

*Institutional development activities help irrigation professionals to improve skills needed to manage irrigation systems.*

## **An Integrated Approach for Institutional Development at the Department of Irrigation and Drainage in Malaysia**

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Deficiencies in management are considered to be a major cause of the failure of many irrigation schemes to produce sustained improvements in agricultural productivity in developing countries. This has been principally attributed to the lack of managerial skills among the professional staff working in these irrigation organizations. The training and development of irrigation managers has therefore, become an important activity to help upgrade their skills and consequently, the overall performance of irrigation systems.

Conscious of these problems, the Economic Development Institute of the

World Bank (EDI) and the United States Agency for International Development (USAID), in a joint effort, prepared draft guidelines in 1987 for devising strategies and programs for irrigation training in the public sector. These guidelines were discussed during a seminar organized by EDI and the Center for International Irrigation Training and Research (CIITR), Melbourne, Australia which took place at CIITR from 6 to 16 March 1989. This seminar, attended by senior irrigation managers from various developing countries, aimed to assess the value of these guidelines and their suitability for use in formulating training programs and strategies for

irrigation organizations in their own countries.

Following this seminar, the Department of Irrigation and Drainage (DID) in Malaysia considered that it was necessary to review their own training programs. The objective of the review was to introduce better methods of improving the management capabilities of their staff, and to increase their motivation and commitment to the needs of the Department and its clients, the farmers. It was at this stage that the Director General of the Department invited IIMI to assist with this effort, helping them to improve the irrigation management

component of the existing training programs.

As a first step IIMI and the DID undertook jointly, a Training Needs and Organizational Constraints Assessment to identify the key factors necessary to improve the knowledge, skills, and attitudes of individual staff in the Department. Following this exercise, the full Training Cycle was implemented. The success of this exercise led DID to introduce a Strategic Planning and a Human Resource Development program and subsequently, to consider how to develop research capacity. Together, these institutional development activities were introduced and implemented over a three year period, from January 1989 to September 1992, and brought together a total of four hundred managers of the Department of Irrigation and Drainage. The details of this integrated approach, and the associated institutional linkages, are displayed in Figure I.

## **Implementation of the Training Cycle**

### *Training Needs and Organizational Constraints Assessment*

The first phase in the implementation of the Training Cycle was to conduct the Training Needs and Organizational Constraints Assessment (TNA). This was executed from 13 October to 11 November 1989 in Kuala Lumpur and Kota Bharu. The primary objective of the TNA was to identify the factors which affected individual performance in managing the affairs of the Department, and to indicate the nature of potential solutions to improve the management of the organization.

A crucial aspect of this endeavor was to bring together for small group exercises, a representative sample of three hundred and twenty-one staff from DID, the Malaysian Agricultural Research and Development Institute, the Muda Agricultural Development

Authority, Kemubu Agricultural Development Authority, the University Pertanian Malaysia, the Department of Agriculture, and the National Institute for Public Administration.

These persons were divided into one group of top managers, three groups of engineers, two groups each of technical assistants, technicians and irrigation inspectors, four groups of irrigation overseers, and one group each of researchers and trainers.

IIMI's approach to the TNA was based on promoting interaction between the staff of the organization through small group discussions. The dialogues focused on the concepts of irrigation management, the distinction between the managerial and technical activities, and the gaps existing in knowledge, attitudes and skills of the staff within the organization. Additionally, time was devoted to the identification of organizational constraints which prevented the staff from providing better services to the clients, the farming communities.

These sessions were structured in such a way that the process of understanding the essential concepts, and of translating them into operational terms, took place gradually among the participants as a result of their own efforts and self analysis. The sessions provided the participants with a variety of opportunities to present and discuss their own experiences and attitudes in their work environment. This was performed with the intention to promote awareness of the causes and solutions to various situations — both successful and unsuccessful.

Although these sessions provided DID and IIMI with the desired lists of gaps and organizational constraints on which to focus future actions, the most important constituent of the exercise was the process of group analysis of irrigation activities and of DID as an organization. The interaction between participants was facilitated by the existing common feelings among the staff towards DID which were shared

openly, sincerely and with a commitment to help improve the Department of Irrigation and Drainage to accomplish its goals.

### *Preparation of the Training Plan*

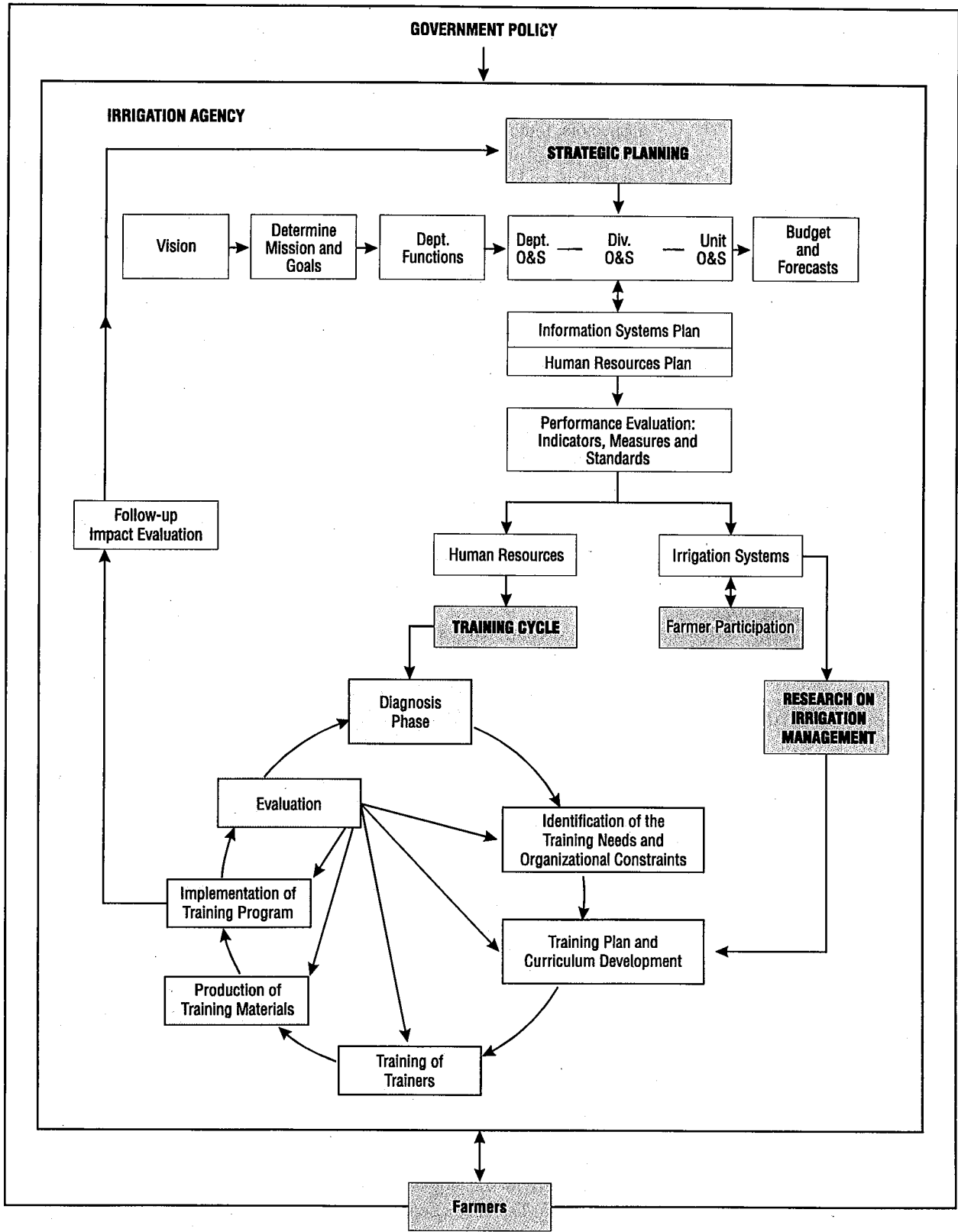
As a result of the information obtained during the TNA, DID embarked on a process of designing and implementing a training program based on the identified needs, and reviewing the organizational components which gave rise to some of the constraints experienced by its staff.

Accordingly, members of the top management of DID were invited to participate, together with the IIMI training team, in a three-day workshop which was held in Malacca in February 1990. Here, they discussed the findings of the TNA, identified the training priorities for DID as a whole, and immediately prepared a training plan for DID staff. This workshop was considered to be an indispensable element in the overall management training program in Malaysia, particularly as most of the participants were top managers and engineers of DID who were responsible for managing Malaysia's irrigation systems.

The discussions of the results of the TNA were intense and very open. The managers were very receptive, particularly to the constraints relating to their own attitudes and behavior. Consequently, the workshop provided an unique opportunity for top managers to get feedback on these matters from their staff and to discuss with their colleagues, ways of improving their management style in order to be more effective managers, leaders and supervisors in the Department.

The event generated agreement with the notion that training activities could be a useful and effective medium in helping DID managers improve the skills that they needed to manage the irrigation systems in the country. This provided an essential foundation for the next stage in the Training Cycle,

Figure I. — Organizational Linkages with Training and Research



O&S = Objectives & Strategies

the development of curricula for training the priority groups, the engineers and irrigation technicians.

### *Curriculum Development*

The development of two draft curricula to reflect the training needs of DID staff was accomplished during a one-day workshop held on 18 October 1990, at the DID Headquarters in Kuala Lumpur. The workshop, chaired by the Deputy Director General, brought together the Director for Training and training staff from DID headquarters, trainers from two DID training centers and the IIMI Training Specialist.

The concept of curriculum development was presented as a 'master plan' comprising of a comprehensive set of guidelines to help the trainer to manage the learning process. The curriculum functioned as a 'working script' as it defined a step-by-step strategy and a set of activities to be developed during the implementation of a training program. The curriculum clarified exactly what was to be learned and how the learning would take place.

The results of the TNA were analyzed. Gaps in certain skills had been consistently cited, notably those relating to the development of self-confidence, self-esteem, motivation and the development of positive attitudes. Consequently, these topics were included in the training programs for both the engineers and the irrigation technicians. Other topics — how to be a leader, how to coordinate intra and inter agency activities, how to manage information systems, and staff interaction with farmers — were added to the training programs.

Finally, two 'master plans', one for the training of engineers and another for the irrigation technicians, were prepared. A curriculum for the training of trainers was also devised and included topics on how to teach management skills, and how to plan, implement and evaluate management training programs.

### *Training of Trainers*

IIMI, DID and the University Pertanian Malaysia (UPM) trained the trainers at the Continuing Education Center of the UPM, in Selangor from 22 April to 11 May 1991. The specific aim of the program was to help irrigation professionals to develop and practice the skills needed to plan and implement the management training and development activities for the irrigation managers in their organizations. As the level of training experience among the participants varied considerably, exercises in training techniques and methods were included as essential components of the program.

In the third week of the program, the trainers were divided into three groups, each of which was responsible for planning and organizing a one-day training session in which the members of the other two groups acted as 'trainees'. The members of the lead group determined the content of the training program they developed and wrote the performance objectives, prepared the lesson plans, and designed the audio-visual materials and transparencies. The trainers then conducted these training programs, applying the new approaches to adult teaching. Each training session was video-taped and played back so that each person was able to assess the strengths and weaknesses of their individual performances.

Feedback to the lead group was also received from the 'trainees' assigned to the other groups. Each member of the lead group was evaluated by the 'trainees' by means of a questionnaire. Questions addressed a wide range of issues such as personal delivery styles, skills in leading group discussions, and the psychological learning climate.

### *Production of Training Materials*

The production of training materials to support the curricula for the programs designed for training of the engineers and irrigation technicians was a very important aspect of the Training Cycle

in Malaysia. Significantly, published results of research on irrigation management, particularly those derived from IIMI's research, were utilized as key sources of information to support the proposed curricula. Incorporation of this material into the training programs facilitated a better understanding of the problems cited in the publications and encouraged the participants to synthesize appropriate solutions, bridging the gap between research and practice.

The training materials used in the first two training programs at DID were initially prepared by the IIMI Training Unit. These were subsequently modified in accordance with suggestions made by the Malaysian trainers while they were being used in the training of trainers program.

During the design and production of the first draft of the training materials, IIMI took into account a number of interrelated factors, for example, the facilities or location where the training was to take place, and what follow-up activities were to be pursued.

Study of these and many other factors, enabled appropriate decisions to be made on the nature of the training materials which were required to meet the needs of the first DID training programs.

A number of IIMI's research publications relevant to the proposed content of the two training programs were identified. Single original English language copies of each of these publications were provided to the engineers one month prior to the beginning of the training program. An English summary of each document was also prepared and translated into *Bahasa Malaysia* for distribution to the technicians.

The documents were also used as the basis for producing the training materials, transcribing the results of the research into other communication media to ensure that the messages they carried reached the intended audiences

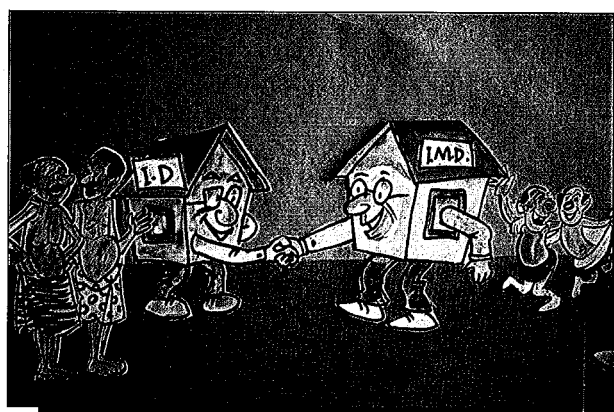
in ways which they could be understood. For example, the publication *Institutions under Stress and People in Distress* (Merrey, 1989) was used in four different ways. The book was provided to the participants one month in advance, and then a video script based on the book was prepared by the IIMI training staff. Subsequently, a worksheet was

designed and distributed among the participants which gave directions and questions based on the book for group discussion. Finally, a tape-slide presentation was prepared using cartoons to emphasize the main points of the research study and the conclusions. These documents were transcribed into overhead transparencies, flipcharts and into

worksheets and translated into *Bahasa Malaysia*.

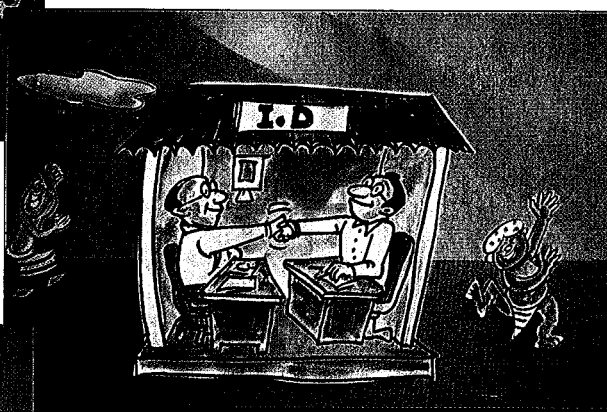
An example of how the results of IIMI research or case studies were translated into tape-slide presentations for use as training material is given in figure II.

**Figure II. — Slide Presentation**

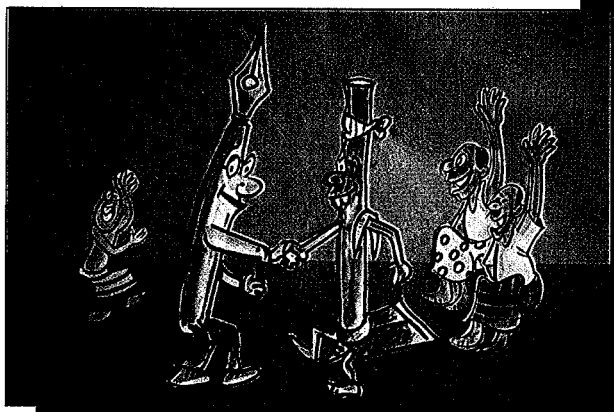


**Improving interagency communication**

**Communication within departments**



**and between farmers/officers**



The above slide-tape presentation is based on the publication, *Institutions Under Stress and People in Distress* by two IIMI researchers, Douglas J. Merrey and P.G. Somaratne (Merrey, 1989, page 69, para 4). This study analyses irrigation operational problems in a new irrigation system in southern Sri Lanka and their impact on the system, and offers a number of suggestions for improving the management of this system.

The publications selected for the training courses highlighted the problems in irrigation management encountered in other countries. The participants were therefore, able to analyze and compare them with similar situations which confronted them in their own irrigation environment. Consequently, they were able to evaluate the recommendations in terms of their relevance, feasibility and suitability, to understand and address

the problems in their own country. By presenting the same content of the publications in three different ways, reinforced and clarified important points which were not always clear at first reading.

During the program, opportunities were provided for the Malaysian trainers to become involved in the process of assessing and improving the training materials. This was of



*The training materials were officially handed over to DID on 14 October 1991.*

profound significance. Not only did this increase the relevance of the materials to the training programs, but it inspired in the trainers, a sense of ownership of the materials. Consequently, the trainers were committed to using these materials and paid greater attention to their content.

The manner in which the trainers were involved in this process was to invite them to evaluate the draft training materials during the training of trainers course. Here, feedback was either given orally or in writing, and was taken fully into account by the IIMI training staff in producing the final versions of the training modules. These modules were officially handed over to DID on 14 October 1991.

#### *Monitoring Implementation of the Training Programs*

The first of the two training activities to be implemented was a course for irrigation technicians, which was conducted by an irrigation engineer and a senior irrigation inspector from DID. This took place at the DID training center in Kota Bharu from 26 October to 6 November 1991. The second course was designed for the engineers and took place at the Regional Center for Training in Penang, from 13 to 26 November

1991. This was conducted by two DID irrigation engineers and one member of the Faculty of Engineering of UPM.

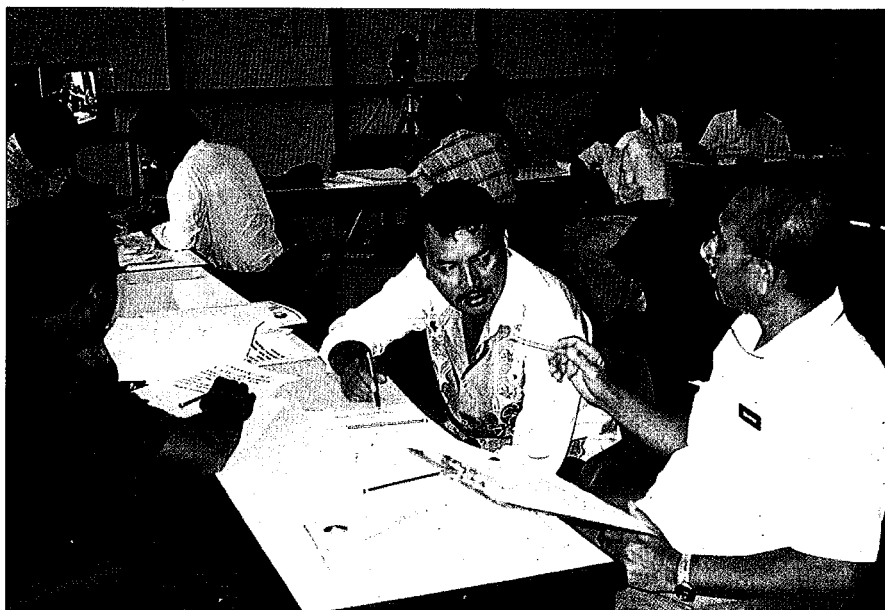
An important component in the implementation of the two training courses was an appraisal, by members of the IIMI training team, of the Malaysian trainers who had been trained earlier under the training of trainers course. The appraisal process was designed to ensure that the training curricula and training materials designed for the engineers and

irrigation technicians were being used effectively. It was also used as a means of supporting the Malaysian trainers as they applied their newly-learned training skills in practice for the first time, and helped to reinforce their self-confidence.

The results of the appraisal confirmed that the trainers were highly motivated and applied the new training methods and techniques with confidence. They used the training materials effectively and transmitted their enthusiasm to the participants. This experience emphasized the importance of developing a well-designed training plan in providing the basis for effective and sustainable training activities.

#### *Evaluation of the Training Cycle*

The activities were evaluated at every stage of the training cycle by the participants who considered them in terms of content, process and program design. In general, the participants evaluated the sessions positively, emphasizing that the methods and techniques employed fostered awareness of the importance of managerial skills, a better understanding of management training



*The IIMI training team carried out an appraisal of the trainers who had been earlier trained under the training of trainers program.*



*The top management of DID discussing issues relating to strategic planning activities.*

activities, and provided a forum for team-building and developing personal friendships.

### **Strategic Planning and Human Resource Development in the Department of Irrigation and Drainage, Malaysia**

The performance of the participants in the training programs just described could only be monitored and assessed in the context of the overall objectives of the Department of Irrigation and Drainage. Consequently, the top managers of DID agreed to review and discuss a number of issues relating to strategic planning, including the formulation of a mission statement, drawing up a set of corporate objectives, and devising a human resources development program.

Between 15 and 25 October 1991, three workshops were organized at the headquarters of DID to address these issues. In attendance were the policymakers and senior managers of DID. The activities were organized into two three-day events and a single one-day event with a maximum of twenty participants in any particular instance.

In preparation, a group of top managers prepared a draft mission statement and a set of corporate objectives for discussion.

In the discussions on the mission statement, consensus was reached that the mission of DID should support government policies, recognize the need for cooperating and coordinating water resources in the country, and meet the clients' needs in order to sustain national development. It was agreed that the mission statement which was constructed would be disseminated to DID staff and its clients, key groups who were closely related to the organization, government policymakers and stakeholders.

During those sessions devoted to defining the corporate objectives, it was noted that in order to carry out the mission, the success of the planning and management processes lay in the combination of 'top-down' and 'bottoms-up' responses. Such responses demanded a wide variety of interactions which contributed to the development, understanding and knowledge of the organization, including staff motivation and commitment.

Emphasis was also given to the importance of evaluating the performance of an institution in order

to ascertain its strengths and weaknesses. In addition, the concept of performance categories, "a set of related skills, procedures and capabilities which define a particular area of institutional function or performance" (Cullivan, 1988), was introduced to increase the awareness among the participants that performance indicators are related to performance categories. Thus, participants were provided with an understanding that once performance assessment is focused on a set of objectives and expected level of achievements, it can provide managers with a guide for designing appropriate interventions to improve the overall performance of the organization.

The discussions on Human Resource Development (HRD) covered the importance of assessing staff training needs and preparing a plan to provide the staff of the organization with the opportunity to develop their professional capabilities through formal training programs. In addition, issues relating to recruitment selection, socialization, career development and staff performance appraisal were discussed. Finally, emphasis was placed on the importance of the need for top and senior management to fully support and participate in the design and implementation of the HRD activities if the program was to be successful.

### **Strategic Planning and HRD at the Field Level**

As an outcome of the workshops just described, the strategic planning process was extended to the field level in the Kerian and Besut irrigation schemes. The objective of the exercise was to enable DID to measure the performance levels of its services in the field at these two sites. The activities which took place in Besut in September 1992 included a workshop for the managers of the two schemes on strategic planning and human resource development, an information workshop for the staff of the Besut scheme, and an interactive meeting

with the farmer-clients of the Besut scheme.

The initial workshop allowed the participants to understand and internalize the mission statement and corporate objectives of DID. Small groups also worked together to produce statements which would help interpret the DID mission for a wide range of different client audiences. These interpretations emphasized the different aspects of the activities pursued by DID while undertaking its mission. Issues concerning the corporate objectives, performance assessment and human resource development were also discussed in relation to the management of the Besut and Kerian schemes.

Subsequently, a half-day information workshop was organized for the staff of the Besut scheme. This was conducted to increase staff awareness of the importance of the issues covered in the earlier workshops, including the mission and objectives of DID, and the objectives, strategies and activities of DID as they related to the field setting.

Finally, senior staff members of DID organized an interactive meeting with representatives from the head,

middle and tail end farmers of the Besut irrigation scheme in Besut in September 1992. Here, information was provided on the activities of DID and the attention it was giving towards improving the performance of its staff and services. Interviews were held with the farmers to help DID ascertain the needs of the community. The information acquired as a result of these interviews was used as a basis for developing a plan for improved irrigation services to the farmers.

These activities constituted the final and necessary step to operationalize the DID mission and objectives at the field level in two selected irrigation schemes in Malaysia. The Director General of DID, in an interview on 2 October 1992, confirmed the increased level of interest and commitment among the staff of the Besut and Kerian schemes, stating:

*"I am sure that the process we have gone through . . . would definitely be most effective towards improving irrigation performance as a whole in the country."*

The impact of these activities on the performance of the staff of the Besut and Kerian schemes will be assessed at a later stage. However, the most

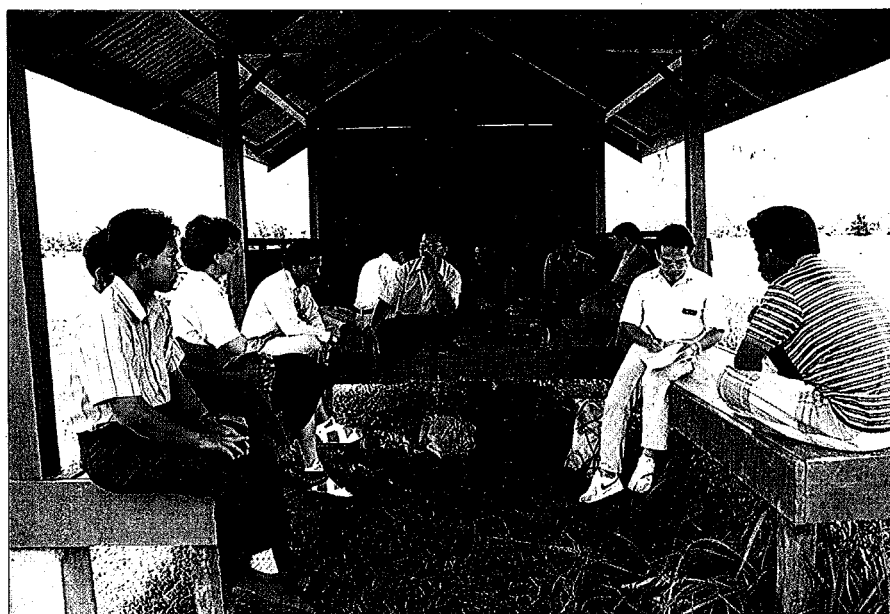
significant impact which is anticipated is that the managers of these two schemes will reinforce the planning, monitoring and evaluation processes and demonstrate greater commitment to achieving the DID mission. These expectations led IIMI and DID to develop the final stage of this management training, the development of research skills for investigating further aspects of the management of irrigation schemes.

### **Developing Research Capacity**

If research on irrigation management is to be relevant to the real needs of the irrigation sector, the irrigation practitioners should be involved in the research. These practitioners are able to make meaningful contributions to research programs as a consequence of the knowledge and experience they acquire from the day-to-day operation of the irrigation systems.

Too often, research on irrigation issues is carried out by people from outside the irrigation sector, generally from the ministries of agriculture or from the universities. These persons study the irrigation systems for their own purposes, only using the systems as sources of information, but without consulting the irrigation practitioners. Based on their professional knowledge and experience, their contributions would add considerably to these research studies, helping to provide improved irrigation system performance. Since they are not generally involved in the research however, many of the real needs of irrigation systems have been neglected.

In order to develop the research capacity of the staff at DID, IIMI invited researchers from the universities and other agencies to participate in the program. They helped the DID staff to identify the skills necessary to conduct research on irrigation management and also, to debate the issues and problems in



*Meetings held with farmers of the Besut scheme helped in developing a plan for improved irrigation services to farmers.*



irrigation management research in the country.

The next step was to organize a workshop on *Research on Performance of Irrigation Systems*. This was organized to alert the irrigation practitioners from the Besut and Kerian schemes of the need to evaluate the performance of the irrigation systems, and to encourage them to call upon the assistance of the research staff of the University and elsewhere in Malaysia, to investigate the problems for which solutions were still required. The results of such investigations could be incorporated into the curricula of future training programs for irrigation managers helping to ensure their relevance to the real needs of the irrigation sector.

The workshop, designed for the irrigation managers in the Besut and Kerian schemes, was held in Besut from 25 to 28 September 1992. A total of fifteen managers participated in the event, including two DID trainers and one professor from University Pertanian Malaysia (UPM).

The four-day workshop included wide ranging discussions on research processes, the complexity of the irrigations systems, monitoring and

evaluation of irrigation systems performance, sustainability issues, and the importance of conducting collaborative (research) activities, and writing good research proposals. The event concluded with the identification of the research issues relevant to the Besut and Kerian schemes and highlighting a spectrum of other factors which have a significant bearing on irrigation performance, and especially, increased farmer participation in system management and equity of water distribution.

By focussing the discussions on research in the performance of irrigation systems, this workshop helped to develop within DID, an awareness of the full range of skills necessary for institutional development. The increased awareness among the participants that irrigation managers should lead the way in developing research studies by identifying problems and working together with researchers from universities and other research centers, was considered to be the most important achievement of the workshop. Furthermore, the meeting increased the understanding of the need to conduct research in irrigation management in order to strengthen training programs for the staff of the

irrigation systems. It was also clear that developing skills with immediate practical application to real problems served to increase the relevance of the training program and raised the level of staff motivation.

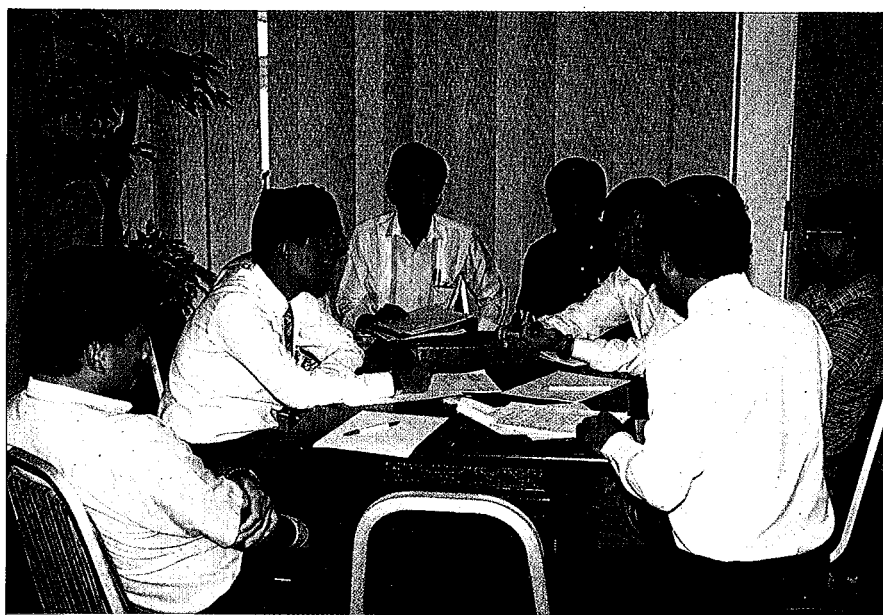
The importance of the link between research and training was confirmed by the Director General of DID during an interview on 2 October 1992, when he said:

*"I think that these two activities go along hand in hand. Training development is dependent on availability and dissemination of updated information and materials on latest technology and performance. The recent workshop held in Besut for both the Kerian and Besut project staff would go a long way in sensitizing them to regard the dimension of research as a necessary on-going activity under irrigation performance and management of projects. At any time, the irrigation manager needs to be aware of shortcomings and identify the need for research and subsequently take the initiative to address them through action taken in-house or through research institutions within the country or outside. Only through these continuing efforts can one see positive results in the enhancement of irrigation performance of schemes."*

## **The Lessons**

The integrated institutional development program implemented for the Department of Irrigation and Drainage in Malaysia was conducted jointly by IIMI and the Department of Irrigation and Drainage between January 1989 and September 1992. The program was delivered in three distinct stages, through the *Training Cycle*, through *Strategic Planning and Human Resource Development*, and through *Developing Research Capacity*.

A number of noteworthy factors influenced the outcomes of the program. These have been carefully analyzed and are regarded as critical



*Irrigation managers of Besut and Kerian schemes discussing the importance of irrigation systems performance evaluation.*

constituents to the success of any institutional development program, wherever it may be applied. These constituents are —

- ❑ Management training for promoting institutional development must have the complete support from the top management of the organization. The active participation in this process by top management is vital.
- ❑ A key factor in the success of implementing an institutional development program is the recognition that the Training Cycle, Strategic Planning and Human Resource Development, and the Development of Research Capacity are interrelated and consequently, are essential constituents of the overall program.
- ❑ A systematic management training program should bring the entire organization together. Managers from all levels within the organization develop an interest in participating and in understanding the processes of the changes that take place.
- ❑ The training activities should be designed and conducted as an integral part of the overall human

resources development plan of the organization.

- ❑ National trainers should be part of the training team. This enables them to develop a deep sensitivity and understanding of the whole process, and to take on the responsibility for guiding the program to fulfillment.
- ❑ The training team responsible for planning and conducting such a program should be interdisciplinary, and should involve experienced professionals in irrigation management and practitioners from national organizations.
- ❑ Research results make an invaluable contribution to strengthen the content of the training exercises.
- ❑ The discussion of actual research studies and their recommendations develop useful insights for the participants, helping them to analyze their own environment, assess problems and propose plausible solutions to their own difficulties.
- ❑ Interactive techniques are the best way of approaching management training activities. They promote understanding and friendship

amongst the participants, and facilitate team building.

- ❑ The strategic plan and human resources development plan must be embodied in an official document to provide authoritative direction to the organization.
- ❑ To ensure sustainability of the program, the activities need to be continuously followed-up and evaluated. This requires full support from the leaders of the national organization.

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### THE FINAL WORD

It is appropriate to leave the final word on this whole process of human resources development and strategic planning for institutional development in the Department of Irrigation and Drainage in Malaysia to the Director General, Dato Ir. Haji Shahrizaila bin Abdullah. Interviewed in Kuala Lumpur at the end of the final stage of the three-year program, the Director General said,

*"I must say that the three stages we have gone through so far in this collaborative program with IIMI have indeed brought about the total improvement to the management,*

*especially of irrigation areas; more important, it was also beneficial to developing a human resource development program for the organization as a whole.*

*Though the program was a structured process focussed on irrigation management, the whole methodology and strategy is relevant to other areas as well. The Department being involved in more than just irrigation, that is, in functions like agricultural drainage, river and coastal engineering, I see the relevance of this exercise to these areas also. Through this continuing process, we could then develop an organization well equipped to deal with all*

*problems, building our own capacity, not only as planners and implementers, but also as managers who are well trained and competent.*

*I see this program in a positive light, bearing in mind the need for institutional arrangements to ensure its sustainability, because such methodology must be carefully monitored and progressively evaluated. In this context, one has to recognize that change is necessary from time to time, and that if it is properly planned and executed, the chances of success will always be there. I think this is what the strategic planning and human resources development program is all about."*