
- interviews and observations by agency field staff to understand WUA irrigation management problems and constraints.

The rationale for selection of the irrigation systems was that three of them were Advanced Operation Units (AOU) of the West Java Irrigation Project funded by the World Bank. In the AOUs there has been a re-evaluation of all forms and reporting requirements to support improved system operations. However, in discussions with the West Java Provincial Irrigation Service and their consultants, it was agreed to undertake the training program because the revised forms and procedures were still based on assumed values of physical conditions rather than actual ones.

A reduced version of this program has also been implemented successfully in Way Jepara system in Lampung Province, and a manual in Bahasa Indonesia prepared so that it can readily be disseminated to other provinces.

Following this period of pilot-testing the conclusions can be drawn:

- the program is highly cost effective, with field-level mapping costing about \$3.00 per ha, while calibration and conveyance loss measurements cost about \$1.00 per ha. These costs can be reduced further with lower honoraria for regular staff of Public Works, and greater voluntary labor contributions from farmers in mapping;
- the upgraded data is immediately transferable to forms used in reporting of field conditions and in planning more accurate and more effective target discharges, so that operations immediately improve;
- the improvements are within the constraints of staff levels and staff skills because the training was incorporated into the regular duties of field and sub-section staff;

- there is a heavy demand for additional programs in both West Java and Lampung from other systems, both within and outside the AOU program.

b) Improving Rotational Irrigation

A major revision of rotational irrigation practices was pilot tested during the 1989 Dry Season in the 4,200 ha East Maneungteung Irrigation System in Cirebon, West Java that resulted in major improvements in equity and irrigation management performance.

The results of this pilot testing, summarized are:

- uniformity in the time each tertiary block received water rather than the previous unequal system;
- a decrease in the inequity of area to be irrigated each day of the week;
- a decrease in weekly management inputs (opening and closing gates, gate adjustments and discharge monitoring) from 279 to 241;
- a simpler and more manageable rotation schedule that reduced average weekly working of irrigation inspectors and gate keepers;
- active and successful participation by farmers in planning and implementation of the revised schedule that resulted fewer irregularities during each rotation period;
- tail end farmers are more willing to plant areas in 1990 that were left fallow in 1989 because of better and more reliable water deliveries; and
- normal channels for planning and implementation were used so that it did not represent a unique situation.

The entire pilot testing activity cost Rp.124,000 (US\$70) for the planning meeting. No other regular costs were incurred.

The main conclusions that can be drawn from this activity are:

- it is possible, with little or no expenditure, to significantly improve irrigation management practices using existing staff and resources;
- normal procedures can be adapted without any changes in overall rules and regulations to accommodate changed operational practices;
- tightening up of existing procedures can lead to major improvements in equity, production and performance while at the same time making management easier and less time consuming;
- improved cooperation between farmers and irrigation staff can be obtained with no major intervention or special program.

c) Improved Monitoring

In respect of monitoring of water allocation and delivery procedures, the following results are reported:

- in all study systems the accuracy of reporting of actual water allocation and distribution has improved (in most cases IIMI data is used), and irrigation inspectors have become more diligent in reporting what happened rather than reporting that targets were achieved;

- use has been made of revised command areas in many tertiary blocks, and has resulted in modifications of the system-level data base, and thus become routinely used in determining target discharges; and
- the calculation of DPR has been included in the forms sent to sub-section chiefs as a basis for evaluating system-wide irrigation performance in West and Central Java.

The conclusions that can be drawn from this pilot testing are:

- there is a perceived need by irrigation staff for improvements in the data base at system level;
- field staff have become less concerned about reporting deviations from targets because superiors are fully involved in trying to improve system management and upgrade the data base;
- there is a willingness to adopt simple procedures that assist in monitoring and evaluation activities; and
- improved procedures can be incorporated into normal operational procedures without undermining the current operational system.

Adoption and Dissemination

Despite the successes reported above, there are some areas where IIMI has not proved to be so successful, and it is important both to recognize this and to mention some of the constraints that need to be overcome in order to achieve wider adoption and dissemination of improved operational practices.

The primary constraints are:

a) Project Mentality

In many respects IIMI is seen as, and treated as, a project rather than a program that aims at long-term changes in the basis for irrigation management in Indonesia. The implications of being treated as a project are that IIMI inputs are seen as activities that are independent of normal procedures. Despite successes in pilot testing, the results do not get adopted on a wider basis, and progress may be reduced or even lost when studies are phased out and staff move on to new study sites.

Public Works gives much greater attention to construction projects than to O&M innovations, and to the large sectoral loans for O&M improvement which contain considerable funds for "special maintenance". IIMI is viewed as a small and separate project, and thus does not get the exposure it merits.

IIMI's weak position is compounded by the nature of the current sector loans for O&M. These are perceived as going to be a one-off set of projects that solve the problems of the O&M sector. The sector loans cover almost all aspects of O&M, but do so in a piece-meal fashion: some packages are only undertaken in a sub-set of provinces, and even where some packages are undertaken in several province, each province tends to have different consultants with different objectives with little capability to understand the interrelationships. Thus there is no strong link-up between packages looking

at irrigation service fees, institutional strengthening, efficient O&M, or turnover of small systems because there is no single location where all packages are being implemented together.

b) IIMI's Institutional Setting

There has, so far, been a weak institutional base for IIMI because of the lack of a proper agreement with the government that clearly defines the programmatic nature of the work, and the need to interact at the highest levels on policy matters. Projectization of IIMI's work fails to meet these objectives, and a proper agreement is fundamental to IIMI's ability to get changes adopted and disseminated outside the immediate field study sites. Continually changing to new provinces overcomes this problem, but undermines the long-term evolution of a program because the work becomes repetitive, and IIMI rather than the government remains the primary initiator.

To be fully effective, IIMI has to be given a formal role in the implementation of the on-going sectoral activities already that would make it possible to integrate the types of approaches and adoptions into the overall irrigation sector development. This assistance in coordination and policy development was specifically included in the proposals for the next set of IIMI activities and accepted in principle by Public Works as a legitimate and logical role for IIMI.

c) Unwillingness to Change Standard Procedures

In all study areas, IIMI has generally been welcomed and cooperation has, in most cases, been at a high level. However, a project mentality does not readily lend itself to making the long-term operation changes that IIMI believes is required for overall improvement in irrigation management, and is felt at both provincial and national level.

At field level this is demonstrated by the development of parallel and conflicting activities: a standard, traditional set of procedures and a simultaneous adoption of new procedures. This is not merely inefficient but prevents managers from facing the need to change. At national level, on many occasions, there is an unwillingness to try to change procedures, largely because of conservatism and unwillingness to shoulder the responsibility of ordering or recommending changes.

d) Cost Implications

A further factor that appears to reduce willingness to adopt and disseminate changed procedures is that of cost. This has to be overcome if progress is to be made. A major thrust of IIMI activities in Indonesia is to develop cost-effective procedures, but this does not mean they are free.

While it is reasonable to expect pilot-testing of the nature already undertaken to be financed by the project funds which IIMI uses, ultimately the changes have to be self-financed by Indonesia. To do this the government has to decide on reallocating resources rather than assuming another project will come along to pick up the budget.

Current sectoral approaches to O&M tend to provide project monies to cover recurrent expenditures, and this makes it harder for IIMI to get procedures adopted that have to be paid out of recurrent budgets, even those these costs are relatively minor.

Many existing procedures are ineffective but cost money. Similarly, staff time is rarely used effectively. If there is an ability to assess the relative priority of various procedures IIMI and others have suggested, then this has to be accompanied by an equal willingness to allocate budgets to meet the changed priorities of the O&M sector.

(E) CONCLUSION

Four years in a country as large and diverse as Indonesia is far too short for a lasting impact. Irrigation is a provincial subject in Indonesia and the Central Government can only provide guidelines and advise to the provincial authorities. Although IIMI was well received in each of the provinces in which it worked, only in West Java was IIMI present for more than two years. This is clearly inadequate when some provinces have more than one million hectares of irrigated land.

Resident staff strength was two persons for most of the time in Indonesia, although for the first two years one of the staff members was a Post Doctoral Fellow rather than a fully internationally recruited staff person. This method of staffing, is inadequate but IIMI was unable to obtain additional financing to increase staff strengths to an optimal level of, say, three to five people. In addition, one staff member was always resident in Jakarta and one in the field in West Java. This meant interaction was less than it might have been had we had a single office. At the same time, more field work was undertaken because of the presence of an office away from Jakarta.

Although much of IIMI work is collaborative, a high percentage of the field work, data analysis and writing is really undertaken by IIMI staff. While there is nothing wrong with this we have to be realistic in recognizing that the success comes from our own independence. If the grants were to be made, for example, to national institutions to control all aspects of finance, work plan development, staff support etc. IIMI would not be as successful in the type of time frame IIMI normally have for such activities. In the IIMI/Rockefeller activities IIMI carried the vast majority of other collaborators on this project (including those from IRRI).

(F) LESSONS FOR THE FUTURE

Three main lessons may be underscored.

First, during the early years that IIMI was in Indonesia its staff probably benefitted more than the Indonesian Institutes as there has been relatively little sustained impact from IIMI presence in the country. Because two of the three long term IIMI staff who were based in Indonesia still work for IIMI it means that those experiences stay with us as we can still use data and other information in generic and comparative research. IIMI contribution to national

understanding of issues requires a longer term presence than it was able to achieve in Indonesia.

Secondly, IIMI capacity is dubious particularly in larger countries, to bring about stronger national capacity in less than five to ten years. We may be in danger of making a great error in equating national research capacity and national agency capacity. In Indonesia, for example, there is no national irrigation research capacity. There are some individuals who have undertaken research in technical matters (hydrology, design etc.) and a very small handful of individuals who have been exposed to irrigation management research. Elsewhere the national agricultural research service greatly facilitated the capacity of the IARCs to function effectively. IIMI cannot expect such a thing because irrigation ministries rarely have any in-house research capacity. Creating such a capacity is a slow process.

Lastly, IIMI will be most effective by having a strong regional presence. The high percentage of single person or even two person offices that IIMI maintain is inadequate, although the financial reasons for this situation is understood. Strong regional teams greatly foster interdisciplinary solutions or understanding of issues and should facilitate greater interaction between countries in the same region. This does not rule out the need for certain staff to be based long term in a specific country but the model of the Regional Office that the Ford Foundation has moved towards is one that IIMI should try to bear in mind in the future.

Table 1

Projects Undertaken By IIMI in Indonesia, 1985-89

1. Country Specific Projects:

Study of Irrigation Management in Indonesia. ADB Technical Assistance TA 673 INO. October 1985 to September 1987

Efficient Irrigation Management and System Transfer. Co-financed by ADB Technical Assistance TA 937 INO and the Ford Foundation. October 1987 to December 1989.

2. Regional Projects:

Regional Study on Irrigation Service Fees. ADB Regional Technical Assistance for comparative studies in Indonesia, Korea, Nepal, the Philippines, and Thailand. (1985-1986)

Irrigation Management for Diversified Cropping. ADB Regional Technical Assistance for comparative studies in Indonesia, the Philippines, and Sri Lanka. (1986-1987)

Problems of Irrigation Management for Rice-Based Farming Systems. Rockefeller Foundation support for comparative studies in Bangladesh, Indonesia, and the Philippines. (1988-1990)