

INSTITUTION AND CAPACITY BUILDING IN SRI LANKA: CONCEPTS, METHODS AND RESULTS

by

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1 INTRODUCTION

This paper describes IIMI's institution and capacity building efforts after 1992 because in 1992 IPR a detailed account of these activities were provided by Rao and Abeywickrema. Also as the concepts, as stipulated in the strategic and medium term plan document of IIMI, still remain valid the paper will concentrate primarily on methods and results.

An analysis of IIMI's institution and capacity building efforts require a through understanding of the historical development of the irrigation agencies in the country. Therefore, as a prelude to the main discussion on methods and results, a brief description of the evolution of various irrigation agencies is presented. The discussion will primarily center around the public sector institutions though substantial inputs have been provided to the capacity building of the farm level irrigation institutions.

Irrigation in Sri Lanka is nearly as old as civilization and this has prompted several authors to identify her as by hydraulic civilization. The contribution of irrigated agriculture to the Sri Lankan economy has been substantial. Some 550,000 ha of irrigated land of which 90% is devoted to food crops brought the country to near self sufficiency in cereal production in eighties.

The significant achievement was possible due to support provided by the public sector agencies in the construction, operation and maintenance and series of other activities supportive of the agricultural production increase. The pioneering public sector agency was the Irrigation Department which was ably complemented by the Department of Agrarian Services, Mahaweli Authority, IMD etc. In the recent years special programs like Integrated Management of Irrigation Systems (INMAS), Irrigation Management Policy Support Activity (IMPISA), Management of Irrigation Systems (MANIS) etc. were also launched to augment public sector effort to improve irrigated agriculture. During the last decades farmers institutions have also been organized and strengthen to effective take over some of responsibility of the public sector. The role of the Non Government Organization (NGO's) had been marginal in the development and management of the irrigated agriculture sector.

2 HISTORICAL DEVELOPMENT OF PUBLIC SECTOR IRRIGATION AGENCIES

The following section briefly describes the historical development of different public sector irrigation agencies of the country.

2.1 Irrigation Department

Irrigation works in the 19th century were carried out by a section of the Public Works Department which employed a few irrigation engineers. The execution of works in respect of construction and maintenance was carried out by the Public Works Department with the officers specially seconded to the Central Irrigation Board. As a step to expedite the execution of irrigation works the Irrigation Department was established on the 15th of May 1900. The Irrigation Department was required to undertake additional responsibilities during the period from 1920 to 1930 when the activities of the department were enlarged to include flood-control work. During early 1930s the activities expanded to include (a) major and minor irrigation works (b) flood protection of rural and urban areas (c) drainage and reclamation. To assist the department in these activities Hydraulics Laboratory, Gauging Section (Hydrology) and Materials Testing Laboratory was formed. The ID at this time had undertaken the land development covering all operations necessary to transfer the jungle into ready made farms complete with houses. This function was carried out till the Department of Land Development was established.

The expansion of the Irrigation Department's activities required an efficient organization to be set up for training of personnel on design and planning. By the end of 1948 the organizational set up was expanded to include Design, Planning, Drilling, Foundation Investigations, Training, Hydraulic Laboratory, and Soil Mechanics Laboratory. It was felt that the trainees should receive their training in an atmosphere and environment in which they would be required to work as technical officers and hence a training centre was opened at Galgamuwa. Further expansion of the activities took place in 1959 when the department established its own Land Use Division for agricultural soil investigations.

2.2 Territorial Civil Engineering Organization

The operation and maintenance of major and minor and minor village works was handed over to the Territorial Civil Engineering Organization (TEGO) which was established in 1971. This organization was responsible for all minor works (less than Rs. 2.5m, maintenance and construction of highways, water supply and drainage etc. This organization was set up utilizing the staff and facilities

belonging to the respective departments. The new role of the ID was preparation of design and plans and execution of construction of all major works costing over Rs. 2.5m. The TECO was abolished by the new government that came into power in 1977.

The implementation of the O&M procedures did not receive priority in the ID due to overwhelming prestige assigned to the design and construction activities. Over the years, the importance of management became clearer with lessening of opportunities for design and construction especially when most new construction was assigned to the Mahaweli Development Board in the 1970s. The new trend enabled the ID to implement an integrated management program in 190 major and medium irrigation schemes with a total irrigated command area of 70, 400 ha that are not included in the INMAS program (Fernando, 1990). The O&M division of the ID was instrumental in launching this Management of Irrigation Systems (MANIS) project.

Despite these developments the ID does not have a strong arm for monitoring and evaluation of system performance. Steps are now being taken to set up Irrigation Management Cells (IMACs) in each region under a Chief Irrigation Engineer. With the recent experience gathered through donor-funded rehabilitation projects the ID is getting prepared to assume broader multi-disciplinary responsibilities for irrigation management.

2.3 Irrigation Management Division

As a major engineering and construction agency, the activities in ID highly skewed toward engineering. The engineering dominance becomes a problem when policies and programs shift toward a focus on users and user development and the management of systems which require different talents than engineering design and construction. In 1984, the IMD was created as a ministry unit as an attempt to cope with this situation. The IMD works in parallel with the ID and is located in the ID building. The IMD is responsible for implementing the Integrated Management of Major Irrigation Schemes (INMAS) program.

The IMD, at national level, consists of an inter-disciplinary group with experience in irrigation, agriculture, institutional development and management to implement the INMAS program. At project level the project manager is responsible for the implementation of INMAS program. The INMAS program attempts to establish coordination of the various inputs and services necessary for increasing agricultural productivity with special focus on the use of irrigation water which has been considered as a critical and limiting factor in irrigated agriculture. The INMAS program coordinate the activities of line agencies

through a system of Project Management. The lack of viable farmer institutions has also been a major constraint in involving farmer participation in management decisions affecting them. The institution building and setting up of farmer associations, therefore, have been given high priority under this program.

The organization arrangement under INMAS was progressively extended to cover about 44 major irrigation schemes including several important donor funded rehabilitation projects (for which IMD is the implementing agency). In 1994 the Irrigation Ordinance was amended to grant more power and responsibilities to registered farmer organizations including the management of distributory channel areas and collection of O&M fees. The IMD experience has been positive and useful in restructuring the whole irrigation apparatus toward the participatory management program.

2.4 Department of Agrarian Services

The Department of Agrarian Services (DAS) was established in 1958 with its main function being the implementation of the tasks specified in the Paddy Land Act, especially regarding land tenure and the establishment of Cultivation Committees. The DAS is headed by a Commissioner. The DAS has an Assistant Commissioner of Agrarian Services in each district assisted by Divisional Officers, Technical Assistants.

Originally the Government Agents continued being responsible for minor irrigation works, but this responsibility was transferred to DAS later. From 1972 to 1979, the responsibility was transferred to TCEO, which apparently neglected minor irrigation works. In 1979, with the new Agrarian Services Act No. 58, the DA was again given the responsibility for overseeing improvement and management of the minor irrigation schemes. The estimated 21,000 schemes constitute about one third of the total irrigation area of the country.

Since 1979 the planning and implementation of the Agrarian Services programme has been done through the 536 Agrarian Services Committee (ASCs), and centers. These Committees deal with a wide variety of issues including co-ordination of input supplies. In regard to minor schemes, the DAS has a modest budget for maintenance and improvements and has been centrally involved in the implementation of donor funded projects, especially Integrated Rural Development Project (IRDPS) and VIRP. A specific objective of the VIRP was to build DAS's technical capacity to assist farmers to improve, maintain and better manage the minor systems.

The next change occurred with the 13th Amendment to the Constitution in 1988 under which construction, rehabilitation, and maintenance of minor irrigation schemes was devolved to the Provincial Councils. Following this

amendment, DAS had initially begun handing over of responsibility, as well as staff and assets to the Provincial Councils. Many of the Provincial Councils, however, have not been successful as yet in developing their own capacity.

The present status varies among Provincial Councils but in general, the DAS continues to receive an allocation of funds from the Government for O&M. Some is channelled to the provinces based on a plan of work, and it then monitored by DAS; other funds are spent directly by DAS. In 1991, implementation of the National Irrigation Rehabilitation Project begun; DAS is responsible along with the Irrigation Department for this project, especially with regard to minor systems and institutional development.

Two very important changes occurred in 1991, with the Amendment of the Agrarian Services Act. First, under Amendment, DAS was made responsible for coordinating and registering farmer organizations throughout the country. Sections 56 a and b provide respectively for "informal" farmers organizations, and "formal" ones which would be recognized entities and bodies corporate through registration by Commissioner of Agrarian Services. Farmers organizations can be formed for a wide variety of purposes, including but not limited to irrigation management.

The second important change is the reconstitution of the Agrarian Services Committees. The composition was increased to 15 numbers, of which 10 are to be farmers and 5 officials from the relevant government agencies. Out of the 10 farmers, three should be tenant farmers.

2.5 Mahaweli Authority of Sri Lanka

The Mahaweli Authority of Sri Lanka (MASL) Act of 1979 established the MASL as the authority responsible for the implementation of the Mahaweli Ganga Development Scheme. This Act replaced previous arrangements to facilitate the Accelerated Mahaweli Program (AMP), a 30 year program compressed into 6 years.

At the national level, the project had its own ministry until 1994. The MASL Act empowers the Minister to exercise authority within it. In performing this function he may co-opt the services of particular departments and corporations mentioned in the Act.

At the MEA, below the general manager are the project coordinators for the different systems of the Mahaweli and next to them in the organizations hierarchy are manager for finance, land, community services, administration, and

public relations, the senior agronomist, two chief irrigation engineers and the chief equipment engineer. These officials are all based at the head office in Colombo.

At the field level, this complex multifunctional hierarchical, organizational set-up is replicated. There is no overall system-level official at the field level. Systems are divided into projects, each under the supervision of a resident project manager (RPM). Projects generally cover an area of 8,000 - 12,000 hectares (ha) and each project area is inhabited by 8,000 - 10,000 people. The RPM is assisted by specialized deputy resident project managers (DRPMS) for administration, agriculture, water management, community services, lands and marketing.

Each project is in turn divided into administrative blocks, covering about 2,000 ha and having 2,000 - 2,500 families, under the supervision of a block manager. He too is assisted by various specialized officers. Each block is further subdivided into units, under the unit managers. These cover 200-265 ha and have 200-250 families. The unit manager is supposed to act as the interface between the bureaucracy and the farmer.

As a macro project with a large scale financial investment, the Mahaweli Ganga Development Program has its own styles and strategies of management. Under this program, it was envisaged that nearly 100,000 ha of newly developed land would be irrigated in addition to supplementing supplies for about 75,000 ha already irrigated. Five new dams on the Mahaweli River or its tributaries generate about 540 megawatts of hydropower.

Although early plans called for creation of farmers' organization in the Mahaweli Settlements, there was little progress in this direction except for turnout groups until the adoption of the 1988 Cabinet Paper on Participatory Management. Subsequently, efforts were made in all of the systems, some with support from special projects such as the Mahaweli Agricultural Development Project in system B. However, until 1992, there was no attempt to create joint management committees or to turn over O&M to farmer organizations. Many MEA officers felt that these innovations were not compatible with MEA management philosophy and structure (Brewer, 1994). In 1992, with the appointment of new Managing Director, to the Mahaweli Economic Agency the situation changed to a greater extent. In early 1993, joint management committee structure were created in all of the systems and work was begun to reorganize and strengthen the existing farmer organizations.

2.6 Provincial Councils

Decentralization and devolution are important aspects in development efforts. These are seen as necessary prerequisites to ensure peoples participation in the process of decision making in the development effort. Devolution of government power and administrative authority to provincial councils and local authorities is a fundamental change and constitutes a landmark in the evolution of political and administrative institutions in Sri Lanka.

According to the 13th Amendment to the Constitution in 1988, construction, rehabilitation, and maintenance of minor irrigation schemes was devolved to the Provincial Councils. The DAS, therefore, had initially begun handing over of responsibility, as well as staff and assets to the Provincial Councils. Presently the provincial councils themselves are at various stages of development. Each one has a different approach to its irrigation responsibilities. There is continuing confusion about the relationships and divisions of responsibilities between central and provincial irrigation organizations. And most of the provincial council staff have not been exposed to the present thinking of the government in terms of policies. Previous district level administration was characterized by top-down administrative procedures and practices. Participatory processes and self-management remain largely experimental.

The devolution of authority as envisaged under the provincial council setup puts together a new framework of decentralization moving upwards from the village level. It strengthens the democratic nature of the decision-making process by bringing people into the very centre of the development management process. With all the advantages of devolution, the transition phase from centralized to decentralized administration can still present many problems and requires careful handling to prevent a breakdown in services provided by the government. The structure of government administration consequent to devolution comprises three clusters:

- i. central government ministries and departments
- ii. provincial council administration; and
- iii. local authorities, namely Pradeshiya Sabhas.

It is significant to note that these three clusters overlap in function and therefore perform concurrently while also constituting a hierarchy of decentralization. Devolution transfers both legislative and executive powers in respect of subjects assigned to a provincial council. Thus, a provincial council has powers to pass 'status' in respect of subjects assigned, and if it does so it will make existing laws in respect of those subjects inoperative within the province.

The provincial councils handle minor irrigation works, which was a responsibility of the DAS. Also the Provincial Engineering Departments, which consists of irrigation units, are involved in NIRP.

2.7 Reorganization of Irrigation Agencies

It has been accepted that the present capacity of the various irrigation institutions that exist in the country does not match with their missions. In some instances the missions have to be changed to meet the current needs of the country. With the completion of most of the construction work the construction oriented agencies, such as Mahaweli Authority and ID need to enhance their capacity to cater for the requirements of 'management phase'. Some agency personnel believe that it is necessary to upgrade their agencies, for example, Irrigation Department staff have requested to upgrade the post of Director Irrigation to Director General and other designations as well in accordance with the recent development that occurred in other agencies. The IMPSA was initiated by the Ministry of Lands, Irrigation and Mahaweli Development in association with the Ministry of Agricultural Development and Research to assist the Government of Sri Lanka in the implementation of its accepted policy of participatory management in irrigation and settlement schemes, in order to improve, productivity, profitability and equity in the irrigated agriculture sector. The IMPSA analyzed the organizational structures of respective agencies and made recommendations for the improvement of structures to meet current needs, especially Institution Building. At present actions have been initiated to reorganize the irrigation agencies in Sri Lanka.

3 IIMI's INSTITUTION AND CAPACITY BUILDING EFFORTS IN SRI LANKA: METHODS AND RESULTS

Strengthening existing institutions and promoting new institutions for the management of land and water resources constitutes a vital element in IIMI's thrust for the conservation and effective utilization of land and water resources in Sri Lanka.

IIMI's approach in this direction is two fold. One is to secure an influencing presence in governmental committees and other bodies through participation as members of such committees and bodies including the provision of technical guidelines in the formulation of plans and implementation strategies in such areas as restructuring of institutions and technical assistance; the other is to help implementation of effective processes to achieve the desired changes, mainly through IIMI-Government Collaborative Projects such as SCOR & Kirindi Oya.

A few major examples could be cited. One is the contribution made by IIMI in the revival of the Central Coordinating Committee on Irrigation Management, which was set up under the Ministry of Irrigation to review policy and programs, monitor the progress of on going irrigation management activities, identify constraints and take remedial action. The institutional device of the CCCIM was a recommendation that came out of the irrigation management policy formulation exercises undertaken a few years ago by a USAID and Government sponsored project called IMPSA. IIMI's participation as a member of the CCCIM not only helped the revival of this committee, but also enabled IIMI to influence the formulation of specific strategies to further the committee's objectives. Moreover, IIMI-SLFO facilitate the establishment of CCCIM.

The second example is IIMI's active participation in the two task forces set up to restructure Mahaweli and non-Mahaweli institutions. IIMI not only promoted the need for laying down guiding principles, to base proposed policies and actions but also provided guide line principles which found ready acceptance by the agencies concerned.

It must be stressed that the scope and demand for IIMI's participation and providing guidance in the efforts of governmental agencies to work out practical approaches, both in planning and implementation in the land and water resources sectors is very wide. Opportunities are many and prospects for IIMI's success in such interventions are considerable.

The methods used and results obtained are described, project wise, in the following sections:

3.1 Project 1: Technical Assistance to IRMU

3.11 Organizational Development: The most significant development in this area is the assistance IIMI is providing in the establishment of the Irrigation Research Management Unit (IRMU) within the Irrigation Department. The establishment of IRMU is the output of another organizational development effort IMPSA, carried out with the help of IIMI in the early 90 's.

IRMU was formally launched in the mid- 1992 with the principal objective of improving performance of irrigated agriculture by identifying research needs, implementing research programs and institutionalizing adoption of important results. The most striking feature of the IRMU is that it is being established as a multidisciplinary unit consisting of engineering, agriculture, social science, economics and environmental studies. This is another first for the country where a multidisciplinary unit is being established in a "closed" technical department.

Establishment of IRMU is being pursued through three distinct activities namely: (1) Establishment and Strengthening; (2) Research and Development and (3) Training and Technology Transfer.

Establishment and Strengthening of IRMU:

Organization and staffing: During the initial months a proposal describing the proposed organization, staffing and staffing policy and coordinating mechanism for IRMU were developed which, in principle has been accepted by the ID. Based on this document a proposal is being submitted to the government for the creation of new cadres for non engineering research staff. But the procedure is very slow and time consuming and to date not much progress has been made.

Recruitment of staff for IRMU has fallen significantly behind schedule. Upto end of 1994 the staffing plan called for the recruitment of 7 (seven) research staff. The actual recruitment was 5 (five) which is not bad. But the sad story is four of them left for "greener pasture". The principal problem in retaining staff is the very nature of the employment status where staff are recruited on contract without assurance of permanency.

Strategic Plan and Medium Term Research Agenda: Preparation of the strategic plan was initiated through holding a consultative workshop very early in the project in which senior ID officials participated. The draft report was widely circulated which was discussed in largely attended workshop held in October 1993, and participated by representatives from ID, IMD, DAS, AR&TI, Agri. Dept, Universities, NIRP, IRMU and IIMI, before being finalized.

During the same period the medium term research agenda (1992-1996) for IRMU was also developed. The draft document was discussed in same October 1993, workshop and was finalized.

Coordinating Mechanism: A three tier coordinating mechanism has been instituted. A 16 member Research Advisory Committee (RAC) chaired by the then State Secretary now (Additional Secretary) of irrigation with representatives from IDS, IMD, NIRP, Department of Agriculture, Universities (Peradeniya and Moratuwa), DAS AR&TI, CARP, MEA and IIMI has been constituted to oversee the activities of the IRMU. Since its formal constitution by the Project Coordination Committee on 5.3.93 the RAC has met 3 times.

For providing technical input to the IRMU program a Research Coordination Committee (RCC) was constituted at the first RAC meeting held on 23.3.93 with representative from ID, NIRP, IRMU and IIMI. The RCC has met 4 times since and increasingly becoming involved in formulation and implementation of IRMU program.

In order to coordinate research work at the field level it was recommended that Range Research Coordinating Committees be formed with the respective Deputy Director, Irrigation as the Chairman. Members were to be drawn from other relevant agencies. But there has been no progress in their establishment.

Establishment of Research Library: The existing ID library is being upgraded into a research library. For this both "software" and "hardware" of the library is being modernized. The Library Association of Sri Lanka is helping determine the needs as well as mechanism to reorganize the existing library. Arrangements are complete to improving the facilities, eg. installation of air conditioner, procurement of computers, photocopies and shelves. These works are expected to be completed by the end of the year.

3.12 Research and Development

Based on the outcome of two consultations/workshops (Aug. 1992 and October 1993) and the medium terms research agenda a research program is being implemented which address all the 4 disciplines and specifically caters to the NIRP needs. Of the 10 (ten) studies under implementation one is being implemented independently by IRMU, 3 (three) in collaboration with other ID units/divisions (ITI, Hydrology, Range DDs) and 6 (six) being contracted out (3 (three) to universities, 1 (one) to AR&TI- proposed; 1 (one) to Department of Agriculture and 1 (one) to university/Mahaillupalama Research Station). Through the research program a very strong linkage with other national research institutes and universities. In addition to the Technical Advisor 4 other IIMI international staff are associated with the implementation of the research program.

3.13 Training and Technology Transfer

This has been strongest program and the activities have been carried out under the following headings.

On the Job Training: IRMU staff under the close supervision of IIMI staff were trained in research proposal preparation, data collection, processing and analysis and report writing. Though IIMI has lost 4 out of 5 trained staff they continue to remain part of the national professional goal.

Specialized Training Courses: A 2-weeks Rapid Rural Appraisal course for determining rehabilitation needs for irrigation schemes and identification of research needs was conducted in Irrigation Training Institute at Galgamuwa. 17 participants from ID, IRMU, ITI, and provincial councils successfully completed the course. This is probably the only training course conducted by IIMI where 30 percent of the participants were women.

A second course on Research Methodology which was designed for the IRMU research staff had to be canceled as 4 out of 5 IRMU staff have already left the unit.

Review of Past and Present Research: IIMI staff is helping IRMU to locate, collect and summarize present and past research conducted within the country in the field of irrigated agriculture. This exercise is expected to lead to better understanding of the problems and help design followup research. 750 studies have so far been identified and over 75 have been summarized.

Holding of Workshops: A series of workshops are being held to review and learn lessons for improving management of irrigation systems. These also provided important input for designing research projects.

Workshop on use of computer models as decision support tools in operation and management of irrigation systems: A Sri Lankan Experience:

This workshop was held in July, 1993 at the Irrigation Training Institute of the Irrigation Department located at Galgamuwa. 48 (Forty eight) participants from ID and Mahaweli Development Authority attended the workshop. The inaugural session was presided over by the State Secretary for Irrigation and present among others were Directors International Cooperation and Research from IIMI, Snr. Deputy Director, (PP & SS) ID and Project Director, NIRP. As a follow up of the workshop the study on the use of computer models for improving irrigation management has been expanded to include four new schemes.

Workshop to discuss strategic plan and Medium Term Research Agenda of IRMU:

The workshop was held on October 1993 at the ID. 40 (Forty) participants for ID, IRMU, DAS, AR & TI and universities participated in the deliberations. Based on the recommendations the Strategic Plan & Medium Term Research Agenda were finalized.

Workshop on Catchment Management Studies and Performance Monitoring of Downstream Control Structures:

The above studies were initiated under MIRP. After the expiry of the MIRP in June 1993, these studies were included in the IRMU workplan. The workshop was held in October, 1993 with the objective of ascertaining the status of the studies as well as to develop workplans and budgets to bring the studies to successful conclusion. Based on the results, recommendations are being formulated to improve catchment management.

Workshop on Seasonal Planning Procedures to Improve Irrigation Management Performance: How Kirindi Oya Experience of IIMI/ID can be Transferred to NIRP Schemes

The workshop focused on the study implemented by IIMI at the Kirindi Oya Irrigation & Settlement Project in collaboration with the agencies in charge of development and management of this project.

The objective of the Workshop was sharing of experiences of researchers and implementors involved in the study conducted at Kirindi Oya with parties involved in National Irrigation Rehabilitation Project (NIRP) and exploring the possibility of incorporating Kirindi Oya experience to NIRP schemes. 87 Participants from Irrigation Department, NIRP, Irrigation Research Management Unit (IRMU), IMD, Universities, Agrarian Services Department, Department of Agriculture, Mahaweli Authority, IIMI, Provincial Councils, and NGOs participated.

The methodology adopted is Participatory Action Research in which the system management agencies, including farmers became the implementors of the research program.

The senior officials highly commended the role played by IIMI by providing facilities and helping to develop the skills of the agency staff

It was recommended that for the schemes rehabilitated under NIRP, irrespective of the limited number of farmers and small commands, a Plan of Operation and Maintenance be prepared. The participants recognized that Kirindi Oya experience can contribute to the preparation of Operation and Maintenance Plan for all type of schemes. Given the serious water supply constraints experienced by the Kirindi Oya System, the framework for water issues has become a useful tool to build a strong O&M organization. The workable water issue plan for Kirindi Oya can be replicated in other schemes with some site specific alterations.

Workshop on Farmer Participation in Planning, Design, and Rehabilitation at NIRP Schemes: Current Status and Needed Improvements.

The workshop was organized in order to share experiences with others and disseminate the information which was gathered through the research conducted by the IRMU. 39 participants from ID, NIRP, IIMI, Mahaweli Authority, AR&TI, Department of Agrarian Services, Department of Agriculture, Universities and IRMU attended the workshop.

Main objectives of the workshop was to make the participants aware about the present status of the farmer participation in NIRP schemes and to identify measures that NIRP should take to maximize farmer participation.

To achieve the objectives, two papers were presented, one covering plans and concepts and the other covering the actual field situation relating to farmer participation in NIRP schemes. Each presentation was followed by one hour discussion. A set of recommendations were developed to further strengthen farmer participation in NIRP schemes.

Holding of Seminars:

As a part of its information dissemination program IRMU started a monthly seminar series from December, 1992. To date 21 seminars have been held which covered a wide range of topics. Speakers included professionals and researchers from national and international agencies, non-governmental organizations etc. IIMI staff were involved in eight presentations, six independently and two in collaboration with the ID staff. The seminar series have been very well received and being attended by professionals from national and international agencies.

Publication of Newsletter: The information dissemination program has been boosted by initiating publication of IRMU Newsletter from early 1994. Two issues of the newsletter have been published.

Award of Fellowships

A strong component of the professional development program is the award of fellowships to ID officials to pursue higher degrees in the national universities. To date 5 fellowships have been awarded for higher studies leading to masters degrees.

3.2 Project 2: Irrigation Management for Crop Diversification - Phase II

The phase II study conducted in the Kirindi Oya and Uda Walawe irrigation systems. The study intended to contribute to improved performance as well as to test management innovations for improving irrigation system performance for other major irrigation systems of the country.

Organizational Development: The organizational development activities were primarily carried out through participatory action research (PAR) and training at the organizational level. The implementation of the action research program in the KOISP included participation of staff from Irrigation Department (ID), Irrigation Management Division (IMD), Land Commissioners Department (LCD) the Department of Agriculture and the farmers. The participatory action-research facilitated a process of development of a new institutional culture to integrate the inputs of various line agencies and farmer organizations to improve performance of irrigated agriculture production system. Co-ordinating mechanisms through various means such as Project Management Committees, task forces etc. have been utilized for this purpose. Government Agencies

involved in this effort included, Department of Agriculture, Department of Agrarian Services, Land Commissioner's Department, Irrigation Department and Irrigation Management Division. Consequently, significant measurable improvements in system performance have been recorded.

A large number of training programs were implemented for organizational development for the study. The most important ones were: Research Methodology Workshop; Project Planning Workshop; Data collection and recording for the Ellegala water balance study; Maintenance management; Participatory management; Monitoring network; Evaluation etc.

3.3 Project 3: Use of Information Techniques for Irrigation Canal Management

In attempting to improve the performance of irrigation systems the adoption of management approach that includes a great responsiveness to current and potential levels of performance plays a significant role. Better and more timely access to data, an improved capacity to process the data into information and a capacity to identify reasons for less than desired performance and potential solutions are the elements of management approach. Use of Information Techniques for Irrigation Canal Management project has been assisting to the national agencies to a greater extent. The project continued to assist the introduction of a data collection and communication program and of a computer tool for storage and processing of daily data in the Kirindi Oya Right Bank Canal. To realize this staff members were assigned with new tasks. The necessary facilities to carry out these tasks were provided. Easily comprehensive data collection forms were formulated for Gate Operators and Work Supervisors. Each gate operator was asked to collect and record data twice a day and pass to the Work Supervisor. The Work Supervisor was assigned the job of summarizing the data and forwarding to the manager. An incentive program was introduced to the field staff in the department to motivate them to undertake new tasks. The Three and one engineers involved in this program were participated in workshops and visits in France and Pakistan respectively in October 1992 and July 1993. In July 1993 the project extended its support to conduct a workshop at Galgamuwa Irrigation Training Institute. This workshop reviewed and compared experiences in the application of computerized decision-support tools to improve the performance of water management in irrigation systems in Sri Lanka. Since early 1993 the project has been assisting the Irrigation Research Management Unit to carry out the study titled Evaluation and Use of the Computer Models for Improved Irrigation Management in four sites. Except for on the job training for the department personnel a Ph.D candidate in the Irrigation Department benefits from these attempts in completing his thesis research. In addition, Sri Lanka was included in a network with Pakistan, Mexico, Malaysia and India. The members in the network met in Colombo in December 1993. A training program was conducted for the engineers of the Mahaweli Authority of Sri Lanka on Hydraulic Simulation of Irrigation Canals Computer Model from 31 October 04 November 1994 at IIMI Headquarters. Steps have been taken to produce a data logger and a water level sensor with the University of Peradeniya in 1994.

3.4 Project 4: Irrigation Management Improvement Project

The Irrigation Management Improvement Project has been carried out jointly between IIMI, HR Wallingford, and the Irrigation Department at Inginimitiya Irrigation System. The broad objective of the project was to attempt to improve irrigation management, and particularly achieve a better match between scarce water supplies and crop demand through the introduction of INCA, a decision support computer software developed by HR Wallingford through its program in the Overseas Development Unit. Despite the prevailing drought conditions, most of the technical aspects of the project were accomplished. These tasks included the installation of the computer software; completion of training of managers and technical staff in its use and application; establishment of an improved monitoring system for measuring discharges, field level water conditions and cropping patterns; and development and utilization of the INCA, software as a database management system.

The study identified the need for a cadre of staff committed to operational issues and not distracted by other tasks such as construction and administration. It also emphasized the need for appropriate training for the staff in establishing and operating an effective data collection network and use of appropriate software.

3.5 Project 5 : Shared Control of Natural Resources

In institutional strengthening, the role now being played by SCOR is significant. SCOR efforts are directed at strengthening the capacity of individual institutions such as the Divisional Secretariats to address priority issues in land and water management, and also to systematize and activate the overall institutional system, comprising different government agencies and strengthening its capacity to function in coordination to achieve the objectives of land and water resources management. SCOR strives to integrate the efforts of these institutional clusters to make the optimum use of resources available through a comprehensive programme as distinct from the ineffective functioning of a series of uncoordinated projects.

SCOR also believes that hydrological considerations involved both in terms of availability and utilization of land and water resources in developing programmes for integrating production and protection of the resources will necessarily involve **institutional structures** which would defy confinement to administrative boundaries. This has necessitated SCOR to promote new institutional devices, particularly the Watershed Resource Management Teams (WRMT) which cuts across administrative boundaries, and with a different composition to ensure active participation of resources users. SCOR has actively promoted this effort in assisting in the formation and strengthening of Sub Watershed/Watershed Resources Management Teams.

In line with the premise that increased control over the natural resources by the users is indispensable for improving productivity and conservation of the resources, SCOR has involved itself heavily in the strengthening of existing resources user organizations and promoting new organizations at the base. Considerable effort has been made in this direction and a fair number of resource user groups and organizations are in various stages of development already in the two watersheds.

The sum of the efforts in institutional strengthening has accentuated the need for a great deal of awareness creation and knowledge, skills and attitude development of the different actors involved in this effort. SCOR has moved away from the conventional approaches of training and development of both resource users and government personnel. SCOR is now in the process of implementing non-formal, in-and-through action programmes in the two watersheds.

These tasks have no doubt been challenging but direct involvement in the field is beginning to show that these goals are realizable.

Resources User Participation in planning for resource conservation and optimum utilization and implementing action programmes at the grass roots levels have highlighted and exposed the weaknesses in the existing government policy and arrangements for their implementation, and specific ways in which changes in policies could be made. For instance, resources users in the two watersheds holding land under encroachment or under different forms of tenure have involved themselves in action programmes that eschew undesirable land use practices, guarantee greater productivity of the lands cultivated by them in modes that will protect the resources as well. These actions have surfaced the need for improved **institutional arrangements for state-user relationships that would grant them greater rights to the use of land, usufructuary rights, long term leases, pooling of land resources etc.** IIMI is facilitating this process and a few new forms of state-user relationships have been already established.

3.6 Project 6: Monitoring and Evaluation of Participatory Irrigation System Management Policy

This project is contributing to the development of the capabilities of Sri Lankan irrigation management institutions in the following ways:

- The project is providing data to the government, including the Ministry of Irrigation, the Irrigation Department, the Mahaweli Economic Agency, and the Irrigation Management Division, on the progress and impacts of the participatory management policy. The data is meant to be used for review of the policy as a whole, and to help the agencies make improvements in their participatory management programs.

The data is being passed to the government through reports and a workshop to be conducted by IIMI in January 1995 on the results.

- A second purpose of the study is to help the government agencies improve the existing monitoring and evaluation systems for participatory management. To that end, IIMI is providing direct assistance to the Irrigation Department to development an appropriate M&E system. IIMI has also developed some indicators that are being used in part by the Mahaweli to develop their own monitoring system.
- In addition, IIMI is collaborating in this work with the Agrarian Research and Training Institute, partly in order to develop their capabilities to undertake

monitoring and evaluation studies and to increase their knowledge of the specifics of participatory management in the field.

Policy Committees

The SLFO is also helping improve the capabilities of the government of Sri Lanka by contributions to high level policy making committees. Specifically,

- Dr. Wijayarathne sits on a variety of committees, including the Central Coordinating Committee for Irrigation Management, a committee on the restructuring of the irrigation sector institutions, and others.
- Dr. Sakthivadivel is IIMI's representative to the task force overseeing the water resources planning effort.
- Dr. Brewer also attends the Central Coordinating Committee for Irrigation Management because the M&E study described above is overseen by this committee.

Linkages with the Agrarian Research and Training Institute

In addition to the collaborative work being undertaken by IIMI and ARTI under the M&E Study, IIMI is collaborating with ARTI on two other studies:

- ARTI is undertaking portions of the Kirindi Oya Impact Assessment.
- ARTI is undertaking process documentation for the SCOR Project.

Project 7: Water Management in a Tank Cascade Irrigation System in Sri Lanka

This study was carried out in close collaboration with the Agrarian Services Department (DAS), Anuradhapura. The Technical Officer attached to the department worked closely with the study team assisting in field data collection.

A unique feature of the project was the involvement of Vel Vidane and members, leaders of farmer organization for collecting data in the respective tank systems. The involvement of members of the farming community in the activities of the project made them more aware of the need of improved water management.

A seminar on the findings of the water balance investigations carried out in the study location at Thirappane was held on 28 June 1994 at IIMI Headquarters. The primary purpose of the seminar was to present the methodology developed to investigate the hydrology of small inter-connected tank systems.

Those present were officials of the Irrigation Department, DAS, and the Department of Agriculture. IIMI staff also attended the meeting

CONCLUSIONS AND RECOMMENDATIONS

IIMI has just completed its first decade of presence in Sri Lanka. As the IIMI/HQ is located here she has received both direct and indirect support for institutional and capacity building from quite a number of projects in addition to the ones implemented through SLFO. Some project like IRMU is attempting to reform and upgrade both "culture" and skills of irrigation management with institutional reform while others have contributed through participatory or collaborative action research. Though these programs contributed to certain policy changes, institutional reforms, improvement of professional skills, yet a clearer picture of the impact on the improvement of the irrigated agriculture is yet to emerge.

The conventional approach to the evaluation of professional development programs are the quantification of higher degrees obtained, short courses attended, publications made etc. But I strongly believe that these are "vehicles" to attain the ultimate objective and in this case improved and sustainable irrigated agriculture. IIMI should on priority basis assess this aspect.

Considering the current trends and future expectation the following institutional reforms are recommended:

1. Need for multidisciplinary organization to provide irrigation services:

Irrigation is now recognized as a multidisciplinary effort and hence it is essential that the Irrigation Department built into their structure other disciplines such as irrigation agronomy, social sciences including institution building, management and natural resources management/environment etc. At the same time strong coordinating mechanisms shall have to be established to integrate ID efforts with other relevant agencies.

2. Establishment of an unitary apex organization:

It is important to recognize that the cause of irrigated agriculture will be better served by an unitary organization at the apex level. Such an organization is necessary to set guidelines on technology, rehabilitation, modernization etc. Diversification of irrigation agencies may not be serving the greater interest of the irrigated agriculture sector.

3. Need for developing the department as the center of excellence for irrigation technology:

The department must have the authority and expertise to function as country's best organization and competent authority for developing irrigation technology. The department will also set guide lines for system design, management, rehabilitation, modernization etc. In other words such responsibilities and authorities should be vested with the department at the national level and not at lower levels.

4. Need to improve incentive structure within the agency:

Reward mechanisms should be introduced to retain the best expertise within the agency to maintain comparative advantage in all matters related to irrigation. For instance, Irrigation Department can establish a "consultancy Arm" within the department and can effectively compete with national and international firms in providing services related to their expertise. This will provide better monetary incentive.

5. Human resources development

A comprehensive plan for human resources development should be prepared considering the present and future needs which are going to be changing faster than before.

6. Monitoring need for institutional change

A mechanism should be established within the agencies to evaluate the changing needs of the clients so that it will automatically allow the agencies to readjust themselves which will avoid donor prescriptions for change.

7. Strengthening IIMI's institutional development program

IIMI's institutional and capacity building program should be more closely linked to the country program efforts and budget allocation should be shared with the identified country specific programs. IIMI should immediately and adequately staff in institutional development and training section.

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