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**Report of the External Review  
of the  
International Irrigation Management Institute**

**Review Panel :**

**Vijay S. Vyas (Chairman)**

**Roger Corbiere**

**Joan H. Joshi**

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**E. T. York**



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31 January 1990

Ms. Martha ter Kuile  
Chairperson, External Review  
Support Group for IIMI

Dear Ms. ter Kuile:

I have great pleasure in forwarding, on behalf of the External Review Panel, a copy of the Panel's Report on the International Irrigation Management Institute. We have reviewed both the management and program aspects of the Institute and are very favorably impressed by the quality of the personnel and operations, the participatory nature of the organization, and the careful planning of the program. We have made a few suggestions, however, for IIMI's future improvement. The Panel is unanimous in concluding that IIMI merits all the support it has received from the Support Group, and more.

Thank you for giving us an opportunity to review this unique Institution that is working in an area of great importance to developing countries.

With kind regards,

Yours sincerely

Vijay S. Vyas  
Chairman  
External Review Panel

cc: Dr. Michel Petit  
Chairman, Support Group for IIMI

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## FOREWORD

In early 1989, the IIMI (donor) Support Group, constituted a five-member Panel, consisting of Vijay S. Vyas as chairman, Roger Corbiere, John H. Joshi, Saïd S. Karmani and E.T. York, and commissioned it to conduct an external program and management review of the Institute. Biographical sketches of panel members are presented in Annex 1. The Terms of Reference for the Review are set forth in Annex 11.

The Support Group intended for this review to be similar, in many respects, to those of the CGIAR centers which are conducted at five to six year intervals. Thus IIMI's Review was scheduled some five years after the Institute, formally, came into existence.

The Support Group's objective in authorizing this exercise was to provide a comprehensive review and evaluation of the Institute, in terms of its programmatic endeavors as well as its administration and management. Another purpose related to the current efforts of the CGIAR to review and evaluate a number of "non-associated" international agricultural research centers (IARCs) for the purpose of determining which of these centers might be brought into the CGIAR System. Thus, results of the IIMI review will be used by the CGIAR in this process.

The Panel began its work by sending one member to a June 1989 meeting of the IIMI Board of Governors. The full Panel first met at IIMI headquarters in Colombo, November 16-25, at a time which coincided with the Institute's Internal Program Review, a one-week process involving IIMI's international staff and some of its national staff. During this stay at the Institute's headquarters the Panel observed the Program Review, organized its efforts, interviewed many IIMI personnel, and began the assessment process.

On leaving Colombo, four Panel members visited Pakistan, where, over a period of 4 days, they observed IIMI programs and visited representatives of

donor groups and of collaborating organizations in the irrigation and agricultural ministries.

Similarly in early January, two Panel members spent some six days in West Africa where they visited IIMI's regional office in Ougadougou and met representatives of donor and collaborating organizations in Burkino Faso, the Ivory Coast, and Senegal. During the same period a third panel member visited government and donor organizations in the Philippines and Indonesia.

The Panel convened again at IIMI headquarters on January 18 and spent the following two weeks completing its assessment (including visits to government and donor officials in Colombo), and writing its report. The final report went to the IIMI Board of Governors on January 31.

The Panel's report, set forth in this document, covers the following major topics:

IIMI's history and mission, legal status and governance, organization and management, availability and management of resources, IIMI's planning process and its strategic/operational plan, IIMI's program, along with assessment of its content and achievements.

The Panel wishes to express its deep appreciation and gratitude to Director General Roberto Lenton and his entire staff, both at headquarters and in the field, for the splendid support and assistance provided during the course of the review. Special recognition should be accorded to Himani Elangasinghe, who ably served as secretary to the Panel and John Colmey, who contributed his editorial expertise. Such splendid cooperation has made the Panel's task much more pleasant and productive than it might otherwise have been. We are deeply grateful!

## SUMMARY AND RECOMMENDATIONS

After reviewing the activities and achievements of IIMI since its inception five years ago, the Panel has come to the conclusion that the Institute performs an important function and effectively complements the efforts of other IARCs committed to the task of ensuring food security to the growing population in developing countries.

The demand for food and other agricultural commodities continues to expand as the global population grows at a rate of some 2% annually. This demand is particularly evident in the developing world where 90% of this population growth is occurring and where, in many areas, food supplies are already seriously deficient.

These circumstances have led to the creation of a number of international agricultural research centers (IARCs) concerned with the development of improved technology oriented towards meeting these growing food needs. "Green Revolution" technologies developed by these IARCs and cooperating national programs have led to significant advances in food production throughout the developing world. These advances have been particularly impressive where adequate water was available along with improved crop varieties, fertilizers, and other needed inputs.

Recognition of the vital role that water must play in increasing food production has led to major investments in irrigation systems. However, there has been growing evidence that these systems were performing far below their potential, and that in many cases the returns from investments in irrigation systems were far below what they should be. There is also growing concern over problems of equity, sustainability, and the environment as they relate to irrigation systems.

These circumstances led to a recognized need for an appropriate international organization to be concerned with research directed towards

improving the management and performance of irrigation systems. Thus after several years of study by the Consultative Group on International Agricultural Research (CGIAR) and others, the International Institute for Irrigation Management (IIMI) was created with the specific mission of "improving the management and performance of irrigation systems in developing countries."

This report presents the findings and recommendations that emerged from a review of the program and management of IIMI by an External Panel commissioned by IIMI's (donor) Support Group some five years after the Institute came into existence.

With headquarters in Colombo, Sri Lanka, IIMI now has field programs in Pakistan, Nepal, Bangladesh, India, Morocco, Sudan, the Philippines, and Sri Lanka. There is also a regional office in Burkina Faso, and consideration is being given to the development of programs in five West African countries. A project in Indonesia was completed in 1989, and work is projected to resume in 1990. Memoranda of Agreement have been negotiated with most cooperating countries.

IIMI has no research facilities of its own, and works in a decentralized mode with and through existing national irrigation programs. Its mode of operation in each country involves national consultative committees that serve to plan and guide the conduct of programs.

IIMI is organized into four principal units, each headed by a Director who reports to the Director General. These major units are the Programs, Field Operations, Pakistan, and Finance and Administration Divisions. The divisions are supported by the Offices of Information and Project Development. The Programs Division is responsible for thematic research, as well as regional and multi-country projects, and training. The Field Operations Division is responsible for all country-specific, collaborative field projects except those in Pakistan. The Pakistan Division is responsible only for project activities in that country.

Through 1989, the Institute had 30 international staff positions; 27 of these are currently filled, of which 11 are held by staff from developing countries. The staff appears to have a good balance, with personnel from a number of different disciplines related to agriculture, engineering, and the social sciences.

In 1989, IIMI had a budget of some US\$7.7 million, 70% of which was in restricted funds. The Institute's Five-Year Workplan calls for a doubling of international staff and budget by 1994. The Institute has made significant progress in improving its financial situation since 1987. Currently, however, it has only US\$7.1 million in funding committed for 1990--some US\$2.0 million below its budgeted level and US\$650,000 below what it had in 1989. There is hope that additional commitments will be made during the current year.

The Institute has a distinguished Board of Governors, currently made up of 13 individuals representing 11 nationalities and a good balance of disciplines. Eight of the 13 are from developing countries and two are women.

The Review Panel finds IIMI, generally, to be well organized and managed and to be making significant progress towards achieving its objectives. The Panel has identified a number of areas in which IIMI should be commended for what it has accomplished as well as some where further improvement might be made.

The Panel has heard many favorable comments from both donors and country collaborators concerning the quality of the Institute staff and concurs in such positive assessments.

In Pakistan, the Panel found that the dichotomous relationship between IIMI and the two ministries of Agriculture and Irrigation posed certain difficulties. There also appears to be an ambiguity in the Memorandum of Agreement with the Pakistan Government that leaves some question about the status of IIMI in that country.

The Panel is also concerned with certain aspects of IIMI's current administrative structure, based primarily on the fact that programmatic responsibilities are separated into three divisions, each under a director. This arrangement seems to be contributing to a fragmentation of effort and a lack of a cohesive, well-coordinated total program.

The Panel is concerned with the apparent short-fall in the Institute's 1990 budget. It is even more concerned with the significant expansion in the Institute's program as projected over the next five years. In expressing this concern, the Panel does not, in any respect, question the importance of IIMI's efforts or the desirability of further expansion to enable the Institute to more adequately address needs. The Panel's posture with respect to the proposed rate of expansion grows out of a number of circumstances discussed herein that may constrain the availability of resources--as well as the firm belief that efforts to expand too far and too fast would not be desirable. The Panel believes that, at this stage of development, IIMI should concentrate on achieving the highest possible quality of effort in whatever it undertakes. If this is done, appropriate expansion can likely be assured.

The Panel also notes that the large percentage of the total budget in restricted funds could limit the Institute's ability to address high priority needs. However, we recognize that the high ratio of restricted to unrestricted funding may relate to how these funds are classified and that in many cases the "restriction" associated with certain funds may be of little consequence in terms of the Institute's program.

The Panel is very concerned, however, that many of the projects supported with restricted funds do not adequately cover indirect costs associated with the project.

During the past three years, IIMI has engaged in what the Panel considers to have been an excellent planning process that has resulted in the preparation of strategic and operational plans to help guide its efforts over the next several years. The Panel generally concurs with most elements

of both the Strategic Plan and the Five-Year Workplan. We have, however, raised certain issues and made some suggestions concerning both.

For example, the Panel notes that the proposed program themes are very broad and suggests that IIMI narrow the focus of its primary program efforts, concentrating on those themes and related activities that can make the greatest contribution to the achievement of its mission. The Panel also notes that the Institute proposes to initiate programs in China and Mexico in 1993, despite the position taken in its strategy not to launch programs in those regions "in the immediate future."

The Panel found the Institute to be involved in an impressive array of research projects for such a young organization. Moreover, there was considerable evidence of significant progress thus far. While the quality of IIMI's program appears to be generally good, the Panel suggests that further attention be given to measures that might strengthen its quality control mechanisms.

IIMI's training efforts have, to date, been somewhat limited. The Institute, however, is committed to developing a strong training program and, with the recent employment of a full-time training officer, seems to be moving towards the realization of this objective.

The Panel believes the Institute is making good progress towards the implementation of a sound information program, the specifics of which are spelled out in the strategy document. In fact, the Institute already possesses an impressive list of publications for an organization of its size and stage of development.

The Panel made a special effort to assess the relative merits of different aspects of IIMI's program as well as the achievements and contributions to date. These efforts involved a mail survey of IIMI's donors and collaborators as well as personal contacts with both groups by Panel members.

Overall, the Panel received very positive evaluations of IIMI by both groups. The relatively few instances where less-than-positive attitudes were reflected appeared to be due to a lack of knowledge about IIMI. That, in turn, may be due to a lack of interaction or communication between the Institute and key officials.

Despite evidence of a few such attitudes, the overwhelming response was very positive and supportive--perhaps unusually so for a relatively young organization with a limited opportunity to prove its worth.

The Panel concurs with the observations of donors and collaborators alike that improvements in the management of irrigation systems, to which IIMI is committed, offer great promise for significantly increasing food production, thereby contributing to improved food security in many areas of the developing world.

There is little doubt about the need to improve the management of irrigation systems, at all levels. It is readily apparent to the Panel that IIMI has done an effective job, during its relatively brief period of existence, of initiating and carrying out various projects that should contribute significantly to the improved management and performance of irrigation systems in the developing world. Moreover, it has the potential for even greater contribution as it gains further experience and knowledge concerning the difficult problems with which it is dealing.

The Panel's report contains a number of suggestions, hopefully useful, with respect to various aspects of IIMI's program and management. However, the Panel specifically recommends that:

- the Institute, possibly the Director General and the chairman of the Board of Governors, initiate discussions with appropriate officials in Pakistan in an effort to work out an arrangement that would bring IIMI into closer working relationships with irrigation officials and resolve the ambiguity, if any, with respect to the "autonomy" language in the agreement;

- IIMI management investigate the strategies that have been developed to obtain international organization status for several of the CGIAR centers and consider whether the Institute should move to seek such status;
- the Director General and the Board of Governors consider an administrative organizational structure that will facilitate the design and execution of a cohesive, well integrated Institute-wide program;
- IIMI management:
  - a) review the components of indirect costs to ensure that all legitimate elements are included;
  - b) move vigorously to incorporate indirect costs into all project budgets and explore the possibility of renegotiating existing contracts;
- donors of IIMI restricted fund projects recognize the need to fully fund the indirect costs fairly attributable to their projects and proceed accordingly;
- project budgets be drawn so as to permit new international staff to spend a substantial period of time at headquarters so that they will come to understand IIMI's strategic and operational goals, its organizational culture, and its administrative procedures;
- IIMI management design and install a position classification system applicable to all national staff positions;
- IIMI consider the implications of the role of women in developing country agriculture in the formulation and conduct of its program;
- IIMI narrow somewhat the focus of its primary program efforts, concentrating on those themes and related activities that can make the greatest contribution to the achievement of its mission;

- IIMI give priority to achieving the highest possible quality of efforts in whatever it undertakes and not jeopardize its ability to do so by overextending itself, either geographically or in the size of its total enterprise;
- IIMI institute additional measures to strengthen its quality control mechanisms, such as organizing expert reviews of major issues encountered at various stages of a research project, as well as special panel reviews of proposed management innovations to ensure their feasibility, cost effectiveness, and adaptability in the given management environment. The cost of such reviews should be a part of the research project budgets; and
- IIMI concentrate on developing effective communications with personnel in collaborating agencies--including those at the highest levels involved with policy making.

## 1. HISTORY AND MISSION

### 1.1. Background

A number of circumstances during the last two to three decades have led to the establishment of the International Irrigation Management Institute (IIMI). Of primary significance has been the steady, unrelenting growth in the global population and the implications of that growth to world food needs. Of particular significance is that in recent years, some 90% of the annual increase in population worldwide has occurred in developing countries where, in many areas, food supplies are already inadequate. These circumstances led the global community to take a number of actions, including the creation of several international agricultural research centers (IARCs) concerned with the development of improved technology oriented toward meeting these food needs. Some of the first IARCs, such as the International Rice Research Institute (IRRI) and International Maize and Wheat Improvement Center (CIMMYT), proved to very successful, and their accomplishments tended to stimulate the formation of others. The "Green Revolution" technologies which they developed led to significant advances in food production throughout the developing world. These advances were particularly impressive where adequate water was available along with improved crop varieties, fertilizer and other needed inputs.

Recognition of the vital role which water must play in increasing food production has led to major investments in irrigation systems. Between the 1950s and the mid-1980s, the area under irrigation grew from 90 million to some 210 million hectares (ha). Progressively larger parts of food supplies in countries with rapidly growing populations--such as India, Indonesia, Pakistan, Mexico, and Brazil--came from irrigated areas. Thus, the importance of irrigation in augmenting food supplies in poor tropical countries is formally established.

With rapid expansion in irrigated areas came a host of problems, many of which have become progressively more acute. These problems involve issues of equity, sustainability, and the environment, among others. For example,

- the costs associated with developing new irrigation systems began to escalate rapidly and many observers began to question the economic feasibility and wisdom of making further large investments in such systems. The desirability of increasing the efficiency and effectiveness of existing systems thus appeared to be a more attractive economic alternative to many.
- inadequate attention to some of the technical, economic, and social factors, resulted in problems like waterlogging, drainage, sedimentation, and weed growth, and ultimately jeopardized the sustainability of irrigation systems.
- problems of equity emerged in the distribution and use of water within irrigation systems. There were even broader equity issues growing out of the contrast in benefits accruing to those having access to irrigation in contrast to those dependent on rainfed agriculture. Other equity issues related to the plight of people whose farms were inundated by irrigation systems.
- major environmental problems emerged, including increased salinization, pollution from effluent and agricultural chemicals, water-borne diseases, etc.

These problems called for research and action programs aimed at managing irrigation systems in more efficient, sustainable, equitable, and ecologically-sound ways.

This array of circumstances contributed to a growing interest in creating an international institute--modeled after other successful IARCs--with a primary research mission of developing and helping to implement

improved irrigation management practices which might contribute to increased food production in the developing world.

These were some of the circumstances which led to the creation of IIMI.

## 1.2. History of IIMI<sup>1</sup>

It should be noted that there was a gestation period of some 15 years from the time the concept of an international irrigation institute was conceived until IIMI came into being. The recommendation to create an Asian Institute for Irrigated Agriculture was first made in 1968 in a report of the First Asian Agricultural Survey sponsored by the Asian Development Bank.

The idea of an international initiative was given further support when the Bellagio Group (which later formed the CGIAR), in its first meeting in April 1969, stressed the importance of water in agricultural development. This was followed by a seminar sponsored by the Ford and Rockefeller Foundations which recommended that an international program of research and training in the field of irrigation be established.

The subject of irrigation was on the agenda of the first and second meetings of the Technical Advisory Committee (TAC) of the CGIAR in June and October of 1971. TAC recognized the importance of the problem but could not decide on the precise form and content of a program. TAC then commissioned a study of the issue by the Universities of California and Utah State under the leadership of Dean F. Peterson.

Dr. Peterson's report recommended the establishment of an international center dealing with the development and adaptation of technology, the economics of irrigation, and the development of irrigation

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<sup>1</sup> Many of these details concerning the history of IIMI have been taken from a publication by Director General Roberto Lenton, entitled "A Brief History of IIMI." The Panel felt that a more detailed account of the thorough consideration given to the creation of this organization was appropriate in the report of the first External Review of the Institute.

policies and institutions up to the national level. TAC was not satisfied with this recommendation and directed five of the CGIAR affiliated IARCs to prepare an account of their work in water management along with their views concerning how work in this area might be expanded. After reviewing the responses from the five centers, the possibility of establishing a center for irrigation management was again on TAC's agenda at its ninth meeting in February 1975, and was discussed extensively at its 12th, 13th, and 14th meetings.

A paper on "Water Use and Management" prepared by the Food and Agricultural Organization (FAO) at TAC's request was available at the 14th meeting. After considerable discussion TAC concluded that water use and management deserved higher priority in the CGIAR system and recommended that existing IARCs allocate more resources to this area of work.

At the 15th meeting of TAC in 1977 some members expressed the view that existing centers could not be expected to address the problem adequately, stressing the need to give this matter higher priority. TAC agreed to study the problem further and, with the help of the International Development Research Centre (IDRC), asked Sir Charles Periera to chair a study team to address it. The Periera report recommended the establishment of an "International Center for Research and Training in Irrigation Technology" in a developing country with outposted divisions providing field teams to reinforce existing work in the Ganges, Indus, Nile, and Euphrates-Tigris basins, and with additional study of the needs of the Sahel, the Maghreb countries, and Latin America. A revised version of this report was considered by a TAC-appointed working group and presented to the CGIAR in October 1980.

The discussion of the draft proposal was inconclusive, so the Chairman of TAC convened a meeting of interested donors in July 1981, leading to the formation of a Task Force chaired by F.E. Schulze to give the matter further consideration. The Schulze Task Force reported to TAC in March 1982. After careful consideration, TAC took action to recommend to the CGIAR the establishment of an international irrigation management institute.

The CGIAR reacted positively to this recommendation but concluded that it was not prudent to add any new initiatives as budgets of the IARCs then in the CGIAR system were already seriously constrained. It was suggested, however that irrigation water management appeared to merit the highest priority as the next activity to be considered by the CGIAR Group. Interested members were encouraged to explore the possibility of establishing an international irrigation management program, embodying the principals set forth in the TAC recommendations--outside the sponsorship of the CGIAR.

With this action by the CGIAR, a group of interested donors held an informal meeting in May 1982 to consider follow-up efforts. The Ford Foundation was asked to explore the matter further on behalf of the group of donors, and Dr. Ralph Cummings was engaged as a consultant to carry out this task.

Following the CGIAR meeting in May 1982, Dr. Cummings visited India, Pakistan, Philippines, and Sri Lanka--which were considered primary possibilities as a headquarters site for the proposed Institute. Upon completion of these exploratory visits, two meetings of interested donors were held to explore the feasibility of establishing the Institute.

At this time the concept of an Institute Support Group was approved and a group of interested donors was formed. It was also agreed that the International Irrigation Management Institute (IIMI) be constituted along the general lines recommended by TAC to the CGIAR in May 1982. The Ford Foundation was chosen as the implementing agency for the Institute.

During the course of its meetings the Support Group decided on India as a preferred location. However, the Indian Government was not prepared to host the Institute at that time. An agreement was then worked out with the Government of Sri Lanka to establish IIMI's headquarters in that country.

In the course of these negotiations, Dr. Cummings also visited Pakistan where government officials expressed their interest in hosting the headquarters site. When the decision was made to locate the Institute

headquarters in Sri Lanka, Pakistan officials were given assurance of the need for a major cooperating unit in Pakistan.

At the second meeting of the Support Group in May 1983 a Governing Board was created, and the Board held its first meeting the following September. Dr. Cummings served as Interim Director General in the period until Dr. Thomas Wickham, chosen as the first Director General in November 1983, could assume his responsibilities. An IIMI charter was drafted, endorsed by the Support Group, and ratified by the Government of Sri Lanka in May 1984.

IIMI began to function on January 1, 1985 as a legally constituted body with its own functioning governing board, headquarters offices, and the nucleus of a staff. Since that time the Institute has been actively involved in developing its staff, defining more specifically its mission, and initiating programs to carry out that mission. Some indication of the progress IIMI has made in this regard is found in this Review Panel's report.

### 1.3. IIMI's Mission

The present mission of IIMI has largely evolved from the TAC report of 1982. This report suggested that the overriding objective of the Institute be that of "improving the management and programmes of irrigation systems in the developing countries." A well managed irrigation system was defined as one that would 1) ensure the dependability and equity of water distribution, 2) increase agricultural production, 3) improve the overall quality of life in rural communities, 4) protect, maintain, and improve the quality of irrigated soils, 5) protect, maintain, and improve the quality of the environment, and 6) protect the health and general welfare of the people concerned.

The 1982 TAC report envisaged IIMI as an "Institute of somewhat decentralized type, with a modest size and interdisciplinary core staff." It further suggested that "the Institute would work with living irrigation schemes operated by national agencies of several cooperating countries or

its operating field laboratories." The Panel notes that IIMI has developed much along the lines suggested by TAC.

The mission of the Institute has been further articulated in IIMI's strategy paper (1989) as follows: "to strengthen national efforts to improve and sustain the performance of irrigation systems in developing countries, through development and dissemination of management innovations."

The report of this Review Panel considers the progress IIMI is making in carrying out this mission.

Finally the Panel would note that IIMI's mission is unique compared with other irrigation-related organizations, since it is concerned with management rather than the design of irrigation systems. When compared with other IARCs, IIMI is concerned with improving agricultural production through improved management rather than through improved production technology. These circumstances underscore the rationale for IIMI's mode of operation.

#### 1.4. Panel Commentary

The Panel is convinced of the importance of IIMI's mission and of its complementarity with other international research centers committed to the vital task of keeping the world's food supply in line with population growth. As will be seen in the commentary on subsequent chapters, the Panel--while making a number of recommendations that might strengthen the Institute--views IIMI's achievements to date in a highly favorable light. IIMI deserves continuing support so that its potential impact might be more fully realized. Modest investments in IIMI's work can help to maximize the massive investments in irrigation systems that have already been made and those that are on the drawing board.

The Panel notes that a proposal is under discussion in donor circles with the possibility of a new initiative concerned with some aspect of irrigation. While not familiar with the proposal's details, the Panel is

concerned over the potential for unnecessary duplication and hopes any new institution will complement the mission of IIMI.

## 2. LEGAL STATUS AND GOVERNANCE

### 2.1. Legal Status

#### 2.1.1. Charter and status in Sri Lanka

At a meeting in November 1982, as noted above, the Support Group delegated responsibility to the Ford Foundation to act as implementing agency and take the necessary steps on behalf of the Group to bring the Institute into being as a legally constituted operational body, to draw up a charter, and to enter into negotiations with a host country.

Discussions were initiated with the Government of Sri Lanka in March 1983, and a "Memorandum of Agreement between the Ford Foundation acting on behalf of the International Irrigation Management Institute Support Group and the Government of Sri Lanka" was formally signed on September 1, 1983. The agreement designated Sri Lanka as IIMI's headquarters country and accorded the Institute privileges and immunities "no less favorable than those granted to the UNDP Office" in the country. The Government also agreed to provide a site for IIMI headquarters in the vicinity of Kandy. (The recent move to Colombo, however, was made with the full consent of the Government.)

In addition, a draft charter was prepared for consideration by the Support Group in October 1983. Although it had been anticipated that the charter would establish IIMI as a valid international organization upon signature by representatives of two or more international sponsoring organizations, legal counsel advised that international status could only be conferred if IIMI were part of a duly constituted body of the United Nations or like body or created under a treaty between two or more nations. Thus, the designation "organization, international in character" was used.

The draft charter was approved by the Support Group in January 1984 and ratified by the Government of Sri Lanka on May 31 of that year. "A bill to establish the International Irrigation Management Institute and for matters connected therewith or incidental thereto" was enacted by the Parliament of the Democratic Socialist Republic of Sri Lanka on November 30, 1984, and certified on January 9, 1985. This legislation formally established IIMI as a corporate body; international in character; having legal status; and enjoying the privileges, immunities, and character in Sri Lanka as set forth in the Memorandum of Agreement and the charter.

IIMI commenced activities as an independent institute on January 1, 1985, at which time, the formal responsibilities of the Ford Foundation came to an end.

#### 2.1.2. Status in other countries where projects are located

In addition to Sri Lanka, IIMI has Memoranda of Agreement with governments or governmental organizations in eight other countries: Bangladesh, Burkina Faso, India, Morocco, Nepal, Pakistan, the Philippines, and Sudan.

For the most part, these agreements stipulate what is expected of IIMI in terms of research, expert assistance to national program staff, training, and publications. They also indicate the privileges and immunities accorded to the Institute and its international staff, including immunity of person, property, and assets; the right to transfer funds in and out of the country and to operate in any currency; Institute freedom from taxation or the payment of customs duties; international staff freedom from income taxes; assistance in obtaining visas for staff, visitors, trainees, etc. In most cases, the host country has also agreed to provide working space.

While recognizing that it is not always feasible, the Panel suggests that agreements are best concluded with the overall government of a country rather than with a single governmental agency.

### 2.1.3. Status in Pakistan

The agreement with the Government of Pakistan differs from the others in that it indicates the parties will work together to establish a unit of IIMI to be known as "IIMI Pakistan" with "international and national legal personality" and "the character of an autonomous, international, non-profit, research, educational, and training organization" (section 2. 1, emphasis added). The fact that the agreement accords privileges and immunities to IIMI Pakistan further supports the concept of autonomy as does the wording in section 4.1 to the effect: "IIMI Pakistan will serve as a major unit of world centers or federation of cooperating centers having as its principal objective improvement in the management of irrigation systems." Yet section 7.1 states: "The Government of Pakistan shall recognize IIMI" as an integral unit of an autonomous, international, non-profit, research, educational, and training organization." Further, the agreement stipulates that IIMI Pakistan be administered by a Director responsible to the Director General of IIMI proper and operated under the governance of the IIMI Governing Board, with Pakistan reserving the right to designate one member. These terms thus set IIMI Pakistan apart from other countries in which IIMI works. Although in many ways this is justified by the size of the operation, the significance of irrigation in the country, and historical circumstance (Pakistan was one of the three countries seriously considered as IIMI's headquarters site with great interest expressed by its Government), the Panel notes an apparent ambiguity in the agreement's wording to the effect that IIMI Pakistan is both autonomous and an integral part of the Institute and suggests that it be examined.

The implications of these terms for IIMI's organization and management are discussed in Chapter 3. However, the terms of the agreement raise another issue appropriately considered here.

IIMI's collaborators at the operational level within Pakistan are primarily staff of the provincial departments of irrigation and the federal Ministry of Water and Power. Nonetheless, it is institutionally linked with

the Pakistan Agricultural Research Council (PARC) of the Ministry of Agriculture for administrative purposes.

The Panel believes that this dichotomy of relationships at the operational and institutional levels contributes to a feeling on the part of officials in the irrigation and water agencies that they do not have a sufficient voice in IIMI's Pakistan activities.

It is obvious to the Panel that the dichotomous relationship poses some real operational difficulties in Pakistan. Although officials from both PARC and the Ministry of Water and Power told Panel members that the existing arrangement is satisfactory, there clearly are problems associated with it.

Obviously, there is a need for a close working relationship between IIMI and both the agricultural and irrigation sectors. IIMI's emphasis on irrigation management, however, suggests that the primary relationship should be with and through the governmental irrigation agencies at both the provincial and federal levels, with a greater involvement of the irrigation agencies in the leadership of the Consultative Committee and membership on IIMI's Board of Governors.

The Panel recommends that the Institute, possibly the Director General and the Chairman of the Board of Governors, initiate discussions with appropriate officials in Pakistan in an effort to work out an arrangement that would bring IIMI into closer working relationships with irrigation officials and resolve the ambiguity, if any, with respect of the "autonomy" language in the agreement.

#### 2.1.4. International organization status

Although IIMI is described in its Charter as an organization international on character, the Institute, in fact, became a corporate body under the laws of Sri Lanka. Since the time of IIMI's founding, several CGIAR centers have attained true international status as that accorded to such agencies as the United Nations Development Programme (UNDP) which the

staff of those centers claim has facilitated their work in numerous ways. While IIMI's relations with its headquarters host country are excellent, international status would greatly ease the Institute's entry into new countries. Accordingly:

The Panel recommends that IIMI management investigate the strategies that have been developed to obtain international organization status for several of the CGIAR centers and consider whether the Institute should move to seek such status.

## 2.2. Board of Governors

### 2.2.1 Board composition and operations

The first meetings of IIMI's Executive and Finance Committee and Program Committee were held in early 1984, while the full Board met for the first time in September of 1983. A number of members have served since the inception and have just completed or are about to complete their service. A chart indicating nationality, gender, discipline, source of nomination, and, in the case of 1990 members, committee assignments, is attached as Table 2. 1. (next page), The 1990 IIMI Board of Governors is comprised of 13 members representing 11 nationalities and a good balance of disciplines. Five of the members are new to the Board.

The full Board meets once annually; the Program Committee and the Executive and Finance Committee, twice each; and the Nominating Committee once or twice as needed. There is no separate audit committee as the audit function is performed by the Executive and Finance Committee.

Members are elected for three-year terms, renewable once. Except for two ex officio members (the Director General and an appointed representative of Sri Lanka), the Board elects its own members and officers; however, it must choose four members from among those nominated by the IIMI Support Group and up to two from those nominated by its host countries--one of whom must

come from Pakistan. According to the Director General, meetings have been well attended, with an average of only one absentee per meeting.

Table 2.1 MEMBERSHIP OF IIMI'S BOARD OF GOVERNORS

NAME	NATIONALITY	DISCIPLINE	GENDER	START TERM	END TERM	NOMINATED BY
Abdalla	Sudanese	Agriculture	M	1983	1989	SG
Abeywickrema	Sri Lankan	Social Science	M	1983	1988	Host
Bagadion	Filipino	Engineering	M	1983	1990	SG
Chowdhry	Indian	Social Science	F	1983	1989	"
Cunningham	British	Agriculture	M	1983	1988	"
Manuellan	French	Engineering	M	1983	1988	"
Mensah	Benin (IFAD)	Administration	M	1983	1986	"
Muhammed	Pakistani	Agriculture	M	1983	1988	"
Peterson	American	Engineering	M	1983	1988	"
Schulze	Dutch	Engineering	M	1983	1986	"
Takase	Japanese	Engineering	M	1983	1989	"
Wickham	American	Engineering	M	1983	1987	"
Bell	American	Economics	M	1983	1990	"
LeMoigne	French (WB)	Engineering	M	1984	1989	Board
Obeng	Ghanian	Water/Environment	F	1986	1991	"
Grassi	Venezuelan	Engineering	M	1987	1989	"
Sandhu	Pakistani	Agriculture	M	1988	1991	Host
Lenton	Argentine	Engineering	M	1987	Ex. Off.	Board
Troy	French	Engineering	M	1989	1991	"
Wijetunga	Sri Lankan	Administration	M	1989	Indef.	Host
McNamara	American	Administration	M	1989	1991	Board
Al Shayji	Kuwaiti	Admin. / Environ.	F	1990	1992	SG
Azam	Pakistani (ADB)	Economics	M	1990	1992	,,
Rangeley	British	Engineering	M	1990	1992	Board
Swaminathan	Indian	Agriculture	M	1990	1992	,,
Tsutsui	Japanese	Engineering	M	1990	1992	,,

IFAD = International Fund for Agricultural Development  
WB = World Bank

**B. 1990 BOARD MEMBERS**

NAME	NATIONALITY	DISCIPLINE	GENDER	END TERM	NOMINATED BY	BOARD COMMITTEE
Bagadion	Filipino	Engineering	M	1990	SG	PC/NC/EC
Bell	American	Economics	M	1990	SG	EC
MacNamara	American	Administration	M	1991	Board	EC
Obeng	Ghanian	Water/Environment	F	1991	Board	PC/NC/EC
Sandhu	Pakistani	Agriculture	M	1991	Host	PC
Troy	French	Engineering	M	1991	Board	PC/NC
Wijetunga	Sri Lankan	Administration	M	Indef	Host	EC
Lenton	Argentine	Engineering	M	Ex. Off.	Board	EC/PC/NC
Al Shayji	Kuwaiti	Admin. /Environ.	F	1992	SG	PC
Azam	Pakistan(ADB)	Economics	M	1992	SG	PC
Rangeley	British	Engineering	M	1992	Board	PC
Swaminathan	Indian	Agriculture	M	1992	Board	PC
Tsutsui	Japanese	Engineering	M	1992	Board	PC

SG = Support Group

PC = Program Committee

Host = Host Country

NC = Nominating Committee

ADB= Asian Development Bank

EC = Executive & Finance Committee

Starting from 1 January 1990:

(1) Regional balance of the members :

N. America	- 2
Europe	- 2
Africa	- 1
S. Asia	- 4
S. E. Asia	- 1
E. Asia	- 1
Latin America	- 1
Middle East	- 1

(2) Balance of disciplines :

Irrigation Engineers	- 5
Agriculturists	- 2
Economists	- 2
Administrators	- 2
Environment Scientists	- 2

(3) Source of nomination:

Support Group	- 4
Board	- 6
Host countries	- 2
Ex. Officio	- 1

(4) Committee assignments:

Executive and Finance Committee	- 6
Program Committee	-10
Nominating Committee	- 4

(5) Board leadership:

Chairman	- Bell
Chairman, PC	- Bagadion
Chairman, NC	- Obeng

The Board has paid particular attention to geographic and discipline balance in selection of its members. Of the 21 members since 1983, three have been women, two of whom serve currently. The Panel hopes there will be continued efforts to involve qualified women on the Board. It is now especially important that attention be given to leadership positions; both the overall chairman and the chairman of the Program Committee will complete their terms at the end of 1990.

Although the need for a formal orientation of Board members was not apparent in the past, so many having "grown up" with IIMI, the advent of five new members in January 1990 suggests more attention should be paid to this matter. Toward this end, IIMI management is currently reviewing the Board handbooks used by some centers in the CGIAR System.

At the June 1989 Board meeting attended by one member of the Panel, all the members were well prepared and participated actively in the discussion. Every issue before the Board was treated with great care and deliberation, and the Chairman made every effort to ensure that all voices were heard. Relations with management appeared very congenial. However, some of the important documents (e.g., the Five-Year Workplan and the 1990 Program and Budgets) were not available until the morning in which they were to be discussed, and did not appear to have been sufficiently considered by staff before being presented. In contrast to the conscientious approach of the present membership, there is some evidence that past Boards were not as

vigilant as they might have been with respect to monitoring financial matters; the fiscal situation in 1987 is a case in point.

All of the issues raised by Board members in June have been examined by the Panel and are touched on throughout this report.

Since IIMI's inception, minutes of the meetings of the Board and its several committees have recorded the proceedings in great detail; they form a comprehensive record of governance deliberations.

#### 2.2.2. Survey re Board's role, responsibilities, and operations.

At the request of the Panel Chairman, Board members present at the June 1989 meeting were asked to complete a survey form which covered the Board's role, responsibilities, and operations. Developed by Selcuk Ozgediz of the CGIAR Secretariat, the survey considers Board operations and relationships in great detail (196 questions); the results should aid both management and the Board leadership in understanding and responding to Board needs. In general, the response was positive. Relations with management were judged to be excellent; the overall effectiveness of the Institute, good to very good. The Board was somewhat more restrained in considering its own internal relationships and its own performance. Members felt that they would benefit from a more effective orientation and that they were not as well informed about Institute affairs as they would like to be.

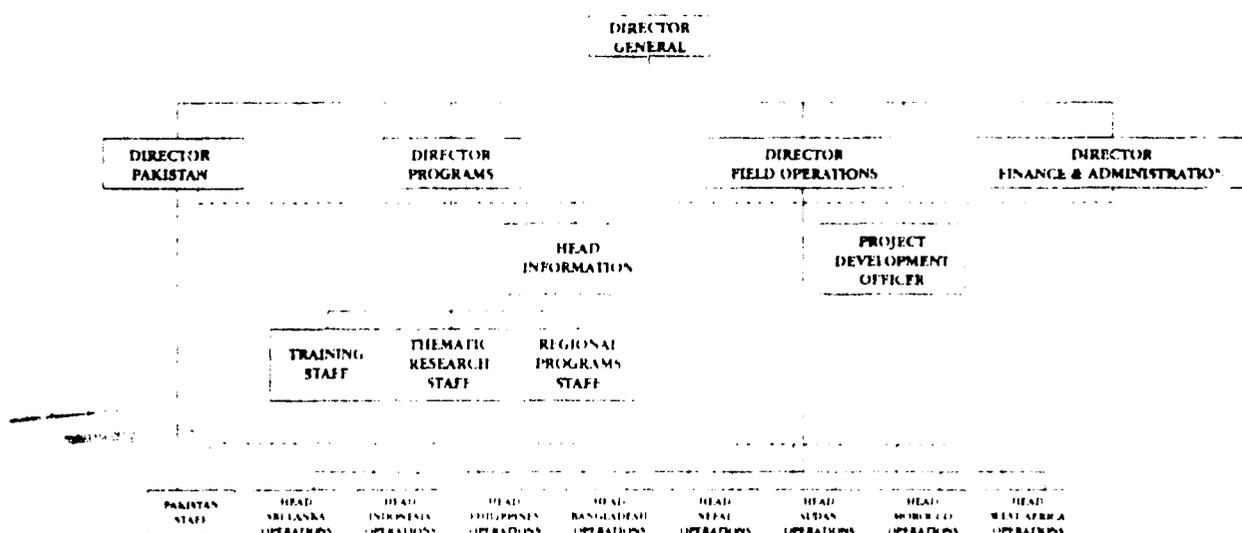
### 3. ORGANIZATION AND MANAGEMENT

#### 3.1. Current Management Structure

IIMI is organized in four principal divisions, each headed by a Director who reports to the Director General. In addition, the heads of two support offices--Information and Project Development--also report to the Director General. (See organogram, Figure 3.1.)

Figure 3.1

**INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE ORGANISATION CHART**



- The Programs Division is responsible for IIMI's thematic activities, specifically thematic research, regional or multicountry projects, and management training.
- The Field Operations Division is responsible for all of the Institute's country-specific collaborative field projects, with the exception of those in Pakistan. All other country unit heads report to the Director, Field Operations, and are responsible for the leadership of IIMI field research and training projects in the country concerned. At present, IIMI has resident staff in Bangladesh, Morocco, Nepal, the

Philippines, Sudan, Sri Lanka, and West Africa. The Sri Lanka-based field staff also manage projects in India; the West Africa office, located in Burkina Faso, is designed as a regional operation that will oversee projects in several neighboring countries.

- The Pakistan Division is responsible for all IIMI project activities in Pakistan, the largest of the Institute's country operations.
- The Finance and Administration Division is responsible for planning and directing the financial, personnel, purchasing, housing, and administrative support services of the Institute.
- The Information Office is responsible for IIMI's information activities and publication facilities and for the public relations affairs of the Institute.
- The newly established Project Development Office is responsible for assisting the Institute in the identification, formulation, and funding of new projects, or fresh phases of existing projects, and works closely with the Director General and the Division Directors. The office may also have project monitoring functions, in support of the Institute's country operations.

This structure went into effect in December 1983 after approval of IIMI's long-term strategy by IIMI's Board of Governors. It superseded a structure that included a Deputy Director General and a Director for International Programs in addition to Directors for Pakistan and for Finance and Administration. In conjunction with the strategic planning, IIMI management sought to devise a structure that would:

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<sup>2</sup> The activities of all three program divisions are described and reviewed in Chapter 6.

<sup>3</sup> Specific details of the Finance and Administration Division's functions are discussed in chapter 4.

- provide the necessary control and direction without being unduly top heavy or adding unnecessarily to IIMI's indirect costs;
- take into account that the bulk of IIMI's program involves country-specific field projects; and

facilitate the integration of IIMI's thematic research.

A possible geographic (e.g., continental) orientation of directorships was ultimately rejected as contrary to the third goal. Nonetheless, IIMI management is not yet satisfied with the interaction among the various programmatic divisions, which is needed if the Institute's objectives are to be realized. IIMI's strategy envisages thematic research conducted by the Programs Division staff in collaboration with the Field Operations Division, with the former also working closely with the country staff in the design and development of field projects to ensure their integration with thematic objectives. In addition, the fact that so few international staff are located in any given country, coupled with the multidisciplinary nature of IIMI's projects, means that needed disciplinary expertise must often be sought outside the given project staff. Although external consultants are one source of such expertise, IIMI also seeks to respond to this need through "internal consultants." In practice, the inflexibility of some project funding, distance, and a predilection for self-sufficiency have so far inhibited close inter-divisional interaction.

IIMI's deliberate decision to work in a decentralized manner, and the relative isolation of international staff in the individual country units, of course, makes consultation and coordination more difficult and presents an additional challenge to senior management.

At present, the Institute is considering a proposal to remove the Sri Lanka field office staff from the headquarters site and seek workspace for them within the irrigation ministry. They would thus be in a position more analogous to other country program staff, able to relate on a daily basis with host country officials with whom they collaborate and exempt from the

inevitable headquarters management tasks that fall to those close at hand. The Panel supports this proposal and believes it would lead to an even more positive and productive relationship with Sri Lanka irrigation managers.

The Panel has serious concern about IIMI's current administrative structure, based primarily on the fact that programmatic responsibilities are separated into three divisions, each under a Director reporting to the Director General. The Institute, in effect, has three program leaders. Despite the obvious need for close, continuous interaction among the three divisions responsible for planning and carrying out IIMI's total program, the present structure appears to contribute to a fragmentation of effort.

In the first instance, the Panel finds little rationale or merit in according special divisional status to the program in Pakistan. Except for its size and the special status accorded it in the agreement with the government of the country, the Pakistan program is little different from other country operations, the Panel suggests that the Pakistan program should function administratively and programmatically within the Institute in a manner similar to the others.

A second concern of the Panel is the relationship between the Field Operations Division and the Programs Division. IIMI's work in a single country is, administratively, under Field Operations, yet a multicountry or regional project comes under the Programs Division. Moreover, the latter has been given responsibility for thematic research, while IIMI's strategy statement recognizes the need for the Programs Divisions staff to work closely with the staff of the Field Operations and Pakistan Divisions in the design and development of field projects to ensure their integration within IIMI's thematic strategy.

The Panel fails to appreciate the rationale for separating, administratively and programmatically, regional or multicountry operations from the operations of a single country. Nor does it appreciate the rationale for separating the efforts in the field from the thematic research

carried out at headquarters. The two areas of effort are highly complementary and must be closely integrated if they are to be successful.

The Director General acknowledges that there are some problems with the current structure, and the Panel understands that he is analyzing ways and means to improve the situation. With each Division having its own budget and personnel, there is no one other than the Director General to ensure there is, indeed, a single, well-integrated and cohesive program within the Institute. It does not seem likely that the Director General will have the time to give continuing, direct, institute-wide leadership to such program formulation and execution.

The Panel is cognizant, however, of the fact that the current structure has been in effect for little more than a year, and that some may consider an immediate change premature. Nevertheless, the problems encountered in the operation of the structure deserve careful attention.

The Panel recommends that the Director General and the Board of Governors consider an administrative organizational structure that will facilitate the design and execution of a cohesive, well integrated institute-wide program.

The Panel recognizes that different organizational structures might be used to help achieve the goal of facilitating "the design and execution of a cohesive, well integrated Institute-wide program." Accordingly we make no recommendation concerning a particular structure, since there has not been an opportunity to study the matter thoroughly. However, one possible approach (among those which might be considered) could involve the appointment of a Deputy Director General for Programs, with responsibility for coordination and leadership of the total research and training program of the Institute, including those activities now carried out in the Field Operations, Programs, and Pakistan Divisions.

It would appear that such a change could be implemented without a major change in the current structure. There could still be a Director of

the Pakistan program (in accordance with the agreement with that country). Moreover, there would likely continue to be a need for a position such as Director of International Cooperation (or another appropriate title) with responsibility for administrative relationships with cooperating countries including many of the duties now performed by the Director, Field Operations.

No additional positions would be required. Such a structure would call for one less Director, with that title being replaced, in effect, by the Deputy Director General position.

The Panel believes that such a structure would address many of the difficulties expressed above relating to the current structure. However, it again emphasizes that it is not recommending this structure. This is being presented as one among, perhaps, many options which might be considered. <sup>4</sup>

### 3.2. Leadership

IIMI's history is short, and, like its current structure, several senior managers are relatively new in their positions. The current Director General joined the Institute as Deputy Director General in late 1986 and assumed his leadership responsibilities in June 1987. He succeeded the founding Director General who had taken up the post three years earlier. The Director of Administration joined the staff in April 1987, succeeding an administrative officer after a hiatus of some six months. The Directors of the three programmatic divisions were appointed, as noted, only in late 1988, although the Director of IIMI Pakistan had served as Director of International Programs since 1986. The Panel hopes that the Institute will be favored with somewhat more stability in top management in the crucial years ahead and notes the considerable advancement in planning and other aspects of administration during 1989.

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<sup>4</sup> One Panel member believes that the problems of the organizational structure, i.e., the roles of the various divisions and the concerns of the field units, require careful study, and it is not appropriate to prejudice that study by suggesting a possible approach despite the clarification that it is not a recommendation.

The Director General has impressed the Panel as a strong and insightful leader with the ability to articulate forcefully IIMI's plans and policies. Among several administrative innovations he points to in the past year is the establishment of a Management Committee to review IIMI's input, output, and impact.

The Management Committee is comprised of the Director General, the three programmatic Directors, and the Director of Finance and Administration. It meets quarterly for two to three full days to discuss and take decisions on a variety of issues, including international staff recruitment, publications, the current and subsequent year's budgets, and proposed projects; it also monitors progress on current projects. There is some concern among staff that the infrequency of the meetings delays some major decisions unnecessarily; more frequent meetings would probably be desirable with the views of the Director, Pakistan Division incorporated in a manner other than by his presence. In any event, the directors in Sri Lanka try to have an informal luncheon meeting weekly. Minutes of the Management Committee meetings are prepared and distributed to participants. A report summarizing the decisions taken is sent to all international staff.

The Director General also chairs bimonthly meetings involving the international staff based at headquarters, as well as research associates and other senior members of the national staff, to discuss administrative concerns, report on program matters, etc. Minutes of these meetings are circulated to staff in IIMI offices throughout the world.

The chronological files of IIMI international staff and some senior national research associates, aggregated by unit, are duplicated and shared as another means to ensure that all are kept abreast of program progress and plans and other relevant management issues.

In addition, all international staff take part in the annual Internal Program Review lasting almost a week; and the Heads of country operations also travel to headquarters for the annual program planning meeting. In

fact, most other international staff are in Sri Lanka a second time in the course of each year as participants in workshops.

Once or twice a year, or when an occasion arises such as the move from Digana Village, the Director General meets with the entire Sri Lanka-based staff.

The above measures demonstrate the concern of the Director General to keep staff informed and to benefit widely from their views, and his personal example is an important stimulant to such concern on the part of managers at other levels. Some managers (e.g., the Director, Programs Division, the Head of Sri Lanka field operations) already meet regularly with their staff. It might be desirable, however, to make explicit a policy that managers should meet regularly with members of their staff, to facilitate upward as well as downward communication. IIMI might also consider reinstituting an informal staff newsletter covering program information and staff news, perhaps on a monthly basis. Such a document could be a useful tool in building esprit and a commitment to IIMI's goals among both international and national staff spread so widely around the world.

#### 4. AVAILABILITY AND MANAGEMENT OF RESOURCES

IIMI's Director General is supported by an internationally recruited Director of Finance and Administration who is responsible for the Institute's financial and human resources management as well as other aspects of administration. Six departments report to him: the Controller, Personnel, Maintenance, Travel, Administrative Services, and Office Services and Supplies. This chapter will describe the responsibilities of these units, comment on the systems in place and the quality of their implementation, and note the issues that currently need attention.

##### 4.1. Financial Resources

###### 4.1.1. Organization and staffing

The Controller supervises three professional and six support staff, including a budget officer who joined the unit during the Panel's first visit. In addition to management of the budgeting and accounting functions, the Controller's Department is also responsible for IIMI stores.

Because of the size of the operation, IIMI Pakistan has its own accounting staff and maintains a separate set of books that are independently audited but ultimately integrated with those of headquarters. The other field offices operate with imprest accounts, sending in monthly coded reports of expenditures with supporting documentation.

###### 4.1.2. Budgeting

The Institute initiated in 1989 a new budgeting system in connection with planning for calendar year 1990 that is designed to identify and track the costs of individual projects. Budgets are initially prepared by each project leader, and the system makes provision for "buying" the time of what IIMI terms "internal consultants," staff of either the Programs Division or

of other field offices. As noted earlier, this is an important means of bringing the needed expertise to bear on implementation of multidisciplinary projects, although external consultants are also utilized.

Successful project budgeting invariably requires some experience on the part of staff, and, not unexpectedly, the benefits of the system were not fully realized for budget year 1990. Equating the demand for staff time with the supply available proved difficult in the first year. (For example, IIMI calculates senior staff costs to the divisions on the basis of 200 working days annually, after subtracting time dedicated to planning and program reviews from the total number of workdays. Hence per day costs would be the amount of one individual's salary and benefits divided by 200.) In addition, the inflexibility of funding proved a constraint on soliciting the help of staff from other operations for given projects. Nonetheless, the Panel believes the system is a step in the right direction and one that will enable the Board and management to evaluate objectively the cost/benefit ratio of individual IIMI activities. To ensure its effectiveness, however, the Panel would encourage management to devote more effort to helping project leaders understand the system and overcome the inhibitions they feel. It would appear that there was a good opportunity to do so during the Internal Program Review week, when so many of the field staff were present in Colombo. The Panel suggests that this be a subject for the next year's agenda or for another appropriate time when the full staff is assembled. In the final analysis, collaboration among IIMI divisions may rise or fall on such technical matters.

The budget cycle begins in April, with a tentative budget prepared for presentation to the Board at its June meeting, and then to the Donor Support Group in November. As a result of its strategic planning, and consistent with practice in the CGIAR System, IIMI is now projecting operational plans and budgets for five years into the future with, of course, the provision for detailed program and budgetary adjustments for the particular calendar year ahead. This should facilitate longer-range decision-making both by management and by the donors that support IIMI's work.

#### 4.1.3. Accounting and management information systems

IIMI is in the process of finalizing manuals that outline financial policies, accounting procedures, and computer operations. The systems that these documents record seem to be working well. It now provides management information in a much more effective and timely manner than was apparently the case several years ago. Monthly reports with varying degrees of detail are transmitted to the Director General, the Directors, and project leaders. Project reports record the costs of staff from both the project unit and any other staff from which contributions were made to the project, derived from monthly time sheets submitted by each staff member. Nonetheless, IIMI has plans to upgrade the information system in several ways, including the installation of computer networking facilities that would provide management with instant access to data. Although employee time would, of course, be entered only monthly, other expenditures (e.g., purchases, travel) could be updated within two to three days of expenditure or commitment.

#### 4.1.4. Auditing

IIMI conducts its internal audits with the assistance of Management Systems, Ltd., a subsidiary of the accounting firm of Ernst and Whinney that, until recently, also carried out the annual external audit. Staff of the internal audit branch spend about a week each month at the Institute, looking essentially at financial controls, and prepare a report to the Director General. A review of the reports reveals only very minor points raised, all of which are routinely pursued by the Director of Finance and Administration. In 1989, an external financial consultant recommended that each year's internal audit should be based on an annual plan prepared in advance by prospective internal auditors and approved by the Governing Board's Executive and Finance Committee. This recommendation has been accepted by IIMI, and the 1990 internal audit proposals prepared by two firms will be reviewed at the Committee's February 1990 meeting.

The Board approved in June 1989 the appointment of the Colombo office of Coopers and Lybrand to act as IIMI's external auditors, both on the

grounds that a change of firm from time to time is in the interest of cautious management and to separate internal from external auditing. A review of past audits by Ernst and Whinney, however, indicates financial affairs have been maintained in good order; comments made on management letters have been relatively minor.

The Board of Governors handles its audit responsibilities through the Executive and Finance Committee, which reviews the audit statements and meets annually with the external auditors in executive session.

#### 4.1.5. Financial position over time

As is the case with most new institutions, IIMI has grown rapidly during its first five years as it has built staff and initiated projects. The budget for calendar year 1989, as revised in June, totaled US\$7.749 million, of which US\$5.399 million or 70% was restricted and US\$2.350 million or 30% was unrestricted. The projected expenditure for 1990 is about 17% greater, while the increase projected from 1990 to 1994 is approximately 15% per year as shown in the chart below. Unrestricted spending is projected at about a quarter of the total over the five years.

Table 4.1 Projected Operational Expenditure

(US\$ '000 - in 1989 constant dollars)

	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>
Restricted	5,399	6,960	7,894	8,931	10,127	11,480
Unrestricted	2,350	2,130	2,545	3,070	3,680	4,420
Total	<u>7,747</u>	<u>9,090</u>	<u>10,439</u>	<u>12,001</u>	<u>13,807</u>	<u>15,900</u>

Despite the desirability--fully supported by the Panel--of maintaining IIMI's momentum toward a critical mass of staff and projects, the Panel is concerned that funding for the projected expenditures may be difficult to realize in view of the generally depressed outlook for agricultural research funding. In fact, as of January 1990, IIMI can only depend on receiving

about US\$7.1 million (US\$1.9 million in unrestricted funds and US\$5.2 million in restricted funds), slightly less than was expended in 1989 and substantially below the US\$9.0 million anticipated in the 1990 plan. To be sure, additional funds may be attracted as the year progresses, and IIMI management is working hard on this prospect, but the Panel considers this to be a serious problem.

IIMI has maintained its books in balance over the initial years with the exception of a period in 1986 and 1987 when several restricted fund projects were underbudgeted and subsequently overspent, due to lack of a proper system to monitor expenses. The Ford Foundation, which has been generous throughout the Institute's founding years, and the World Bank, came forward with 1987 grants of US\$0.3 and US\$ 0.75 million respectively. These grants, together with reduced spending and tighter controls enabled IIMI to finish its 1987 financial year with a modest surplus. Since that time, IIMI management has upgraded its financial control system substantially.

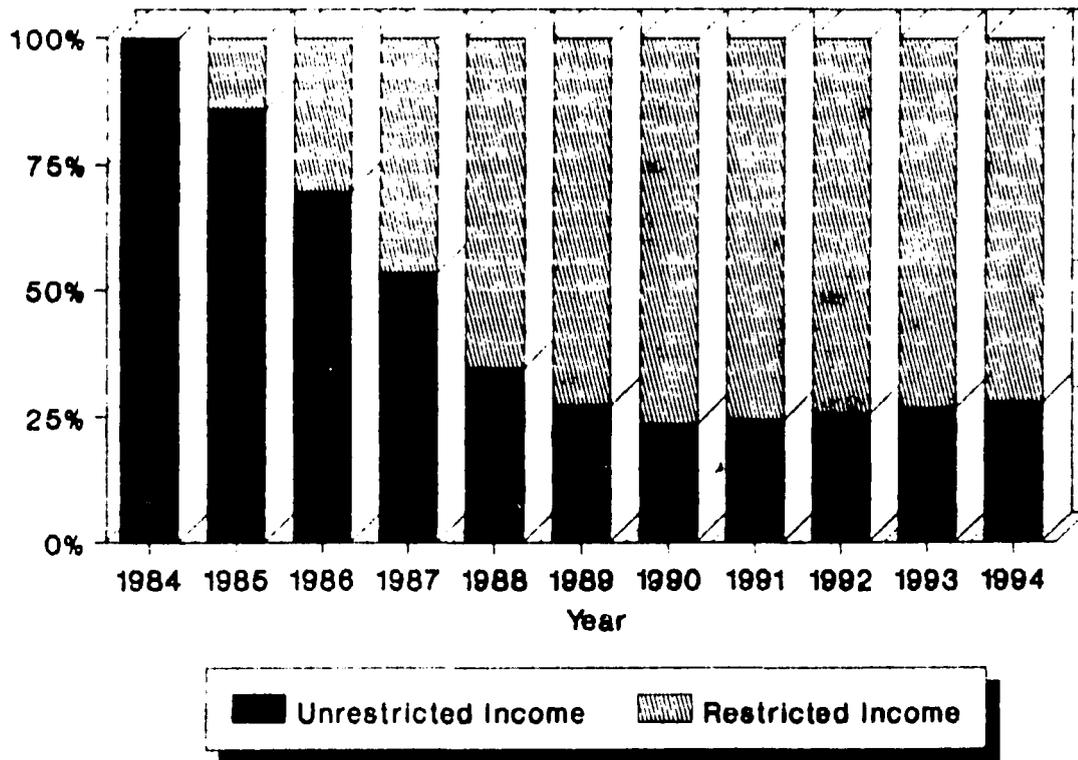
#### 4.1.6. Ratio of restricted to unrestricted funding

IIMI's ratio of restricted to unrestricted funding (see Figure 4.1) is considerably higher than is the case with most other IARCs. In part, this is due to the Institute's strict use of the terms; funds are designated as "restricted" when a donor has stipulated nothing more precise than their use in a given continent. Thus, one might argue that almost half (US\$1.781 million) of the US\$3.480 million restricted funds in 1988 could legitimately be redefined as unrestricted, in that they were 1) limited only to use in a continent or a country in which IIMI planned to work, 2) funded an activity previously covered by unrestricted funds, 3) or provided seconded staff for regular IIMI positions.

Furthermore, the more ready availability of restricted grants for country-specific activities has enabled IIMI to grow vigorously in its early years. The Director General also notes that funding of this nature often helps assure strong interest and collaboration on the part of IIMI's host

countries, which is essential to the success of the Institute's particular mission.

Figure 4.1 Unrestricted/Restricted Income



Nonetheless, the ratio is a constraint on IIMI's ability to define its own thematic research programs and sustain its country operations over the long term. Research, such as in the field of performance monitoring-- a high priority of the Board--rarely attracts restricted funds. IIMI must have the financial flexibility to pursue its strategic goals without interruption, as well as to ensure that there is no break in a country presence when individual projects come to an end before negotiations for subsequent activities are complete. Several "bridging grants" have helped in this area in the past, but the need to focus on fund raising has detracted from the time field staff can devote to research and project implementation.

A related issue is the fact that IIMI's restricted fund donors have been reluctant to cover the indirect costs attributable to their projects.

Or, alternatively, it may be that management has not pressed adequately for full cost recovery. As a consequence, the costs of such legitimate overhead units as the Board, the Director General's office, and the Finance and Administration Division are currently covered to a large extent out of unrestricted funds. Management is sensitive to this issue, however, and has projected a gradual move from this position as new contracts are signed or as old ones are renegotiated. IIMI proposes that indirect costs be properly assessed against both unrestricted and restricted activities and fully recovered by the year 1994, but the Panel would like to see a much more rapid move toward full cost recovery. The Panel would like to encourage donors now contributing restricted funds to support a budget item in all IIMI projects covering a fair share of indirect costs, even if they also contribute unrestricted funds. Arguing that the latter should be looked upon as a contribution toward indirect costs results in a misuse of the term "unrestricted," as such a condition precludes IIMI's free choice of activities that would promote its strategic goals.

To illustrate the issue: indirect costs in 1990 are estimated to be US\$1.805 million to support direct costs of US\$6.887 million. This yields an indirect cost recovery rate of 26.2%. However, Table 4.2 shows the expected application of 1990 funds, while Table 4.3 indicates how the budget would look with full recovery. In the latter case, unrestricted funds available for direct program expenses would rise from US\$950 million to US\$1.658 million, an increase of 75%.

Table 4.2 1990, As Currently Budgeted  
(US\$ '000)

	<u>Unrestricted</u>	<u>Restricted</u>	<u>Total</u>
Direct cost	951	5,936	6,887
Capital	37	361	398
Indirect costs			
- recovered	260	563	813
- <u>not</u> recovered	892	100	992
<b>Total</b>	<b>2,130</b>	<b>6,960</b>	<b>9,090</b>

Table 4.3 1990, If All Indirect Costs Recovered

(US\$ 000)

	<u>Unrestricted</u>	<u>Restricted</u>	<u>Total</u>
Direct costs	1,658	5,229	6,887
Capital	37	361	398
Indirect costs	435	1,370	1,805
	-----	-----	-----
Total	2,130	6,960	9,090

During the plan period, the indirect cost rate as a percentage of direct costs is expected to decrease annually as follows:

<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>
26.2	23.8	21.7	19.7	18.0

The Panel views even the 1990 rate as very modest and suggests that management review the components to ensure that all legitimate costs are included. For example, the newly established Project Development Office, not now considered part of indirect costs, is a valid support to research and field activity as are some of the activities currently performed by the Information Office.

The Panel recommends that IIMI management:

- a) review the components of indirect costs to ensure that all legitimate elements are included;
- b) move vigorously to incorporate indirect costs into all project budgets and explore the possibility of renegotiating existing contracts.

The Panel further recommends that donors of IIMI's restricted fund projects recognize the need to fully fund the indirect costs fairly attributable to their projects and proceed accordingly.

#### 4.1.7. Liquidity and cash management

IIMI maintains its principal accounts in CITIBANK, New York. The bank is under instructions to transfer any surplus in the checking account over US\$100,000 to a cash reserve account and, as appropriate, to invest the excess funds in short-term time deposits yielding currently about 8%. Appropriately, management and Board have opted for a cautious investment policy, and the Institute earned approximately US\$160,000 in interest income in 1989.

The Institute, of course, maintains bank accounts in Sri Lanka (in both US dollars and rupees) and in other countries in which staff are located. In all, IIMI must operate in ten different currencies. Fortunately, to date, most donor contributions have been made in U.S. dollars, which has protected IIMI against currency losses due to the depreciation of the dollar. In addition, during 1988, the Institute benefited from a 7% depreciation of the Sri Lanka rupee with about 24% of total expenditures in that currency; the rupee depreciated further in 1989.

Management considers the current cash position satisfactory, partly because one major donor remitted its contribution early, and partly because the projects funded by certain other donors were late in getting off the ground. In fact, except for the period in 1987, which was less a problem of cash flow than of inadequate budgetary control, IIMI has not experienced the the cash flow problems of some of the other agricultural research centers; IIMI donors have tended to meet their commitments on schedule.

#### 4.1.8. Working capital

IIMI's policy is to maintain a working capital equal to three months of the unrestricted budget. In principle, one might question if this is adequate in view of the fact that unrestricted funds currently account for only about 30% of the total budget. There is always the danger that restricted funds will be delayed, as well as the possibility that project costs may overrun project funding. In fact, however, IIMI expects to close

the 1989 books with approximately US\$1 million in reserve, half in a so-called "Reserve" account, half as "Operating Surplus." The reserve account alone should be sufficient to accord to the policy requirements through 1994 if unrestricted funding is realized as planned.

#### 4.1.9. Funding

IIMI is currently supported by some 15 governments, foundations, and multilateral agencies that comprise the Institute's so-called "Support Group." The Group meets annually, usually in conjunction with International Centers Week of the CGIAR each fall, to review IIMI operations and to pledge funds for the forthcoming year. The Support Group has no organizational presence in the interim, and Institute management must follow up on commitments--many of which cannot be firmly made at the fall meeting--and respond to individual donor concerns. The current review is the first commissioned by the Group as a whole. The relative informality of the Support Group also leads to some institutional insecurity, as well as career insecurity for staff, in that funding information is received late, and there are for the most part no commitments, even in principle, beyond one year. This puts IIMI at a disadvantage vis a vis the CGIAR Centers that are well served by both the CGIAR and TAC secretariats.

Table 1.4 (next page) indicates funding sources for 1989 and highlights the Institute's dependence on the United States Agency for International Development (USAID) and the Ford Foundation. It should be noted that the World Bank was the largest contributor of unrestricted funds. (The World Bank has stated that these funds are provided through a special annual US\$ 2.0 million allocation for the non-associated centers, and that it will be discontinued once the CGIAR has concluded its consideration of the entry of these centers into the CGIAR system).

In a dual effort to increase and diversify funding, IIMI established a Project Development Office late in 1989. The Office is charged with investigating new sources of funds, working with field and headquarters staff to develop project proposals, and monitoring compliance with donor

requirements. IIMI has a substantial number of projects in various stages of negotiation at this time. As noted above, the Panel considers it entirely legitimate to include this office as part of IIMI's indirect costs.

Table 1.4 Source of Funds, 1989

(US\$)

<u>Donor</u>	<u>Unrestricted</u>	<u>Restricted</u>	<u>Total</u>	<u>Percent</u>
Ford Foundation	400,000	760,896	1,160,896	15.77
Asian Development Bank		574,667	574,667	7.81
African Development Bank		202,600	202,600	2.75
Aga Khan Foundation		55,000	55,000	0.75
Cornell University		9,500	9,500	0.13
France		311,300	311,300	4.23
Canada	167,842	29,000	196,842	2.67
IDRC		70,600	70,600	.96
IFAD		313,000	313,000	4.25
IFAD/Fed. Rep. of Germany		268,950	268,950	3.65
JICA		9,100	9,100	0.12
Netherlands		333,000	333,000	4.52
Japan	140,000	120,000	160,000	2.17
Rockefeller Foundation		438,000	438,000	5.95
USAID	300,000	1,739,300	2,039,300	27.70
World Bank	600,000	14,700	614,700	8.35
Staff secondments	195,000		195,000	2.65
Interest income	160,000		160,000	2.17
Brought forward from 1988	250,000		250,000	3.40
<b>Total</b>	<u>2,212,842</u>	<u>5,149,613</u>	<u>7,362,455</u>	<u>100.00</u>
	30%	70%	100%	

The Director General plans to pursue most vigorously an increase in unrestricted funding, in part by pressing for the recovery of indirect costs from project sponsors, but also by regular visits to current and potential donors. He notes that some donors tie unrestricted grants to IIMI's

responsiveness to their specific country interests. In such cases, and particularly where the donor's interest is general with respect to a given country, IIMI will try to define a project consistent with Institute strategy. On the other hand, where a donor has a specific project in mind, IIMI will only respond if the project is consistent with its strategic plans.

It has been suggested to the Panel that private sector groups and developing country governments now making huge investments in irrigation technology might be approached for financial support.

#### 4.2. Human Resources

##### 4.2.1. International staff

Personnel management with respect to international staff is handled by the Director General and the Director of Finance and Administration, assisted by a recruitment consultant. The 1990 budget, however, projects a position for a professional human resources officer to be employed at the national staff level; this officer may assume some of the duties with respect to international staff personnel management, although a consultant for international recruitment is being retained.

The current complement of 27 staff includes 25 men and 2 women. Thirteen staff members are located at headquarters, including three responsible for Sri Lanka field operations; 14 are posted in IIMI's eight other country operations. Fifteen nationalities are represented on the international staff, as follows:

Developing countries	11
Europe	7
USA	7
Other industrialized countries	2

Disciplines represented include:

Civil and Irrigation Engineering	5
Social Sciences	5
Agricultural Engineering	4
Soil Physics	3
Agricultural Economics	3
Management	3
Education/Communications	3
Agronomy	1

Below the Director General, staff are classified at three levels; four are designated as directors, six as senior irrigation or management specialists, and 16 as heads or irrigation or training specialists.

The Institute's Five-Year Workplan projects a substantial growth in the staff complement as indicated in Table 4.5 below.

Table 4.5 Proposed Staff Growth and Distribution among Divisions/Offices, 1990-04

Division/Office	1989		1990		1991		1992		1993		1994	
	P	T	P	T	P	T	P	T	P	T	P	T
DG's Office	1.0	1.1	1.0	1.1	1.0	1.1	1.0	1.1	2.0	2.2	2.0	2.2
Finance & Admin	1.0	1.2	2.0	2.2	2.0	2.2	3.0	3.3	3.0	3.4	3.0	3.4
Ext. Dev.	1.0	1.2	1.0	1.2	1.0	1.2	1.0	1.3	1.0	1.4	1.0	1.4
Information	1.0	1.2	2.0	2.1	3.0	3.2	4.0	4.2	4.0	4.3	5.0	5.3
Programs (excl. Training)	5.5	8.0	7.0	9.1	8.3	11.1	9.8	12.3	11.0	13.9	11.0	14.8
Training	1.0	1.4	1.0	1.3	2.0	3.4	3.0	4.5	3.0	4.6	3.0	5.7
Field Operations	15.0	14.4	16.0	16.2	17.7	17.8	18.2	18.3	23.0	23.2	28.0	27.7
Pakistan	4.5	4.5	5.0	4.8	5.0	4.0	6.0	5.0	6.0	5.0	7.0	5.5
Total	130.0	33.0	135.0	38.0	140.0	44.0	146.0	50.0	153.0	38.0	160.0	66.0

P: Primary Assignments      T: Total resources used, taking into account loans to/from other Units and Consultants

Note: Of the 30 positions in 1989, three are currently vacant.

Open positions for international staff are advertised regularly in the Economist, occasionally in relevant professional journals, and via a special mailing list of IIMI contacts. Management is considering ways to broaden the reach of recruitment and may try, in addition to advertising, direct solicitation of applications from persons known to IIMI who possess the special qualifications needed for a given project or research slot. The Director General appoints a panel to review the applicants and recommend two to four short-listed candidates to spend two days at IIMI for interviews and a seminar presentation.

According to the Director General, IIMI has been successful in recruiting staff of the desired caliber, but occasionally only after extensive effort. Whether or not this is due to unfavorable press reports about conditions in Sri Lanka is difficult to determine. Although IIMI salaries are competitive with CGIAR standards, IIMI finds it hard to meet the salary expectations of certain nationalities and disciplines as is the case with other IARCs, and to compete with the older and thus better known CGIAR centers.

Benefits for international staff are also in accordance with CGIAR center practice, having been designed as a result of a careful review of other IARC staff manuals. In addition, IIMI uses the personnel services, including insurance plans and pension funds, provided by the Institute of International Education. The policies are now clearly stipulated in an IIMI international staff manual. Included among them is the availability of study leave for international staff to upgrade their skills, learn new techniques, etc. Proposals must justify the study in terms of relevance to IIMI, but there is no minimum employment stipulation or limitation on duration.

IIMI's decentralized mode of operation necessarily results in the isolation of some staff. Four posts are staffed by single scientists; three others have only two. This fact compels greater efforts at staff communication, beyond the two meetings held at headquarters each year. The means devised by IIMI management are outlined in Chapter 3. It also

suggests that a substantial period of orientation at the headquarters site prior to initial outposting would be a valuable investment.

The Panel recommends that project budgets be drawn so as to permit new international staff to spend a substantial period of time at headquarters so that they will come to understand IIMI's strategic and operational goals, organizational culture, and administrative procedures.

The fact that so many staff are outposted and work very independently prompts the Panel to note, as well, the importance of seeking researchers who possess, not only special ability in their respective disciplines, but also strong interpersonal skills and cultural sensitivity. The quality of the relationships staff develop with irrigation officials and others in the project country may well be the determinant of IIMI's ability to implement change.

Management has introduced an excellent performance planning and evaluation system during the past year, a move the Panel commends highly. The system incorporates a self assessment against the prior year's workplan, preparation of the subsequent year's plan, and extensive consultation between staff member and supervisor. Full documentation is shared with the employee, who has the opportunity to comment in writing as he or she wishes for inclusion in the personnel files. The introduction of this type of planning and review system gives IIMI the opportunity to ensure the work of each individual staff member is derived from and contributes to the Institute-wide plan for the year and, in turn, the long-term strategic goals.

The Panel was impressed with the quality of international staff at IIMI as well as with their apparent professional satisfaction. Although they spoke their minds freely, comments and suggestions made were constructive and gave evidence of considerable commitment to the Institute.

#### 4.2.2. National staff

IIMI benefits from the highly educated and skilled workforce available in Sri Lanka, and especially in Colombo, so that open positions can be filled expeditiously by competent staff. The employment market differs, of course, in other countries in which IIMI operates, and, in some cases, country leaders find it difficult to attract the skills they need. The Panel had only limited opportunity, however, to meet with local staff outside Sri Lanka.

As of January 1990, the national staff complement was as follows:

	<u>Headquarters</u>		<u>Field Offices</u>		<u>Total</u>
	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	
Professional & Managerial	16	4	44	-	64
General Services	16	29	80	7	162
	-----	-----	-----	-----	-----
	62	33	124	7	
	-----	-----	-----	-----	
Total	95		131		226

While most staff are considered "regular" employees, IIMI's current policy is to hire on fixed-term contracts those national staff assigned to restricted fund projects.

National staff positions in Sri Lanka in the "Professional and Managerial" category are currently grouped into eight salary levels; those in "General Services," into seven grades (A-G). There are position descriptions for all posts, and a staff manual documents benefits and regulations, including a well-developed system for performance appraisal. The manual serves as a prototype for the development of personnel policies applicable to national staff in the field offices, although the policies must be adjusted in each case to take into account local custom and law. Three such outposting policy documents have been completed to date.

Prompted in part by the move to Colombo, IIMI management recently retained a consultant to conduct a salary and benefit survey among local public and private employers in the headquarters city and expects to review the recommendations of the consultant with a view toward appropriate adjustments in 1990. Field offices depend upon salary schedules developed locally by such agencies as UNDP, USAID, etc., but use of a similar consultant in cases where staff numbers are large might be warranted.

The Panel commends the Institute for its concern for the effective management of national staff personnel and, especially, for the generous treatment of the 80 staff in positions declared redundant during the headquarters transfer (a result of much reduced administrative and logistical activities). The new policy on national staff professional development through IIMI-supported training is also noteworthy. The one area in which further attention seems warranted is in position classification. The growing size of the Sri Lanka staff suggests that the time has come to install a more systematic procedure to determine grade and salary, one that takes into account the responsibility, authority, knowledge, and skills associated with the position in question. A necessary part of this is a review of job descriptions to ensure they accurately reflect current assignments.

The Panel recommends that IIMI management design and install a position classification system applicable to all national staff positions.

It should be noted that the Panel's general impression of morale among national staff was very favorable. Most consider IIMI a caring employer and find satisfaction in making a contribution to the Institute's important work.

#### 4.3. Other Support Services

As noted, the Director of Finance and Administration is responsible for four other units that provide administrative support to IIMI's programmatic activity:

- Administrative Services Department handles liaison with public and private sector organizations in Colombo, local and international purchasing, and assistance with expatriate staff housing;
- Travel Department is responsible for individual travel arrangements as well as coordination of conferences, workshops, etc.;
- Maintenance Department handles the maintenance and repairs of expatriate housing, vehicles, and office equipment and manages the transport service; and
- Office Support Systems Department provides communications and reception services and is also responsible for photocopying, mail, and office supplies.

The services appear to be competently managed, with well documented policies and procedures and appropriate controls in effect. The controls receive the attention of IIMI's internal auditors.

#### 4.4. Physical Facilities

##### 4.4.1. In Sri Lanka

IIMI transferred its headquarters operation from Digana Village near Kandy in August and was fully operational in Colombo by September 1, 1989. The move was precipitated by a number of considerations, among them: the unreliability of communications, the distance between Digana and the Colombo international airport--a three hour drive over often congested roads, and the extra burden placed on management by the necessity of administering a school, a clinic, recreational and food facilities, staff housing, and other elements of infrastructure at the remote Digana Village site. In addition, of course, security concerns, especially with respect to the Kandy area, had

intensified by the summer of 1989, and IIMI, in fact, transferred the staff to Colombo several weeks earlier than planned as a result.

As an interim measure, the Institute negotiated a contract on favorable terms with the Meridien Hotel in central Colombo to provide two floors of office space as well as sleeping accommodations as required. This has relieved management of the need to handle food services, security, and building maintenance. Expatriate staff are housed in rental homes around Colombo, and international schools through secondary level are available for staff children. There is an option to remain at the Meridien for up to two years, with only 30 days notice of departure required.

However, IIMI has negotiated a lease for a new building nearing completion on the outskirts of the city. The Panel visited the site and found both the situation and the facilities eminently suitable for occupancy by the Institute. Facing a main road, the attractively designed building has three floors, including somewhat more than 26,000 square feet, on a half acre property. The cost to IIMI of the lease and other services IIMI must provide approximate the cost of the Meridien (which, in turn, is comparable to the overall costs of running the operation at Digana Village). The Institute expects to take possession of the building early in 1990 and will have an option to purchase it within one year, together with an adjacent half acre of ground for possible expansion. If approved by the World Bank, about 70% of the total purchase price could be covered by a Bank loan to the Sri Lanka Government that was originally allocated for a new IIMI building at Digana. In point of fact, ground was broken for that building in mid-1988, but the construction company went into bankruptcy shortly thereafter. IIMI would plan to finance the remainder of the cost either out of reserves or through a low interest loan.

The proposal to purchase a building, which implies a condition of permanency, raises considerations of security in Sri Lanka. As this report is written, IIMI is able to work essentially without disruption in Colombo, and staff live comfortably throughout the city. Nonetheless, according to the Director General, the climate of unrest does affect the way people

conduct their lives, and it has had a heavy impact on Sri Lanka's economy. The sharp increase in the cost of living has been particularly difficult for the national staff and is only in part ameliorated by IIMI's cost of living policy for national staff, this policy being tied to the official government of Sri Lanka cost of living index. Security conditions in many parts of the country are still highly uncertain and will bear careful observation throughout the next year, particularly as IIMI weighs the impact of reports on Sri Lanka in the international press on the recruitment of staff and consultants and on participation in IIMI conferences and workshops.

#### 4.4.2. In Pakistan

The Pakistan Government has provided a site at the Niazbeg Canal Rest House, Lahore, for the construction of a building for the IIMI Pakistan program staff. This site has an area of five acres and is adjacent to the Punjab Engineering Academy, the On-Farm Water Management Training Center, and the Command Water Management Project Offices, which is useful for IIMI's work. In June 1988 a credit of US\$1.8 million was signed between the World Bank and the Government of Pakistan for construction of the building. The Pakistan Agricultural Research Council (PARC) has named the architect and selection of the construction contractor is in progress.

## 5. IIMI'S PLANNING PROCESS AND ITS STRATEGIC/OPERATIONAL PLANS

### 5.1. The Planning Process

IIMI has been engaged since 1987 in comprehensive processes for both strategic and operational planning. This chapter will consider these processes and their products--the Institute's strategic and operational plans.

At the outset, the Panel would like to commend IIMI for the excellence of its efforts in developing its strategic and operational plans.

#### 5.1.1. The strategic planning process

In 1987-88 IIMI undertook an extensive process of consultation for the purpose of developing a strategic plan to clearly define the Institute's mission and chart its course over the next several years. The process involved the following steps :

- an initial staff workshop to discuss basic strategic issues, with the assistance of an outside resource person;
- a further staff workshop to discuss IIMI's potential and existing themes;
- preparation of an initial draft strategy paper and discussion of this paper at the 1987 Donor Support Group Meeting;
- a further staff workshop to refine strategic thinking and begin considering issues of program structure with assistance of staff from the CGIAR Secretariat who specializes in strategic planning;

- discussion of a further draft of Strategy Paper with the Executive and Finance Committee of the Board;
- discussion of a revised draft with IIMI's clients from several countries of Asia and Africa at a Major Clients Workshop;
- discussion of a further revision of the draft with IIMI's Board of Governors;
- publication of "The Strategy of IIMI" in draft form in September, 1988;
- presentation of the draft strategy document to Support Group at its meeting in October 1988;
- publication of the final version of strategy document in late 1989;

The specific product of this process—IIMI's Strategic Plan—is discussed in Section 5.2.

#### 5.1.2. The operational planning process

IIMI's operational plans, logically, flow from, or grow out of, the strategic plan. Indeed, the development of the operational plans represents the process of implementing the strategic plan. The Institute is concerned with the development of two types of operational plans: (1) the Five-Year Workplan and (2) the annual Program and Budgets.

##### 5.1.2.1. The Five-Year Workplan

In September 1989 IIMI published a document setting forth an operational workplan for the Institute, covering the period 1990-94, and culminating in an extensive planning process which began with the development and approval of the long-term strategy.

The following schedule of activities in 1989 documents the process by which the Five-Year Workplan was developed.

The Workplan was developed over a period of several months, beginning with the preparation of papers in February and March 1989, which described the 1990-94 objectives for each IIMI unit. IIMI Directors, heads of field operations and project leaders contributed to the development of these initial papers, incorporating the views of "client"-country collaborators, staff members and others.

The process was concluded the following October when the Workplan was presented to, and considered by, the IIMI Support Group.

In the interval there was an internal meeting of program staff followed by a series of meetings of the Management Committee to consider the content of the Plan. A draft was considered by the IIMI Board in July and revised further to accommodate Board suggestions before presenting the final draft to the Support Group.

The product of this effort, the Five-Year Workplan is reviewed briefly in 5.3.

#### 5.1.2.2. Annual program and budgets

Another aspect of the Institute's operational planning process involves the development of an annual "Program and Budgets" document. This document describes the nature of the program to be undertaken during the following budget year and the proposed level of funding needed to carry it out.

The development of the 1990 Program and Budgets document followed essentially the same process and timetable described above (Section 5.1.2. 1) for the Five-Year Workplan.

Obviously the 1990 Program & Budgets document covers the first year of the 1990-94 Workplan. Both the Workplan and the Program & Budgets represent

steps to operationalize IIMI's strategy. It is recognized that changing circumstances may necessitate a change in strategy before the Institute develops another strategy document or a five-year workplan. Plans call for annual revision of the Workplan to reflect needed changes. Annual Program and Budgets documents would reflect such changes on a year to year basis.

## 5.2. The Strategic Plan

The process by which IIMI's strategic plan was developed is described in 5.1.1. A draft of the strategy document was approved by the Board in September 1988. The final version was published in late 1989.

### 5.2.1. Elements of the strategic plan

The comprehensive strategy document covers in considerable detail the following topics:

- the external environment in which IIMI operates, detailing the circumstances that emphasize the need for an organization such as IIMI;
- the beneficiaries and users of IIMI's work;
- a description of IIMI's mission and potential benefits from its work;
- a consideration of the elements or components of irrigation management;
- a summary of the major program themes IIMI has elected to address;
- a description of proposed major areas of IIMI activities or program efforts;
- a consideration of IIMI's proposed modes of operation, including modes of collaboration;

- geographical considerations--where IIMI proposes to concentrate its work;
- a consideration of Institute priorities;
- the proposed organizational structure for the Institute;
- the physical infrastructure;
- staffing considerations, including disciplines to be covered; and
- Institute financing.

A brief summary of the strategy document is found in Annex III.

#### 5.2.2. Panel commentary

IIMI has developed a well-conceived strategy document, setting forth the mission and proposed scope of operations for the next decade. The Panel is pleased with IIMI's plans to review the strategy document annually, converting its strategies into short- and medium-term operational terms, through a system of "rolling" five-year plans. Such an approach will facilitate a continuing review of the Institute's strategy, modifying it where necessary and translating it into operational terms.

The Panel shares IIMI's views on the importance of irrigation in developing country agriculture and the need to greatly improve the management of irrigation systems to make them more productive and efficient, thereby realizing more fully the benefits from the large investments that have been made in irrigation systems throughout the developing world.

It should be recognized that IIMI's mission is, in many respects, unique in character among IARCs. There are no comparable models upon whose experience IIMI can draw. Therefore, the Institute must develop or explore new and different techniques and approaches for carrying out its mission.

This may well result in IIMI's inability to achieve the desired level of success in some of its undertakings--a fact that donors and collaborators must recognize.

The Panel notes with some concern an apparent lack of reference in the strategy document to the important role which women play in developing country agriculture.

Therefore the Panel recommends that IIMI consider the implications of the role of women in developing country agriculture in the formulation and conduct of its program.

While noting the above concern, the Panel agrees with IIMI's general "mission" statement and with its assessment of its primary beneficiaries and target audiences or clients. The Panel also agrees that IIMI should work, primarily with and through existing programs in "client" countries, serving as a catalyst in stimulating needed research activities. This requires a special kind of "leadership" beyond that involved in the conduct of independent research efforts. In fact, the pursuit of collaborative research achieves three important objectives: it increases the research output, trains the collaborators in research methodology, and promotes adoption of the research findings.

IIMI's mission statement emphasizes its role in the "development and dissemination of management innovations" (emphasis added). The Panel agrees this is an appropriate goal and hopes IIMI is successful in developing and introducing new and innovative management practices. However, the Panel suggests that IIMI should not overlook opportunities to achieve desired goals by reintroducing and/or reinforcing those efficient and productive management practices which are already known but which have been neglected or remained inoperative over the years. IIMI notes that these considerations are intended to be included in its definition of innovations.

IIMI appropriately recognizes the difficulty of developing programs in all, or even a large percentage, of the countries having serious irrigation

management problems. Therefore emphasis is placed upon the development of information or knowledge about improved management practices which is not site specific and which has broad application. The Panel suggests, however, that IIMI be mindful of the potential problems and pitfalls of directly copying or transposing successful management models from one country to another. Success depends upon many factors other than the intrinsic merits of good management practices. For example, the "formula" which has been responsible for the rapid economic development in Korea in recent years may not be readily transferable to other developing countries. Neither can the successful management techniques employed in Japan be easily copied by the United States. Cultural and other factors influence the transferability of such knowledge.

The Panel emphasizes the importance of developing appropriate administrative and programmatic relationships with host country governments and their agencies concerned with irrigation. The Strategy document suggests IIMI's country programs will "normally" develop appropriate instruments for achieving these relationships--such as Memoranda of Understanding (MOUs), Technical Agreements, and Consultative Committees. The Panel believes these instruments to be sufficiently important to become a necessary (rather than a desirable) condition for initiating an IIMI program in a given country. Moreover, the Panel emphasizes the desirability of developing the appropriate MOU with a competent authority acting on behalf of the national government.

The proposed program themes are very broad and all-inclusive. Obviously, IIMI cannot and should not attempt to address all of these at one time with equal levels of effort. It would be helpful to know the Institute's priorities in terms of relative attention devoted to the individual themes. It should be noted that most of the themes are closely related, and a given project may well relate to several different themes.

Nevertheless, the Panel recommends that IIMI narrow somewhat the focus of its primary program efforts, concentrating on those themes and related

activities that can make the greatest contribution to the achievement of its mission.

The Panel concurs with the proposed highly decentralized nature of IIMI programs as well as the role which more centralized thematic research should play--and the manner in which these two types of efforts should complement one another. This type of program emphasis obviously calls for very close interactions between country programs and thematic research efforts.

Recognizing the need for such close, complementary efforts, the Panel is concerned with the administrative structure set forth in the Strategy document (now in effect) in which IIMI's programmatic responsibilities come under the direction of three Directors in three different Divisions. The Director General recognizes this structure is making it difficult to achieve needed close collaboration within the Institute and to use, most effectively, available resources. Issues relating to IIMI's administrative structure are discussed in greater detail in Chapter 3 of this report.

The Panel appreciates IIMI's desire to have broad geographical coverage of its programs, reaching into all the major developing country regions. However, we would express a word of caution about expanding too fast and too far. At this stage of the Institute's development, the Panel believes it is better to do a few things well and develop a reputation for excellence--rather than attempt to "be all things to all people," possibly jeopardizing the Institute's ability to do anything well. In this regard, special attention should be given to consolidating efforts in countries where programs are already established. Obviously, it will be difficult for IIMI to have a significant presence in all five of the major developing world zones identified in its strategy statement. This will call for careful prioritizing of efforts combined with an emphasis on studying important irrigation management issues of a less site specific but more general or generic nature--the results of which may have broad, general applicability.

With the expressed reservations and concerns set forth in the preceding section, the Panel finds IIMI's overall strategy statement to be

well conceived and effectively developed and presented. It should provide an effective basis to help guide IIMI's efforts over the next decade and beyond.

### 5.3. The Five-Year Workplan

The process by which IIMI's Five-Year Workplan was developed is covered in 5.1.2.1 (above). The Workplan, that has resulted is a comprehensive document which covers in some detail the following topics:

- the process by which IIMI's strategy is translated into short and medium-term operational plans--along with the current status of the Institute's efforts to operationalize its strategy;
- a summary of IIMI's achievements to date within the major divisions and areas of activity;
- a detailed statement of IIMI objectives for the period of the Plan (1990-94), providing specific information about primary areas of emphasis within the major divisions of IIMI's operations;
- a consideration of personnel resources needed over the five year period of the plan and the allocation of these resources among the Institute's Divisions and Offices, and the various cooperating countries;
- a consideration of financial resources needed over the five year period and the breakdown of these resources among unrestricted and restricted funds as well as indirect cost recoveries. This section also indicates how these resources would be allocated to the major functional areas of IIMI operations;
- finally, consideration is given to the manner in which IIMI's performance in implementing this plan will be evaluated during the

five-year period (i.e., the extent to which the objectives of the plans are achieved).

#### 5.3.1. Projected institute growth

Many aspects of the Plan are covered in other sections of this report (e.g., Chapters 4, 6 and 7) and need not be treated here. Special attention should be called to one aspect of the Plan, however: the substantial growth projected for the Institute during the five-year period.

A doubling of Institute staff is called for during the period of the Plan (from the 1989 base). Moreover, operating budgets would more than double during this period if the goals of the Plan are realized. Although restricted funds are projected to increase more than unrestricted funds (percentage-wise and total), substantial increases in unrestricted funding are indicated.

It should be noted, as well, that the Plan calls for the initiation of programs in three additional countries (Egypt, China, and Mexico) in its third year (1993).

#### 5.3.2 Panel commentary

The Five-Year Workplan is generally well conceived, organized and presented. While lacking some degree of desired detail and specificity, the Panel believes it provides an effective instrument for projecting Institute activities during the planned period. Overall, the Panel believes the plan represents a reasonable and logical approach to implementing or operationalizing its strategic plan.

One area in which the Panel feels the Plan may be deficient emerges from its failure to give a sense of specificity, timing, or priority to the implementation of new programs during the Five-Year period. The Plan considers the types of new or additional activities proposed. However, except for a general indication of where expansion will occur, there is

little evidence of timing for the implementation of new program initiatives or the priorities attached to such programs in the event that all cannot be implemented.

In one respect the Plan appears to deviate from the Institute's strategy. For example, the strategy document indicates: "It is not likely in the immediate future that IIMI's resources will grow to the point where it can safely undertake the substantial extra effort of embarking on resident programs in another zone, either East Asia or Latin America." Yet programs in both these zones, as well as one in Egypt, are proposed in 1993. This expansion during IIMI's first Five-Year plan would appear to be "in the immediate future"--as characterized in the Institute strategy. The Panel wonders what circumstances prompt such an apparent departure from the strategy.

The Panel believes the concept of regional operations, involving appropriate networks, may be valid for regions including relatively small countries with limited irrigated areas--such as parts of West Africa.

The Panel, in Chapter 4, has already expressed some reservations about the projected rate of growth in financial resources in the period of the Plan. The proposed doubling of funds, in real terms (1989 U.S. dollars), should be considered in the light of changes in funding of the IARCs in the CGIAR System during the last six to eight years. During this period the funding in these centers has little more than kept up with inflation. Moreover, many major donors, such as the U.S., are now facing serious constraints on resource availability. Competition for donor aid funding in areas such as Eastern Europe may also influence IIMI's ability to achieve the proposed levels of funding increases.

It should also be noted that in some of IIMI's "client" countries, national governments are now raising serious questions about allocating bilateral aid funds to support IIMI projects. This may also negatively influence IIMI's ability to generate the level of resources needed to fully fund its desired activities.

In expressing concerns about the prospects for future funding, the Panel, does not in any way, wish to question the need for support of IIMI's efforts or the desirability of further expansion to enable the Institute to more adequately address needs. The Panel's more conservative posture with respect to the rate of proposed expansion grows out of the circumstances discussed above which may constrain the availability of resources--as well as the belief, as emphasized in Section 5.2.2. that efforts to expand too far, too fast would not be desirable.

While emphasizing its concern about the potential for future funding, the Panel would also like to suggest that the Institute consider, as well, its ability to manage effectively an organization expanding at such a rapid pace. The Panel believes that, at this stage of development, IIMI can ill-afford not to do well in whatever it undertakes.

The Panel recommends that IIMI give priority to achieving the highest possible quality of effort in whatever it undertakes and not jeopardize its ability to do so by over extending itself, either geographically or in the size of its total enterprise.

#### 5.4. Annual Program and Budgets

Annually, IIMI goes through a process, as described in Sections 5.1.2.2., of developing a document which reflects its proposed program and budgetary needs for the following year.

##### 5.4.1. The 1990 Program and Budgets

The 1990 Program and Budgets document describes in some detail the proposed program for each country in which the Institute is working, as well the planned activities in the area of thematic research, regional and multicountry projects, training and information. The document then summarizes proposals to implement these program activities and provide needed support services.

It should be noted that a 22% increase in internationally recruited staff is proposed along with a 17% increase in funding levels in real terms.

#### 5.4.2. Panel commentary

The Panel found the 1990 program and budget document to be well conceived, organized, and presented. The proposed programmatic activities appear to be consistent with the Institute's Strategic Plan as well as with the Five-Year Workplan. The Panel noted the significant increase in staff and budget reflected in the 1990 Program and Budgets document within the context of its expressed concern about the rate of projected growth of the Institute.

## 6. IIMI'S PROGRAM

In accordance with its strategic plan, IIMI is committed to work in four areas: collaborative field research in specific environments, thematic research to synthesize findings from varied environments, and management training and information exchange. This chapter will review and comment upon the current activities in each of these areas.

### 6.1. Nature of IIMI's Research Projects

Within a year of its founding, and despite the time necessary to recruit staff, put in place basic systems and procedures, and make initial contacts with collaborating countries, IIMI launched its first research projects. Between 1985 and 1989, some 45 to 50 projects were initiated. These fell predominantly into the category IIMI terms field research-- projects usually developed in collaboration with a consultative (or advisory) committee in the country concerned, focusing on specific problems faced in that environment. The remaining projects, characterized as thematic research, aimed at developing generic innovations that might be applicable to a variety of environments. In point of fact, it is sometimes difficult to place a given project in one category or the other, since IIMI tries to integrate field with thematic research, developing the former in ways that will contribute to the latter.

#### 6.1.1. Current research

Annex IV summarizes some 28 current IIMI research projects, including the objectives of each, the start/completion dates, source of funding, and estimated expenditures. While IIMI refers to these as "research" projects, the projects often include significant activities other than research. The wide range of subjects covered by these projects is reflected in their titles as shown in Table 6.1.

Table 6.1 Titles of IIMI Research Projects

<u>Responsible Unit</u>	<u>Title of Project</u>
Sri Lanka	1. Action Research on Irrigation Management for Crop Diversification in North Central Province, Sri Lanka
„	2. Irrigation Management and Crop Diversification in Southern Province, Sri Lanka
„	3. Irrigation Systems Management (ISM) Project
„	4. Development of an Analytical Framework for Irrigation Management
„	5. Irrigation Investments Trends in Sri Lanka
Indonesia	6. Efficient Irrigation Management and System Turnover in Indonesia
The Philippines	7. Study on Irrigation Management for Diversified Crops
„	8. Accelerated Agricultural Production (AAP) Project, Irrigation Component--Research and Special Studies
Bangladesh	9. Support to Bangladesh in Research and Training for Irrigation Management
Nepal	10. WECS/FORD Project in Sindhupalchok
„	11. Performance Evaluation of a Large-Scale Farmer-Managed Irrigation System
India/SL	12. Collaborative Research and Training Activities with Indian Institutions
Morocco	13. Morocco Program Development
Sudan	14. Sudan Establishment and Program Development
W. Africa	15. West Africa Establishment and Program Development. (Regional program covering Burkina Faso, Niger, Mali, Senegal, and Nigeria).
„	16. Collaborative Research with Ahmadu Bello University on "Diagnostic analysis of Large Irrigation Project and Development of Farmer Managed Irrigation System".
Pakistan	17. Irrigation Constraints to Crop Production
„	18. Impact of Lining Secondary Channels and Rehabilitation Strategies
„	19. Combined Surface and Groundwater Irrigation Systems
„	20. Distributary Performance: Variability and Equity in Secondary Canals
„	21. Managing Irrigation Systems to Minimize Waterlogging and Salinity Problems
„	22. Irrigation Efficiencies in Farmer-Managed Irrigation Systems in Hunza Gojal
Programs	23. Application of mathematical models for simulation of main canal operations (Phase 1).
„	24. Research Network on Irrigation Management for Diversified Cropping in Rice-Based Systems
„	25. IIMI-IRRI Collaborative Project on Problems of Irrigation Management for Rice-Based Farming System (Philippines, Indonesia and Bangladesh)
„	26. Performance Evaluation of Irrigation Systems. Criteria and Norms for Cooperative and Evaluative Purposes.
„	27. Farmer Managed Irrigation System
„	28. Design/Management Interaction Studies

Annex IV also provides IIMI management's assessment of the impact--real or potential--of these projects and an indication of the relative amount of effort in each project devoted to the various types of activities. The percentages of total program effort devoted to each type as estimated by management follows:

	Percent of Total Effort
Research . . . . .	75
Basic (designed to create new knowledge or understanding) . . . . .	15
Strategic (designed to solve specific research problems or develop new techniques) . . .	20
Applied (designed to create new technology) . . .	10
Adaptive (designed to adjust technology to specific needs or a particular set of environmental conditions) . . . . .	30
Dissemination or application of research result . . . . .	15
Training . . . . .	10

IIMI management suggests that the actual allocation of effort shown here is at the desired level--at least in the short term. It is also suggested that these activities might be most appropriately summarized as follows:

Basic/strategic research . . . . .	30
Action research to develop and test innovations . . .	55
Training . . . . .	10

It should be noted as well that the dissemination and training components referred to in this analysis include only those efforts carried out in conjunction with IIMI research projects. If the Institute's current, non project-related information and management training components are considered, these components represent about 35% of IIMI's total program effort, rather than the 25% indicated above.

Table 6.2 indicates how time is allocated in IDMI's current projects.

Table 6.2 Characterization of Research Activities

Activity - (% of Total)

<u>Project</u>	<u>Basic</u>	<u>Research Strategic</u>	<u>Research Applied</u>	<u>Adaptive</u>	<u>Research Implementation</u>	<u>Training</u>	<u>Others</u>
1			70		20	10	
2		50		30	15	5	
3			15	20	20	10	25 <sup>1,10</sup> 2
5	25	25				50	
6	5		15	30	45	5	
7		10		70	10	5	5 <sup>3</sup>
8	25	25				10	40 <sup>4</sup>
9	5	15		20	5	20	35 <sup>5</sup>
12		50		30	10	10	
13a				15	90	35	
b	15	35	10	20	20		
c			10	20	70		
14	5	10		25	5	15	40 <sup>5</sup>
15	5			30		30	35 <sup>5</sup>
16		60		30		10	
17		10	30	20	10	25	5
18	50			50			
19	75			25			
20	40		30	10	20		
21		5	30	40	25		
22	75	25					
23	20	20		40	2	3	15 <sup>6</sup>
25	5	5	20	30	5	25	10 <sup>7</sup>
26	30	30	30	10			
28	40	40					10 <sup>8,10</sup> 9

1. Discussions, workshops
2. Administration, reporting, planning
3. Information and publication
4. Strengthening National Irrigation Administration's capacity to conduct/manage research
5. Provision of institutional arrangements for identification of research agendas and managerial support
5. Provision of institutional arrangements for identification of research agendas and managerial support
5. Provision of institutional arrangements for identification of research agendas and managerial support
6. Study advisory committees
7. Information exchange
8. Information exchange
9. Initiation of a unified statistical data base

The Director General has pointed out that IIMI's mission of "developing and disseminating innovations" requires the Institute to go beyond the conduct of research dealing with the management of irrigation systems. IIMI's collaborators, the national irrigation systems, must obviously be willing to adopt the innovations suggested by IIMI research before the performance of irrigation systems can be improved.

An interesting and relevant analysis of IIMI's work was presented by a staff member from the Indonesian operations at the Institute's Fifth Internal Program Review. He suggested that, in any given country, IIMI must progress through a series of steps enroute to management reform. The first step involves observations of the existing formal and informal management practices in a given country and building the trust of appropriate government officials. This step requires great sensitivity in view of the fact that IIMI's focus on performance carries the implied judgement that existing standards of performance are not satisfactory. The second step involves gathering sufficient data to begin to diagnose the problems. Step three introduces pilot testing of recommended changes and measuring improvements in irrigation management performance. The fourth step involves acceptance of the recommendations by the relevant agencies and their adoption and implementation by the system as a whole, including areas where IIMI staff have not worked directly. The speaker, highlighting the difficulty of moving through these steps, expressed well the challenge of the IIMI's embraced mission.

A few generalizations can be made from a review of Annex IV. About half of the projects are designed for a two-year duration (sometimes renewable), but can be as short as six months or as long as five years. Project funding is frequently assembled from two or three donors rather than a single source; costs run from a low of US\$27,000 to a high of US\$2 million for a single project. Generally speaking, research categorized as thematic is financed out of IIMI's unrestricted funds, while field research is supported by restricted funds. But there are exceptions to this rule as

unrestricted funds sometimes are applied to "top up" the budget of field projects.

The six projects in Table 6.1 for which the Programs Division is responsible are primarily in the category of thematic research; the remaining 22 managed by the IIMI country units are primarily field research, but even the latter--as is IIMI's intention--will contribute to one or more of the Institute's seven themes, as Table 6.3 indicates.

Table 6.3 Weighted % of Effort devoted to each theme

	<u>Field Oper.</u>	<u>Pakistan</u>	<u>Programs</u>	<u>All IIMI</u>
Institutions for irrigation management	0	0	0	0
Management of water resources for irrigation	30	79	55	46
Management of financial resources for system sustainability	6	0	5	5
Management of irrigation facilities	7	0	5	5
Management of irrigation organizations	25	3	10	17
Management of irrigation support services to farmers	16	15	22.5	17
Management of change in the institutions for irrigation	16	3	2.5	17
TOTAL	100	100	100	100
	=====	=====	=====	=====

Note: Weights are proportional to the number of person-years of internationally-recruited staff engaged in the division's projects.

#### 6.1.2. Collaboration with other IARCs

IIMI is currently involved with IERI in a joint project dealing with irrigation management for rice-based farming systems in the Philippines, Indonesia, and Bangladesh. IIMI is also collaborating with the International Food and Policy Research Institute (IFPRI) on a joint project to develop and

field test better policies and practices for measuring the performance of irrigation systems. Consideration has also been given to the possible development of cooperative programs with other IARCs. In particular, IIMI was recently invited to participate in a meeting organized by CIMMYT and IRRI to discuss a project on rice/wheat rotations in South Asia, and now appears likely to be invited to be a part of the research team. Finally, the West African Rice Development Association has noted, in its strategic plan, its desire to work with IIMI on irrigated rice systems in West Africa.

IIMI appears committed to cooperate fully with other IARCs.

### 6.1.3. Panel commentary

The Panel finds IIMI's research history impressive for so young an organization. Its vigorous activity over its first five years has put the Institute into a strong position to define needs in irrigation management and to sharpen the focus of its strategic and operational plans. The Institute can already point to areas in which it has had an impact; more significant, perhaps, at this stage is the fact that it has gained very valuable experience that, in the Panel's view, can lead to a substantial impact over the next decade.

In pursuing that impact, it will be important for IIMI to have a sustained presence in the nine countries and the West African region where there are current projects; the reform it seeks to implement cannot be achieved in the short time frame of most projects. The quality of personal relationships will play a major role in implementing change. Accordingly, it will also be important for the Institute to retain field staff in their positions for a longer period than might be the case with staff of other IARCs. In fact, the Panel would like to see sufficient funding available for a given country to permit IIMI to field a country team of at least two persons, and preferably three. This will not only serve the cause of continuity but provide staff with the support, the stimulation, and the

chance to talk out and test out hypotheses that is essential to effective research.

The Panel was very pleased to learn of the appointment of a Project Development Officer, a response to concerns of current and potential donors for improved project presentations. Her assistance will be very welcome by IIMI's research staff as well. In due course, it might be appropriate for the office to develop a portfolio of proposals that respond to IIMI's strategic goals. Through the proactive definition of research interests, the Institute will be in a better position to resist the pressure of prospective donors to take on projects of donors' design which may not be consistent with IIMI priorities. The Panel believes IIMI must be continually watchful of the temptation to follow the path of a consulting firm.

IIMI has identified, in its strategic plan and other documents, four goals of research and development in irrigation management: productivity, equity, sustainability (environmental, financial, organizational), and quality of life. While the Panel reviewed IIMI's projects from the perspective of type of research (basic, strategic, etc.), it would also have been interesting to consider the contribution each is expected to make to the stipulated goals. The Panel trusts that these are specifically considered when a project is designed and/or revised.

The Panel commends the concept of thematic research as a way to draw generic lessons from field projects operating in diverse parts of the world and in varied cultural and physical environments, but cautions, again, against the assumption of easy transferability.

The Panel supports the statement in the strategy paper that improving the performance of irrigation systems is IIMI's major goal and that it is concerned with "absolute standards of performance" for each performance component--productivity, equity, reliability, sustainability, and quality of life. The Panel also welcomes IIMI's determination that its products and

services achieve "the highest standard of excellence." However, to achieve these goals, IIMI needs a more effective mechanism for quality control. The present review and oversight processes of the Board, the Program Committee, the Management Committee, and the annual Internal Program Review are generally useful for ensuring the quality of IIMI's program and direction, but they cannot provide the rigorous review, critical analysis, and quality control of individual research projects (particularly field projects in various countries) that is needed.

The Panel recommends that IIMI institute additional measures to strengthen its quality control mechanisms, such as organizing expert reviews of major issues encountered at various stages of a research project, as well as special panel reviews of proposed management innovations to ensure their feasibility, cost effectiveness, and adaptability in the given management environment. The cost of such reviews should be a part of the research project budgets.

The Panel did review some of the completed projects in detail and noted that the quality of the work was generally excellent. However, the research was concerned primarily with setting up field observations, analyzing the problems, developing and pilot testing the solutions, and recommending the tested solutions for adoption. The Panel believes that some of the projects could have been improved if greater attention had been given to the generic causes of the problems and the economic implications of the work.

## 6.2. Training Program

The Institute accords high priority to the training activity, although it has been able to devote only very limited resources to this area to date. Its efforts with respect to training are varied, ranging from structured management courses to individual awards for independent graduate study.

from 1985 through 1987, IIMI organized an annual training course in irrigation management in collaboration with the Economic Development Institute (EDI) of the World Bank, and there is some indication that funding may be available again soon.

In 1988, for example, IIMI had associated with its country programs in Pakistan and Indonesia a number of professionals working on Ph.D. (ten) and Masters' (five) theses, supported through restricted funds. In addition, there were two Post-doctoral Fellows associated with the program in Sri Lanka. Also in 1988, there were five IIMI workshops and conferences, two in Sri Lanka, two in Thailand, and one in the Philippines, and one "Special Award" was made for a two-month case study of an irrigation management issue. This latter was an innovative way to document the efforts of a grass roots organization and its workers and to recognize and incorporate in its research the traditional wisdom of irrigation farmers. These activities have won praise from participants.

#### 6.2.1. Types of training

IIMI plans to undertake four types of training activities:

- international workshops and seminars--four to five a year--in preparation for major research activities as an effort to disseminate important research findings;
- on-the-job training for irrigation officials in developing countries participating in research projects lead by IIMI staff;
- needs assessments for irrigation management training with the prospect that local training organizations will gear up to meet identified skill needs; and
- award of fellowships for Masters', Ph.D., and post-doctoral research under the supervision of the Institute's senior staff.

### 6.2.2. Proposed training strategy

Recognizing the need to intensify training efforts, IIMI secured support from USAID in late 1988 to recruit a full-time Training Specialist. Initial funding is for a three-year period, and the new staff member is now on hand and has commenced work with vigor.

The Institute has put forward the following guidelines in its strategy document:

- with a demand for training greater than IIMI can address, the Institute must concentrate on those areas where it possesses a comparative advantage;
- consistent with its mission, IIMI's training should emphasize management issues and should help national agencies develop innovative capabilities of their own;
- recognizing that national training needs are best satisfied by indigenous organizations and that an international organization such as IIMI is not oriented towards providing sustained training courses for individual countries, IIMI will assist and cooperate with existing national institutions for irrigation management training or will stimulate the creation and development of such institutions;
- IIMI will also help to develop national systems of innovation by training people to conduct research and analysis of training questions; and
- IIMI's primary focus will be on the improvement of management skills, not on the development of general irrigation skills or an understanding of irrigation technology, per se.

The Institute's training activities will contain a mixture of direct and indirect approaches. Direct training sessions conducted by IIMI personnel and collaborators will concentrate on the transmission of knowledge and experiences aimed at encouraging the implementation of innovations. They will be aimed primarily at practicing irrigation managers. Indirect training, which refers to the process by which IIMI supports national training organizations, will constitute the larger part of the program and will concentrate upon :

- advice in curriculum development;
- the generation of widely used training materials; and
- the professional development of national training staff.

IIMI suggests that regular training programs are appropriate in three major subject areas:

- management of the irrigated agricultural sector;
- management of irrigation organizations; and
- improving the skills of the managers of irrigation systems.

Although training will focus on management rather than on technical matters, this will not be training in the abstract. The training will focus on how, through better management, irrigation systems can be made to function more effectively while using the best and most appropriate technical information available.

With the employment of a full-time training specialist, IIMI expects to accelerate its training activities. Currently, for example, it is estimated that an average of 10% of senior staff time is devoted to a broad range of

training activities. Leaders of IIMI's programs suggest that the Institute's goal should be to increase this figure.

### 6.2.3. Panel commentary

The Panel strongly supports the plan to increase staffing in the area of training and to form a separate training unit, and notes that the Five-Year Workplan calls for the appointment of three international staff by 1994. In view of IIMI's declared mission to pursue implementation as well as development of management innovations, training becomes a vital tool, particularly on-the-job training. In addition, the Panel commends the Institute's plan to focus most resources on the training of trainers and the development of curriculum materials as the most efficient and effective way to have a significant impact on the management of irrigation throughout the Institute's broad geographic outreach.

The Panel also notes that development of effective teaching materials will require close collaboration with IIMI's researchers so that relevant lessons can be drawn from both field and thematic projects.

In this connection, the Panel questions the selection of a country where IIMI has no project work for the first needs assessment and wonders if such training activities would not be better carried out as a support to the Institute's field research, particularly with resources so limited. The Panel also notes that the conduct of a needs assessment is extremely labor intensive and doubts that IIMI can go forward with these on any significant scale. Presumably, the completion of one or two such studies will lead to the design of a methodology that can be carried out by national staff in the country concerned.

The Panel observed during their visit to West Africa that a Master's degree program in irrigation management is being offered at Ouagadougou Interstate Engineering College. Another training course for operation and maintenance workers in irrigation facilities is also being planned by the

College, and there is a possibility that an irrigation management course will be offered by CEFIGRE (International Center for Studies on Water, located near Nice, France). Both these institutions would welcome IIMI's participation. These training courses will be offered in the French language and thus would require translation of IIMI's training materials into French.

It has come to the Panel's attention that--since IIMI is known for having the capability--there is a considerable demand for training assistance on the part of collaborators and IIMI field staff. In addition, one donor with whom the Panel met highlighted the need for training of senior irrigation managers, noting that there is no institution other than IIMI in a position to organize or support such training. As this was the focus of the EDI course, the Panel hopes it can resume in the near future.

### 6.3. Information Program

The IIMI Information Program is designated as an "Office" under the leadership of a "Head." This compares with the four major divisions of IIMI, each under a "Director." The Head of the Information Office reports, administratively, to the Director General. There is, however, a close, working relationship between the Head of this office and the members of the Management Committee (the Director General and the four Directors).

#### 6.3.1. Target audiences

In its 1988 Strategy document, IIMI identified three primary target audiences for its information programs. They include :

- those who are in positions where they can put into practice management innovations developed by IIMI and its collaborating agencies. This involves people in middle to senior management positions and at policy making and decision taking levels--predominantly in ministries and irrigation management organizations;

- those concerned with the study or analysis of irrigation management as well as those engaged in developing management innovations. This group involves managers and researchers in management organizations and research and training institutions;
- those who maintain an interest in IIMI's activities, including representatives of donor agencies and stakeholder groups, as well as other international centers doing related work;

### 6.3.2. Scope of activities

To all these groups, IIMI's information services are based, first, on the provision of materials that are developed within the Institute's own thematic research and field operations programs. Second, IIMI provides more general information on its own activities as well as comments or advises on wider irrigation management issues as may be appropriate in carrying out its mission. Third, it exchanges information with other institutions and individuals involved in irrigation management work. Fourth, IIMI's information services provide product support for its training and professional development programs.

The Institute does not consider itself to have a comparative advantage in maintaining widely accessible data bases or in collating abstracts of relevant publications by others. Activities of these kinds, based on assisting people to access aspects of irrigation management literature generated elsewhere, are already performed by others (such as the International Commission on Irrigation and Drainage (ICID) and the Commonwealth Agriculture Bureaux International (CABI).

IIMI has a goal of developing a library with some 10,000 volumes. Currently, it is approximately halfway towards achieving this goal. The Institute plans to maintain and expand its internal library and information data base for use by its own staff and collaborators. However, it does not plan to build up a general external service in this area.

Within the overall information program, the greatest activity will be in the area of publications, including the following:

- project reports, which review in full detail the activities and results of specific field work;
- research papers, which reviews in a more condensed format principal findings that have more general relevance;
- monographs, are longer works (100-400 pages) but similar to research papers in their scope;
- management briefs, include summaries of findings of research efforts--intended for middle and senior level irrigation officials;
- journal articles, published in leading scientific journals, copies of which may be distributed to IIMI's clientele;
- newsletters, involving network information and theme-specific research results distributed to irrigation management professionals and researchers; and
- seminar proceedings, involving the proceedings of IIMI seminars organized and published as a state of the art series on relevant topics.

IIMI has recently compiled a master publication list of some 90 IIMI publications along with many IIMI/ODI publications which have been issued from the time of the founding of the Institute until November 15, 1989. The Institute has also issued another list of some 45 publications by IIMI staff appearing in outside (non-IIMI) conference proceedings, books, and journals in the five-year period 1985-1989 since IIMI was founded.

In addition to its technical publications, IIMI is developing a communications and public affairs network, with a view to providing more general news and information to enhance its overall objectives. This involves the issuance of the quarterly IIMI Review, press releases concerning IIMI activities, as well as reports and communications relating to the Institute's efforts--plus annual reports and program and budgets documents.

Closely linked to such efforts are programs aimed at strengthening audio-visual communications. Videos and other types of audio-visuals are planned to support the public affairs network as well as the research staff and others wishing to make presentations of their work.

IIMI's 1990 Program and Budgets document indicates that the Institute's photo library will be reorganized and that a headquarters slide filing system will be established, backed up by a computerized referral system. Slide duplicating facilities will make photographed materials readily available to field staff and others.

In 1990, IIMI plans to give high priority to the further improvement of its library resources. The headquarters library will be reorganized and a more dynamic acquisition policy introduced. In collaboration with ICID, IIMI will reorganize its "unpublished" literature holdings and concentrate on holdings of seminal published literature.

### 6.3.3. IIMI's working languages

English serves as the working language of the Institute. However, with the establishment of country and regional programs in West Africa and Morocco, French is increasingly needed as a second working language. IIMI also recognizes the importance of disseminating material in other languages widely used in collaborator countries--especially in Asia.

IIMI proposes to make a special effort in 1990 to secure an enhanced capability for the translation of project materials into French to better support its Francophone Africa operations.

#### 6.3.4. Review of information programs

In early 1989 a Canadian consultant, A.K. Biswas, financed by the International Development Research Centre (IDRC), issued a report of his review of the IIMI Information Program. Although a number of specific recommendations were made concerning the program, the Institute's actions to address most of these recommendations are not readily apparent. It should be noted, however, that IIMI has submitted a proposal to IDRC, requesting Canadian US\$200,000 to fund the development of a "Irrigation Management Information System." The implementation of this project would make possible the employment of a second internationally recruited Information staff member to strengthen the Institute's efforts in this area.

#### 6.3.5. Policy on publications

IIMI has been in the process of developing a formal Institute statement which would spell out, in some detail, its policies with regard to publications. This draft document (now in near final form) indicates in specific terms the nature of IIMI publications; how the publications program is to be managed; how new publications are initiated, reviewed, and approved; the distribution, marketing, and funding of publications; and policies with regard to languages used for IIMI publications. The adoption and implementation of such a policy statement should help clarify the apparent concern and uncertainty with regard to the functioning of the Information Office.

#### 6.3.6. Panel commentary

The IIMI strategy document sets forth a well-conceived plan for the implementation of a sound Information Program. The Institute is making

significant progress towards the implementation of such a plan. There are a number of areas, however, which call for priority attention.

Library resources are relatively weak and inadequate. It should be noted, however, that there appears to be a strong commitment towards significant improvement in this area. Earlier in 1989, there was a substantial backlog of uncatalogued material in the library, but there is apparent progress in dealing with this problem.

There is an obvious need to develop publications and other information materials in languages other than English to serve the needs and interests of cooperating country programs where English is not the primary language. IIMI appears committed to addressing this need, but there is little evidence of progress in this regard to date.

IIMI must clearly be sensitive in its publications to host country relations and avoid what could be taken as undue criticism of collaborating individuals or institutions and their policies.

The Panel detected concern among some staff members about the emphasis IIMI management is placing on the production of publications but does not share that concern. Indeed, the Panel commends IIMI management for such an emphasis. If research results are to be useful to IIMI's clientele, such information must be disseminated through appropriate publications. Moreover, an active publication program is especially important with a relatively young organization like IIMI so that information about the Institute and its work can be widely distributed to the global community having an interest in irrigation management. Such publications should obviously be of high quality--both in content and appearance.

The Institute reflects an impressive list of publications for an organization of its size and stage of development. Some are obviously of high quality. Consultants and others have questioned the form and quality of others, however, suggesting that the editorial staff of IIMI needs

strengthening to provide more support in this area. Such a need seems apparent to the Panel.

The Panel suggests that target audiences for some IIMI publications should include organizations or groups primarily concerned with environmental and natural resource conservation issues.

During the course of its work, questions were raised to the Panel concerning the status of the Information Program within the Institute (its designation as an Office rather than a Division). Somewhat related is the question of whether the Information Program is "merely a support function," serving primarily as a "conduit for getting publications out" or should it be "a program with a character of its own."

The Review Panel also heard reference to "pressure to get publications out--with little more than cosmetic editing--essentially publishing what the authors provide." It was also suggested to the Panel that strengthening the Institute's overall Information program seems to be sacrificed at times "for expediency in getting publications out." There also seemed to be some concern over the operation of the Information Program Office.

The Panel suggests that some of these issues merit careful attention by the top management of the Institute so that the role of the Information Program and its relationship to other parts of the Institute are well defined and understood. The issuance of a clear policy statement with regard to publications would be helpful. Such a policy statement has apparently been under consideration for several months but has never been formally issued.

## 7. ASSESSMENT OF IIMI PROGRAM

In assessing the impact of IIMI's efforts to date, it should be recognized that the Institute is a relatively young organization, having been in existence for slightly more than five years. Most of its projects were initiated within the last three years--many during the last 18 months.

While recognizing these circumstances, there are many indications of significant progress by IIMI in carrying out its stated mission. One such indication is the extensive array of research projects currently under way. A summary of these projects is found in Annex IV. There are also many other indications of significant progress.

### 7.1. IIMI's Assessment of Its Achievements

Annex IV provides IIMI management's assessment of the principal contributions or impact (achieved or potential) of the projects currently underway within the Institute. Although the nature of these projects suggests significant potential impact, the actual contributions to date are understandably limited. However, a number of specific achievements or contributions are indicated in IIMI's annual reports and in other statements of Management.

IIMI's Five-Year Workplan includes extensive references to its contribution since its inception. This includes some 18 examples of research contributions in Sri Lanka, Pakistan, the Philippines, Indonesia, and Nepal. It also documents its achievements in thematic and multicountry research, training, and information.

The IIMI Director General referred to other examples of specific achievements "we are proud of":

- in Sri Lanka, studies of the extent to which farmers should take a active role in the management of irrigation systems have led to a rather rapid acceptance of new approaches in this area by government officials;
- in Nepal, IIMI's presence has had a significant impact on the thinking of officials with regard to how the Government could better assist farmers in managing irrigation systems;
- in Indonesia, IIMI's work has developed the basis for managing water resources more efficiently, leading to less wastage.

Contributions of a different nature were cited by one of IIMI's senior staff. It was suggested that one significant impact of IIMI's work is "in helping to set the agenda that people use when considering irrigation." He cited an example of the contributions of a major study by IIMI of irrigation service fees--pointing out that this study was helping to shift the focus from the mere cost of water to how the fee structure for water can contribute to system performance. He emphasized that once users realize that they were paying the cost of irrigation water, they will become more concerned with better management.

Perhaps much of the significance of what IIMI does was summed up by a senior staff member when he said that "in the long run, one of IIMI's primary contributions may be in raising the consciousness concerning opportunities to improve the performance of irrigation systems and the need to give priority attention to such efforts."

## 7.2. Collaborators' and Donors' Assessment of IIMI's Program

Annex V provides a copy of letters and accompanying questionnaires sent to 49 individuals associated with donor (or potential donor) organizations and 116 individuals affiliated with organizations in countries where IIMI has a working presence. Replies were received from 18 donor and

19 country representatives (referred to as collaborators). This represents an overall 22.4% response. The lower level of response may have been related to the short time available, conflicts with Christmas holiday schedules, etc.

Following are the numbers of collaborator responses by countries: Morocco 4, West Africa 4, Pakistan 4, Sri Lanka 3, Nepal 3, and Indonesia 1-- with none from the Philippines, Bangladesh, and India.

In some cases there was more than one response from both donor and collaborator organizations--for example, representatives of USAID in different countries.

Several (9)--primarily potential donors--indicated that they did not know enough about IIMI to provide the information requested in the survey instrument.

Section 7.2.1., 7.2.2., and 7.2.3., provide information gathered from the survey. Sections 7.2.4. and 7.2.5. provide other assessments of IIMI's efforts. The Panel commentary concerning donor collaborator views is provided in Section 7.3.

#### 7.2.1. Evaluation of IIMI's program themes

Both donors and collaborators were asked to provide their evaluation of IIMI's seven program themes, rating each on a scale of 1 to 5 (with 5 representing "very important" and 1 "not so important"). Table 7.1 provides a summary of these assessments.

The themes, "Improving Institutions for Irrigation Management" and "Managing Water in Irrigation Systems" were ranked highest, with each receiving a 4.4 rating. Approximately 80 percent of the respondents gave these two themes either a 4 or 5 rating. "Managing Irrigation Organizations" received a slightly lower overall rating (4.0) than the two

highest ranked themes. Seventy-three percent of the respondents gave this theme a 4 or 5 rating.

Table 7.1 Donor/Collaborator Assessment of Importance of IIMI Themes

<u>Theme</u>	<u>Assessments *</u>				<u>Overall Rating</u>
	<u>% Rating 1</u>	<u>% Rating 1 or 2</u>	<u>% Rating 5</u>	<u>% Rating 4 or 5</u>	
Institutions for Irrigation Management	0	4	50	77	4.4
Managing Water resources for Irrigation	4	8	60	81	4.4
Financial Management of Irrigation Systems	4	31	23	50	3.5
Management of Irrigation Facilities	4	15	12	35	3.3
Management of Irrigation Organizations	0	4	35	73	4.0
Management of Irrigation Support Services for Farmers	0	31	12	42	3.2
Managing Change in Irrigation Institutions	8	27	31	58	3.5

\* Scale 1 to 5, with 5 indicating "very important."

The remaining themes were given ratings in the 3.2-3.5 range. "Managing Support Services" received the lowest overall rating of 3.2, with almost one-third of the respondents giving it a rating of 1 or 2.

Most respondents seemed satisfied with IIMI's stated mission. One collaborator suggested two possible additional themes." 1) "Management of Wastage in Irrigation Systems," and, 2) "Management of Environmental Effects of Irrigation Systems and Practices."

One general comment by a collaborator is particularly noteworthy in considering the Institute's range of program themes. "IIMI's efforts to date appear to be too thinly spread to be most effective. Its limited number of personnel attempting to cover so wide a mandate makes IIMI more of a diagnostic outfit."

#### 7.2.2. Assessment of IIMI's major program activities

Donors and collaborators were asked to provide their assessment of the relevance of IIMI's four major areas of activity: thematic research, field operations (country-specific programs), training, and information. The results are summarized in Table 7.2

Table 7.2 Donor/Collaborator Assessment of Relevance of Major IIMI Activities

<u>Activity</u>	<u>Assessments *</u>				<u>Overall Rating</u>
	<u>% Rating 1</u>	<u>% Rating 1 or 2</u>	<u>% Rating 5</u>	<u>% Rating 4 or 5</u>	
Thematic Research	4	17	35	57	3.7
Field Operations	4	17	38	75	3.9
Training	26	43	30	39	2.9
Information	4	4	39	74	4.0

\* Scale 1 to 5, with 5 indicating "highly relevant"

On a scale of 1 to 5 (with 5 representing "greatest relevance"), the respondents, on the average, gave essentially, the same ratings (3.9-4.0) to two of the four major program activities--field operations, and information. Some three-fourths of the respondents gave a 4 or 5 rating to these two activities. Thematic Research received a slightly lower score of 3.7, with 57% giving this activity a rating of 4 or 5.

Training received a much lower relevance rating (2.9). Such a low rating is not consistent with the importance attributed to training by many of the donor and collaborator representatives met by the Panel. Such a rating in the survey may have resulted from the respondents' interpretation of the question. Conceivably, several gave it a lower rating because this aspect of IIMI's activities is the least developed to date and, therefore, was considered to have the least relevance or meaning at the present time.

Some of the West African collaborators emphasized the need for information and training programs more oriented to their region rather than to Asia. The need for more publications in the French language was also emphasized. A major collaborator stressed the need for "applied research to solve the problems we are facing in the efficient management of our irrigation systems and how they could be changed to meet the requirements of modern agriculture."

Another collaborator made the following comments: "IIMI should work with research institutions as opposed to irrigation bureaucracies with which close links are necessary but not fundamental. Management innovations need to be field tested in collaboration with irrigation agencies, but their innovations cannot be developed without researchers participating."

A major donor suggested that IIMI should "emphasize applied research more. People in irrigation agencies will listen to IIMI about practical, applied research findings."

One agency from a donor country indicated that it "strongly maintains the view that IIMI's primary mandate is decentralized field research on the actual irrigation sites of the countries rather than establishing its own research facilities."

### 7.2.3. Assessment of IIMI's performance through survey

Overall, IIMI received very positive evaluations by both donors and collaborators in the survey. The responses of both groups appeared to follow the same general pattern and, for summary purposes, have been combined.

In terms of "overall effectiveness," the respondents gave the Institute an average rating of 4.1 (on a scale of 1 to 5, with 5 indicating "highly effective"). Almost 40 percent of the respondents evaluated IIMI as "highly effective" (a rating of 5.0) and over two-thirds provided a rating of 4 or 5. None gave an evaluation of less than 3. Such evaluations are considered to be very positive, given the fact that IIMI is such a young organization.

A donor giving IIMI a 3 rating added that the Institute "seems to be rapidly improving." Another donor provided a rating of 3.5, commenting that "IIMI has made great improvement in defining goals and objectives and is beginning to achieve them."

In evaluating "strengths and weaknesses," one important donor said, "Its country programs are very effective. Its field research program has made a large impact. Overall a good organization, worthy of continued support."

Another donor indicated as "strengths"--"a high quality staff and good networks." As a weakness the donor suggested that "funding levels appear to limit effectiveness." A potential donor suggested that IIMI's strengths "are its clear mandate to tackle critically important problems and its dedicated staff." The respondent added "IIMI's likely difficulties in adequately addressing major issues include the poor definitions of the problem of irrigation management, the complexity of the problem in socio-economic and biophysical terms and the location-specific nature of the solutions."

Only one respondent (from a collaborator organization in a country with a well established IIMI program) had decidedly negative comments about IIMI, suggesting that the Institute had made little impact. He also suggested that there had been little interaction between his organizations and IIMI. Another respondent in a position of major responsibility in the same country said: "IIMI is in a formative stage in our country. It has already made an impact. When it matures, it will be of great benefit to us."

Several respondents, while agreeing with IIMI's basic mission, suggested that greater emphasis should be given to small-scale irrigation projects. Other collaborators commented very favorably about IIMI's participatory and collaborative modes of operation.

#### 7.2.4. Assessment of IIMI's performance through personal contacts by the Panel

In the course of its work, one or more Panel members visited representatives of both donor and collaborator organizations in seven countries where IIMI has a program/staff presence. It was possible through such visits and interactions to gain additional impressions about IIMI's performance.

The general impressions gained through such contacts were not greatly different from those encountered in the survey.

It should be noted, however, that in some of these contacts it became apparent that some officials in irrigation agencies as well as policy and decision making authorities knew little about IIMI, or its mission and activities. Some agency and donor representatives remarked that IIMI's research is "too theoretical" and also incomplete because (in their opinion) it does not address the practical feasibility of its recommendations--nor does it adequately examine the financial and economic feasibility of its research findings. Because IIMI is attached to national agricultural institutions (e.g., PARC in Pakistan and the Philippine Council for

Agriculture and Resources Research and Development) in some countries, some contacts in national irrigation agencies seem to believe that the Institute is more concerned with agricultural rather than irrigation management research.

Some of these less-than-positive attitudes appear to be due to a lack of knowledge about IIMI--which, in turn, may be due to a lack of adequate interactions or communication between the Institute and these key officials.

Despite evidence of some such attitudes, the overwhelming response the Panel encountered was very positive and supportive, perhaps unusually so given the fact that IIMI is a very young organization with a limited opportunity to have proved its worth.

One major donor commented to the effect that, in his judgement, investments in work such as IIMI's, directed towards improving the management and related efficiency of irrigation systems "could contribute more to increasing developing world food production" than any other activity which his agency could support. Many donors and collaborator representatives stressed the large gap between the actual performance of irrigation systems and their potential, expressing the view that IIMI is the only organization with a clear and exclusive mandate to assist in more nearly realizing this potential.

Finally, it should be noted that in the course of its efforts the Panel discovered that the Asian Development Bank is engaged in a comprehensive assessment of IIMI projects or activities which received financial support from the Bank in the five-year period, 1985-89. At the time of the Panel's review, however, the results of the ADB assessment were not available.

#### 7.2.6. Assessment by Sri Lanka Consultative Committee

During the past three months, the Sri Lanka Consultative Committee of IIMI has carried out an evaluation of IIMI's performance since its inception.

Since IIMI has been involved with programs in Sri Lanka for a longer period than in any other country, the observations and conclusions of the Consultative Committee are especially relevant. The Committee provided the following summary statement in its report:

"In keeping with its mission to strengthen national capacities in irrigation management, IIMI has carried out its field work effectively through a set of well-designed country programs, selected with the concurrence of the Sri Lanka Consultative Committee. IIMI, instead of confining its programs to theoretical study, has put its staff into direct contact with diverse irrigation management situations in the field. They have been organized at different levels of involvement, according to circumstances and resources.

"One notable feature in IIMI's operations has been the flexibility in its procedures and its informality in dealing with country specialists and national agencies. It has chosen to play a catalytical role, rather than an authoritarian one, in promoting the development of irrigation management capabilities of national agencies. Implementation of its research programs has generally involved collaborative research carried out by IIMI staff and that of the related national agency or institution.

"IIMI's work has contributed significantly to the growth of national efforts in irrigation management research and development. It has also maintained effective and productive relationships with all significant national organizations, both governmental and non-governmental, concerned with the management of irrigation in Sri Lanka."

The Chairman of the Consultative Committee, in a personal meeting with the Panel, was even more laudatory and direct in his praise of IIMI and the excellent relationship his agency enjoys with the Institute.

### 7.3. Panel Commentary

It is apparent that in its short span of existence, IIMI has initiated impressive programmatic activities which offer significant promise for enabling the Institute to achieve its objectives of improving the management of developing country irrigation systems. Indeed, IIMI's activities are already contributing to such objectives. The high marks which both collaborators and donors give IIMI is impressive evidence of the rapid progress the Institute is making towards achieving its stated objectives in a relatively short time.

The principal instances where the Panel has found less than positive attitudes towards the Institute have been where communications between IIMI and collaborating agencies seemed to be poor.

The Panel recommends that IIMI concentrate on developing effective communications with personnel in collaborating agencies--including those at the highest levels involved with policy making.

It should be recognized, that IIMI is not a research institute in the same mold as many of the IARCs. Its mission to improve the management of irrigation systems requires much different approaches than, for example, efforts to increase the production of rice or wheat. Moreover, IIMI's efforts must go beyond research. It must also work closely with those having responsibility for managing irrigation systems in helping them apply or use the knowledge of how their systems might be managed more effectively. In that regard, IIMI is more involved in what some would characterize as action research involving more "downstream" or research implementation efforts. At the same time, as one of the few institutions globally concerned with irrigation management, IIMI's activities must also include significant "upstream" efforts in the more basic and strategic research areas--in efforts to generate new knowledge or understanding and to develop new research techniques. The Panel is somewhat surprised, however, that IIMI would characterize 35 percent of its project activities as basic or

strategic research. Such a figure seems high, given the nature of IIMI projects. This is undoubtedly related, however, to how one interprets the meaning of the terms "basic" and "strategic" and the fact that IIMI is, indeed, concerned with generating new knowledge concerning irrigation management--even though such research might not be regarded as "basic" by physical and biological scientists.

Donors and collaborators responding to the Panel survey gave a decidedly higher "importance" rating to three of IIMI's themes than to the other four. These themes: "Institutions for Irrigation Management," "Management of Water Resources for Irrigation," and "Management of Irrigation Organizations," would also appear to the Panel to be most important in terms of priority attention. The Panel notes that the information in Table 6.3 (Chapter 6) apparently indicates that IIMI currently has no effort dealing with the first of these themes, "Institutions for Irrigation Management." Moreover, IIMI (Table 6.3) seems to accord a greater relative priority to the theme dealing with "Managing Irrigation Support Services" than was indicated in the donor/collaborator survey.

The Panel concurs with the observations of both donor and collaborator representatives that improvements in the management of irrigation systems--to which IIMI is committed--offer great promise for significantly increasing food production, and thereby contributing to improved food security, in many areas of the developing world.

In summary, there is little doubt concerning the great need to improve different levels of management of irrigation systems. It is readily apparent to the Panel that IIMI has done an effective job in its relatively brief period of existence of initiating and carrying out various programmatic endeavors which should contribute significantly to improved management of irrigation systems in the developing world.

## ANNEX I

### BIOGRAPHICAL INFORMATION ON PANEL MEMBERS

VIJAY SHANKAR VYAS, an Indian citizen, is currently Director of the Institute of Development Studies in Jaipur, India. Previously, he held the posts of Senior Adviser in Agriculture and Rural Development, The World Bank--; IDRC Senior Research Fellow and Visiting Scholar at Boston University; and--from 1978 to 1982--Director of the Indian Institute of Management (IIMA) in Ahmedabad. Subsequent to receiving his Ph.D. in Economics from the University of Bombay in 1958, Dr. Vyas served on the faculties of Bombay University, Sardar Patel University, and IIMA. He was a member of the Agricultural Prices Commission of the Government of India and has served as Vice-Chairman of the State Planning Board of Gujarat State. Over the years, he has chaired study teams fielded by the Asian Development Bank, The World Bank, FAO, and IFAD, and has consulted with other international organizations. For a number of years, Dr. Vyas winnovations to other countries, such as Pakistan.

ROGER CORBIERE, a French citizen, is a graduate of the Institut National Agronomique, Paris (Agricultural Engineering) and the Ecole National Du Genie Rural, Des Eaux Et Forets, Paris (Civil Engineering). From 1946 to 1956, he served as an officer with the French Commissariat General Du Plan and participated in the establishment of the French network of regional development and irrigation agencies. From 1956 to 1985, Mr. Corbiere held the position of Deputy Managing Director of the largest of these agencies, the Compagnie National du Bas--rhone Languedoc, a parastatal company located at Nimes in Southern France that is responsible for designing, constructing, and operating a large water works, irrigation, and water supply system as well as for extension and agricultural development, production of irrigation machinery, processing industries, economic studies, tourism development, and forestry. Since 1965, his company has been involved in technical assistance programs in about 40 developing countries in a consulting capacity, mainly in the water and agriculture-related domains.

JOAN H. JOSHI has spent the past several years in promoting public education on development and other international issues through work in both the formal and non-formal education systems. A citizen of the U.S.A., Ms. Joshi has served as a management consultant for the CGIAR and several of the international agricultural research centers as well as Director of Administration at ICARDA in Syria. She was a member of the panel that conducted the first External Management Review of IITA in 1983 and has since participated in similar reviews of CIMMYT and CIAT. Prior to 1981, she spent sixteen years in various positions at the Institute of International Education in New York, the last five as Vice President for Educational services, heading a department that provided support to many of the IIECs. Ms. Joshi has an AB from Cornell University in political science and has spent a semester at the London School of Economics. She has lived for

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JOAN H. JOSHI has spent the past several years in promoting public education on development and other international issues through work in both the formal and non-formal education systems. A citizen of the U.S.A., Ms. Joshi has served as a management consultant for the CGIAR and several of the international agricultural research centers as well as Director of Administration at ICARDA in Syria. She was a member of the panel that conducted the first External Management Review of IITA in 1983 and has since participated in similar reviews of CIPHT and CIAT. Prior to 1981, she spent sixteen years in various positions at the Institute of International Education in New York, the last five as Vice President for Educational Services, heading a department that provided support to many of the IARCs. Ms. Joshi has an AB from Cornell University in political science and has spent a semester at the London School of Economics. She has lived for

extensive periods in Germany and in Syria and has travelled widely in many parts of the developing world on professional assignments.

**SYED S. KIRMANI, B.E., D.Sc.** is currently a consultant to the World Bank on the consulting profession and on construction sector strategies. From 1972 to 1986, he was Director of Projects in the World Bank, and from 1969 to 1972, he served in various staff and managerial positions. Earlier, he was Chief Engineer, Water and Power Development Authority (WAPDA), and Chief Engineer of the Punjab Irrigation Department, Pakistan, which he first joined as an Irrigation Engineer in 1944. Special areas of his experience include: management of irrigation systems, water sector planning, and management of development projects. The development and implementation of the multi-billion dollar Indus Basin Plan in Pakistan and management of development projects in the World Bank costing over forty billion dollars were the high points in his career. He has also served on six External Review Panels discussing on dams and irrigation sector planning studies. Mr. Kirmani, a citizen of Pakistan, is a member of five professional societies, author of several technical papers, and recipient of many awards.

**E.T. YORK, JR.**, is from the USA with B.S. and M.S. degrees from Auburn University and a Ph.D. (Soil Science) from Cornell University. He has held appointments as Professor and Head, Dept. of Agronomy, S.C. State University; Director, Alabama Cooperative Extension Service; Administrator, Federal Extension Service, U.S.D.A.; Vice-President for Agricultural Affairs, Executive Vice-President and Interim President, University of Florida; and Chancellor, State University System of Florida. With a long-term interest in Third World development, he served for six years on the board for International Food and Agricultural Development (IFAD) - three years as its Chairman. He has recently completed a six-year term on the Technical Advisory Committee (TAC) of the IFAD. He has led U.S. Presidential Missions on Agricultural Development to several countries and regions, including Egypt, Liberia, Central America, and the Caribbean. He has also led a number of institution-strengthening missions to countries in Africa, Asia, and Latin America. Currently, he holds the title of Distinguished Service Professor, University of Florida.

## ANNEX II

### EXTERNAL REVIEW OF IIMI: TERMS OF REFERENCE

#### 1. PURPOSE AND SCOPE

The major purpose of the Review is to assess the content, quality, impact, and value of the overall program of the International Irrigation Management Institute (IIMI), and to determine whether the operations being funded are carried out in line with declared policies and to acceptable standards of excellence.

It is expected that the Review will integrally assist the Institute in planning its activities and ensuring the validity of the priorities and future strategies recognized by its Board.

#### 2. ITEMS OF ENQUIRY

In fulfilling the purpose defined above, the Review Panel is requested to give particular attention to the following aspects:

- (i) The appropriateness of the Institute's mission, its internal consistency and interpretation with respect to:
  - (a) the immediate and long-term needs for improved and sustainable agricultural production systems as well as for human welfare in developing countries;
  - (b) present and possible future areas of work by the Institute and by the other institutions.
- (ii) The translation of the mission into programs of work in relation to:
  - (a) the Institute's Strategy, and the process by which it was formulated;
  - (b) the Institute's rationale--as expressed in the Strategy--for its priorities, its present and future overall size, its decentralized mode of operation, its geographic focus, and the composition and balance of the overall program; and
  - (c) the broad institutional environment--activities of other international institutes and organizations, and of national institutes in cooperating countries and in others where the work of the Institute is relevant;

- (iii) The content and quality of the scientific and related work of the Institute with particular reference to:
- (a) the results of the Institute's work;
  - (b) the current and planned work and the role of the scientific disciplines therein;
  - (c) the information exchange and training programs, their methodologies, their specialization and decentralization, and the participation of the professional staff therein; and
  - (d) the adequacy of the support services and other facilities.
- (iv) The actual and potential impact and usefulness of the Institute's activities in relation to:
- (a) food security concerns in developing countries including:
    - agricultural productivity and the equity of distribution of benefits from increased production;
    - the economic situation and quality of life of resource-poor farmers, particularly women farmers, and their employment and income opportunities;
    - the sustainability of productive land use systems in developing countries;
  - (b) research capacity in developing countries through
    - its information exchange and training programs;
    - cooperation with national research and development programs; and
    - cooperation with other international institutes and organizations.
- (v) The effectiveness of the management of the Institute and the appropriateness of its structures, with particular reference to:
- (a) Governance--IIMI Support Group, Board of Governors and its committees, audit function;
  - (b) Program Management--leadership, organizational structure, planning and review systems, management of program activities, monitoring of cost effectiveness;
  - (c) Personnel - recruitment, staff development, and other procedures;

- (d) Finance--budget, financial reporting, and audit systems;
  - (e) Fund raising--strategies adopted and prospects for the future, the balance between core and non-core funding;
  - (f) Administration--physical facilities, procurement, general services security, transport, travel, etc.;
  - (g) Information--communications services, publication and distribution services, library, management information;
  - (h) Relationship with external environment--links with clients, collaborators, and donors.
- (vi) Constraints on the Institute's activities which may be hindering the implementation of its programs, and possible means of reducing or eliminating such constraints.

### 3. GENERAL CONSIDERATION

Other aspects of paramount importance are the Institute's decentralized mode of operation and the relationship of headquarters to off-campus activities; priorities within and between research programs and the balance among programs; and relationship with national programs. All of these considerations relate to the ways in which the Institute translates its policies and strategies into projects and activities.

### 4. REPORTING

On the basis of its review, the Panel will report to the Donor Support Group and make specific recommendations related to these terms of reference and the appended list of issues. An indication should also be given of the relative importance of the various recommendations made.

The review team should feel free to make any observations or recommendations it wishes, because the report is theirs alone. Equally, it should be clearly understood that the Panel cannot commit the Donor Support Group to any consequent action, and the Institute should bear this in mind when considering implementation of the Panel's recommendations before the report has been discussed by the Donor Support Group.

ANNEX III

A SUMMARY OF IIMI'S STRATEGIC PLAN

The following material briefly summarizes key elements of IIMI's strategic plan, a draft of which was formally approved by the Board of Governors in September, 1988. A final version of the strategy was published in late 1989. The comments in this section concerning the application or implementation of the Institute's strategy refers to IIMI's views - not those of the Panel.

### The Importance of Irrigation in Developing Countries

IIMI's strategy document begins by emphasizing the importance of irrigation in developing countries and the need to improve the management and use of water.

The importance of irrigation is reflected in the fact that there are about 220 million hectares of irrigated land in the world, representing some 15% of the total cultivated area. Approximately 72% of this irrigated land is in developing countries. The significance of irrigated agriculture is even greater in terms of production. In South Asia, for example, yields from irrigated cereals average between 1.5-2.25 times as much as those from non-irrigated land. More than half of that region's total food production comes from irrigated lands.

The developing world has made massive investments in the development of new, or rehabilitation of old, irrigation schemes. Several developing countries have devoted over three-fourths of their public expenditures for agriculture to irrigation projects.

Despite these large expenditures and the documented importance of irrigation in promoting and sustaining food production, most irrigation systems are performing far below their potential. In many systems, the area irrigated is much less than the area commanded, and annual cropping intensities are lower than anticipated. Water is often distributed inequitably between farmers near the head-end of the system where water is assured and those less fortunate located downstream. Water deliveries to farmer's fields rarely correspond in quantity and timing to the true requirements of the crop. Net incomes of farmers and landless laborers in irrigated areas remain below their potential.

The combination of reductions in operating budgets and the inability of managing agencies to recover operating costs often leads to deficient maintenance and declining performance. In general, net returns on irrigation investments have been disappointing. Moreover, the cost of developing new irrigation systems is rising rapidly. In many developing countries, the cost of new irrigation projects is now as high as U.S. \$12,000/ha.

By any measure, the actual returns or benefits from irrigation are often significantly below their potential. This may result from a number of circumstances, including low crop productivity due to inadequate, unpredictable or untimely water deliveries, sharp inequities between head-end and, tail-end farmers in terms of water availability, and difficulties in maintaining effective and sustainable irrigation systems over the long term. All of these difficulties can be addressed through better management of irrigation systems.

Such potentials for improving the productivity and economic returns of irrigation systems contributed to the interest in the creation of IIMI as an international center dedicated to improving the management of irrigation systems in the developing world.

### IIMI's beneficiaries and "clients"

The ultimate beneficiaries of IIMI's products and services are farmers in developing countries whose livelihood's depend on irrigated agriculture. The direct users or "clients" for IIMI's outputs are those organizations in developing countries which are concerned in various ways with the management of irrigation systems. IIMI recognizes a number of such target groups with which it might work. They include:

- government irrigation management organizations which have direct responsibility for planning, designing and supporting irrigation systems;
- policy-making organizations, which are responsible for determining national policies in relation to water resources planning and irrigated agriculture;
- organizations and associations of irrigation water users, which may own or have responsibility for managing irrigation systems;
- national research institutes, especially those with interests or activities in irrigation and in management studies;
- universities and national establishments for professional training, especially those aiming at higher levels of management;
- national consulting organizations concerned with providing advice on irrigation-related issues.

It is recognized that there are yet very few research or training institutes with an explicit orientation towards irrigation management. IIMI is, therefore in a different situation from many other international agricultural research centers in that it will rarely be interacting with directly comparable national institutes.

### IIMI's mission

IIMI defines its mission and purpose to be that of "strengthening national efforts to improve and sustain the performance of irrigation systems in developing countries through the development and dissemination of management innovations." Within this context, "management innovations" means any physical or organizational changes in the conditions or processes of management that can cause improved performance of a system.

It should be noted that IIMI defines "irrigation management" as "the process in which institutions or individuals set objectives for irrigation systems; establish appropriate conditions; and identify, mobilize and use

resources so as to obtain these objectives, while insuring that all activities are performed without causing adverse effects."

### IIMI themes

IIMI has chosen, initially, seven major program themes upon which it intends to concentrate its efforts. A brief description of each follows:

- Institutions for Irrigation Management - Under this theme, IIMI will seek to determine the most appropriate management conditions for institutions concerned with irrigation systems.
- Management of Water Resources for Irrigation - This theme concerns processes in the physical water supply, delivery and disposal systems.
- Management of Financial Resources for System Sustainability - This theme will deal with mobilizing and using effectively the resources needed to facilitate effective management of irrigation systems.
- Management of Irrigation Facilities This involves effective management for the maintenance and rehabilitation of irrigation facilities.
- Management of Irrigation Organizations - Management of irrigation systems involves not only the management of water but also the management of people and information. This theme will focus on improving the effectiveness of the administration of organizations concerned with irrigation systems.
- Management of Irrigation Support Services to Farmers - Initially, IIMI intends to focus its efforts on the special problems of delivering support services to the farmer-managed sector.
- Management of change in the Institutions of Irrigation - The foregoing six themes relate to aspects of performance and management within established institutional systems. There are times, however, when it becomes appropriate to make fundamental changes in existing sets of institutions to introduce new institutions, to abolish old ones, or to relocate the interfaces and redefine areas of responsibilities between institutions. This theme will relate to the effective management of such change.

### Priority areas of work

In carrying out its mission, IIMI has identified four priority areas of work. They are as follows: field research in specific environments; thematic research to synthesize findings from varied environments; information exchange; and management training.

Collaborative field research projects conducted on irrigation management systems in specific environments will be a key element of IIMI's work to develop management innovations. Frequently such research will include components of adaptive or action research. Projects will usually be financed by external donors. The process of project formulation will generally, therefore, involve at least three parties: IIMI, a national agency, and a donor.

The development of management innovations requires not only field research on irrigation management issues, but also thematic research to develop generic innovations that may be applicable to a variety of environments. For this reason, research leading to generic descriptions and solutions of irrigation management issues, organized along the lines of the seven major themes (set forth above), will be a second key element of IIMI's work.

Another essential ingredient of IIMI's program will be training and professional development, especially oriented towards introducing fresh management ideas and opportunities at the middle and upper strata of managing agencies, where such ideas can most readily be adapted and implemented.

IIMI's training activities will include a mixture of direct and indirect efforts focused on three major groups: Managers, especially those in positions where they can introduce or influence change and innovations; trainers; and researchers.

For the foreseeable future it expects the majority of its operational expenditures and its staff allocations will go to the area of field research. The proportion of total resources used in this way should nevertheless gradually diminish. Thematic research should grow proportionally, and as IIMI's stock of experience and knowledge increases, so should there be increased dissemination activities involving training and information exchange. In its early years, IIMI is focussing upon establishing a set of viable country units, representing diverse environments in order to put it into close contact with real problems and generate appropriate broad-based experience and learning opportunities.

### Modes of operation

In keeping with its mission to strengthen national capacities in irrigation management, IIMI proposes to carry out its field work through a set of country programs. Unlike many other kinds of agricultural research, IIMI suggests that nothing of significance in irrigation management can be studied in a laboratory, and because of location-specific influences relatively little can be studied theoretically. IIMI must, therefore, put its staff into direct contact with diverse irrigation management situations in the field, and country programs provide a vehicle for doing this.

Country programs can be organized at differing levels of involvement, according to circumstances and resources. The CGIAR study team on water management, whose 1982 report led to the establishment of IIMI, proposed six different levels of IIMI involvement, of which IIMI proposes, initially, to develop four. They are as follows:

- Non-resident programs, in which IIMI undertakes those functions that can be done intermittently: seminars, workshops, information and staff exchanges, and encouraging national participation in network research;
- Resident programs, in which IIMI fields one to two international staff and aims to provide them with supporting resources sufficient to pursue collaboration in action research and in training, and to extend research capacity by sponsoring nationals as research associates or fellows. This model can also accomplish all that the non-resident model does, but it does not usually suffice to cover IIMI's complete thematic range;
- A strong "Branch" program, in which IIMI places a fully multidisciplinary team, capable of operating across IIMI's range of themes and services. So far, this type has been implemented only in Pakistan, and because of its relatively high cost, it will be appropriate only to countries with large amounts of irrigated land.
- Multicountry or Regional Resident programs, in which a staff group is based in one country, but is intended to relate also to a number of neighboring countries. This type of program is being implemented in West Africa, and will be appropriate in regions where the extent of irrigation in individual countries is insufficient to justify the development of single country IIMI programs.

Although IIMI has initially chosen the above framework, it will be necessary to maintain flexibility in its procedures. In some cases, IIMI may choose to play a more catalytic role or a more advisory role in working with others. An example might be an IIMI research network, wherein staff assist in the development and management of research projects carried out by network members.

IIMI's country programs will normally have the following regulatory or control elements:

- an Agreement or Memorandum of Understanding, between IIMI and the national government, that regulates the legal and fiscal status of the IIMI country unit and its personnel;
- a Technical Agreement, or series of such Agreements, between IIMI and key national irrigation organizations, which provide the framework for institutional collaboration in field work and other technical activities; and
- a Consultative Committee, comprising senior national irrigation managers and other appropriate people as well as IIMI staff. At present, IIMI's Consultative Committees meet about two or three times a year to insure that IIMI's activities are in concurrence with national objectives and IIMI's own strategic objectives. This will also insure that IIMI's activities remain "user-driven".

IIMI does not intend to make country programs permanent installations. Programs must remain in place long enough to be economically and strategically viable. To remain in agreement with IIMI's mission to strengthen the capacity of national agencies and institutions, the goal of every country program will be that, over time, IIMI's activities would be taken over by those institutions and agencies. For that reason, achievements will be evaluated on a regular basis by IIMI's Board, staff, and the host country Consultative Committees. This will also increase the accountability of each program.

In deciding where it should establish country programs, and the various levels of activity which should take place, IIMI will be guided by the following criteria: receptivity, need, range and extent of irrigation, technical interests, institutional strengths, administrative arrangements, and donor support.

There are over 70 countries in the world with more than a 100,000 ha of irrigation. Most of these are developing countries. IIMI will have offices and programs in a relatively small proportion of these.

### Modes of collaboration

In implementing its country programs, IIMI makes partnerships and collaborative ventures a key element of its approach. There are at least six types of institutions with which IIMI will collaborate:

- national irrigation-managing agencies, and associated research and training organizations;
- international agricultural research centers;
- other centers of excellence;
- international lender and donor organizations;
- non-governmental organizations; and
- national and international professional bodies.

### Geographical considerations

IIMI has identified five major zones within each of which there is some broad similarity of irrigation problems. It should be stressed that these are in no sense homogeneous zones; inevitably, in such broad divisions, much diversity must exist. But within each zone, there is more sharing of common problems, and there will be more gain from information exchanges and general communication among professionals than there is likely to be within different zones. The five major zones so identified are indicated in table III.1

Table III.1 Major Zones Identified for IIMI Attention

Zones	Population (M)	Cultivated area (M ha)	Irrigated area (M ha)	% Dependence on irrigation	Persons/ cultivated ha
South-East Asia	708	125	26.2	21.0	5.7
East Asia	1109	107	47.7	44.7	10.4
Arid/Semi-Arid Belt Africa(except Nile Valley)	748	182	56.8	31.2	4.1
Latin America	439	155	5.1	3.3	2.8
	396	177	14.9	8.4	2.2

Source: IIMI Strategy document.

IIMI is itself located in the South-east Asia Zone and began its operations there. It extended at an early date also into the Arid/Semi-Arid Zone. These seem obvious choices. Their dependence on irrigation is high, there are large managing agencies to study and interact with, there are objective reasons for saying that the potential gains for improved management could be great.

In 1985, IIMI began to explore the possibility of entering Africa. This operation was undertaken in a deliberate fashion, beginning with missions to review the possibilities and leading to the development of a strategy document for the zone. On the basis of that strategy, country operations began in 1988. Initially, IIMI will relate only to the western portion of that zone.

It is not likely in the immediate future that IIMI's resources will grow to the point where it can safely undertake the substantial extra effort of embarking on resident programs in another zone, either East Asia or Latin America, even though these would hold great interest. In the longer term, however, IIMI will have a fully international set of programs, with country units in all five zones. The possibility of achieving that will depend in large measure on the availability of donor funding.

While IIMI's mission relates primarily to assisting developing countries, this does not mean that it will neglect the experience already gained in industrialized countries. On the contrary, IIMI seeks to learn from successful irrigation systems in such countries and must aim to become a channel for the selection and transfer of relevant parts of their methods to IIMI's own clientele. This means that IIMI should develop relationships with irrigation management and research organizations in those countries.

#### Organizational structure

In order to implement the programs and activities discussed in the foregoing sections, IIMI has been organized into four principal divisions: (1) Programs, (2) Field Operations, (3) Pakistan, and (4) Finance and

Administration. The strategic plan called for an organizational structure that has been implemented and is described in chapter 3.

### Physical infrastructure

To fulfill its mission, IIMI does not need to possess extensive research facilities of its own. The management of irrigation systems has to be studied using real systems belonging to national agencies, farm organizations, and so on. This leads to a decentralized structure for IIMI's operations.

The nucleus of this structure will be the Institute's headquarters within Sri Lanka. The headquarters will contain various central facilities including a library, a modern printing unit, and a set of efficient and reliable communications systems.

### Staffing

In order to implement its Strategy, IIMI will need a mixture of internationally recruited staff as well as personnel from each of its countries in which it operates.

International staff will be recruited on the widest possible basis with the objective of seeking people of exceptionally high quality, with a broad perspective, and well-suited to the collaborative modes of work to which IIMI is committed.

Staff selection will also take account of the various disciplines involved in irrigation management so that in each unit there are, as far as possible, people of complementary experience and knowledge. Several major groups of disciplines can be recognized within the general framework of irrigation management. These include the following: agricultural sciences, including agronomy and soil science; economics, including agricultural economics; engineering, including civil and agricultural engineering; organization and management; and social science, including anthropology and rural sociology.

Ultimately, IIMI aspires to develop staff members whose knowledge spans all or most of these disciplines as they affect irrigation and who do not perceive themselves as belonging to any one particular discipline.

### Finance

The funds which make IIMI's work possible come from a variety of donors and under a variety of arrangements. Among these IIMI identifies two major categories:

- Unrestricted grants; These are grants provided without any conditions imposed as to the purposes for which they may be spent. Their utilization is, therefore, at the discretion of the Director General and the Board.

- Restricted funds These are funds provided for a specific purpose. Most commonly they are given in order to enable IIMI to execute some defined project.

Unrestricted grants are currently provided to IIMI through its Support Group, which meets annually and whose members pledge funds to IIMI on an annual basis.

Unlike other, more centralized international institutes, IIMI is able to secure substantial restricted funds through bilateral or special project funding, provided that the research undertaken in any country responds to the development needs of that country. Restricted funds appear to be much more available than those of an unrestricted nature. Restricted funds support program activities and are not, in general, easily obtained for administrative and other ancillary and supportive activities.

Thematic research will be funded, as far as possible, from unrestricted grants. Therefore, the evolution, growth and impact of IIMI's thematic research will depend substantially upon unrestricted funding.

Field operations and the regional projects under the Programs Division will be funded principally from specific project (restricted) funds. The same is true for the programs under the Pakistan Division. Those functions under the Finance and Administration Division will be financed principally by applying an indirect costs charge on all grants. Information and Management Training will be financed by a combination of unrestricted and restricted grants.

## ANNEX IV

### SUMMARIES OF TYPES OF RESEARCH AND IMPACT OF CURRENT IIMI

#### RESEARCH PROJECTS AND PROGRAMS

ANNEX IV provides a brief description of current IIMI research projects and programs as well as an evaluation of their impact. Following the description of each project there are two sections. Section "A" provides information on the types of activities associated with each project/program, characterized in terms of the percentage of time devoted to the activity. Section "B" provides an evaluation of the impact (current or potential) of each--to the extent to which this can be provided at this time. This material has been prepared by IIMI management at the request of the Panel.

In Part A, the research definitions employed by the CGIAR have been used. These are as follows :

Basic Research: that designed to generate new knowledge or understanding.

Strategic Research: that designed for the solution of specific research problems or the development of new research techniques.

Applied Research: that designed to create new technology.

Adaptive Research: that designed to adjust technology to the specific needs of a particular set of environmental conditions.

Note: Information on the type of research and impact of projects 4,10,11,24 and 27 is not available at this time. They will be included in a later version of this report.

SRI LANKA

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1. Title: Action Research on Irrigation Management for Crop Diversification in North Central Province, Sri Lanka

Project Leader: C.R. Panabokke

Objectives: To test management interventions that would promote reliability and equity of supply at turnouts along distributaries, and proper sharing of irrigation supply below turnouts.

Start date: Ongoing action research intervention phase commenced in Yala 1987

Completion date: December 1989

Donor: Unrestricted core funding from IIMI

Total Estimated cost: (1989 only) Staff salaries, local staff travel, supplies, publications, etc. - US\$27,400

1. ACTION RESEARCH ON IRRIGATION MANAGEMENT FOR CROP DIVERSIFICATION  
IN NORTH CENTRAL PROVINCE, SRI LANKA

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	
- Strategic:.....	
- Applied:.....	70%
- Adaptive:.....	
ii. Implementation or Application of Research Findings:.....	20%
iii. Training:.....	10%
iv. Other (Please specify)	
- .....	
- .....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

The overall performance of the Mahaweli System H in terms of wet season rice yields per acre foot of water as well as production of non-rice crops during the dry season is considered satisfactory. However, there is a high degree of variation in the amount of irrigation deliveries both between turnouts within a distributary, as well as between farm allotments within a field channel. This is in turn reflected in the high variability in crop yields observed within a turnout.

The principal contribution of this project will be to minimize this variability below the turnout and thus even out disparities in farmer incomes.

2. What do you perceive to be the potential impact of this project or program?

Although it was not possible to follow up the second intervention phase of this study as planned during the dry (yala) season 1989 owing to the disturbed condition in this area, the results of this project would have helped the management agency on the Mahaweli and other similar systems to better manage water deliveries within a distributary. This is a matter of special concern to the present management agency of the Mahaweli who are seeking ways of improving the present levels of management below the distributary level.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

It will be difficult at this stage to properly quantify the impact of this work in terms of economic returns. It could, however, be broadly stated that ensuring an equitable distribution of water deliveries among turnouts as well as between allotments, would help to eliminate the present economic disparities among farmers within a single turnout.

- Currently (if so, describe)

- In the future

2. Title: Irrigation Management and Crop Diversification in Southern Province, Sri Lanka

Project Leader: R. Sakthivadivel

Objectives: The overall objective is to strengthen the long term sustainability of irrigation systems and to optimize use of existing land, water and infrastructure resources through identifying improvements that could be made in the processes of design, rehabilitation, system management, and operation and maintenance, with particular attention given to requirements for crop diversification. The specific objectives are to identify key organizational and management factors which influence the performance of irrigation systems, and design and rehabilitation innovations and alternative system management practices with particular attention given to requirements for crop diversification.

Start date: 1 February 1988

Completion date: March 1990

Donors: Asian Development Bank (ADB); unrestricted funds

Total Estimated cost: US\$433,400

2. IRRIGATION MANAGEMENT AND CROP DIVERSIFICATION (SRI LANKA)

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	
- Strategic:.....	50%
- Applied:.....	
- Adaptive:.....	30%
ii. Implementation or Application of Research Findings:.....	15%
<p>- in Kirindi Oya Project, an action committee with all relevant departments including IIMI has been constituted to prepare an implementation plan for the cultivation of OFC's commencing yala 1990.</p> <p>- a sub-committee of the project Coordinating Committee with heads of line agencies has been constituted to discuss the officials' proposals with farmer representatives and to get farmer feedback regarding the implementation of the previous cultivation season.</p> <p>- a separate O&amp;M division under a Senior Irrigation Engineer with more powers has been created.</p> <p>- the design-management interaction studies have lead IIMI to arrive at a simple water application method to OFCs in paddy irrigated area which will be tried during the yala 1990</p> <p>- in Uda Walawe project the design parameters estimated by IIMI based on measurements are being considered for adoption in the revised project approach, replacing previous assumptions.</p> <p>- after submission of the Interim report by IIMI, it was agreed that progress review meetings will be held monthly by the Project Director in Embilipitiya.</p> <p>- a sub-committee was constituted to review the O&amp;M manual prepared by the consultants, after IIMI raised questions about its assumptions.</p>	

- many of the IIMI findings reported in the Interim report are now being considered for implementation.

iii. Training:..... 5%

The project is being implemented in close coordination with the implementing agencies and two of the staff in the research team are on secondment from the implementing agencies who are being trained in this project. A workshop for senior MEA officials (20 numbers) was held in which the research results of the Uda Walawe rehabilitation project was presented.

iv. Other (Please specify)

- .....

- .....

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Most of the research findings reported in the progress and interim reports have had considerable impact on the thinking and attitudes of the consultants, construction and implementing agencies. They now realize the importance of these research findings, accept them and try to introduce them whenever there is an opportunity to do so.

2. What do you perceive to be the potential impact of this project or program?

The study would bring out the deficiencies in implementing both the rehabilitation and new settlement projects and provide guidelines for effective implementation of such projects through institution-building, farmers and agency participation, and effective management innovations.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

We do not at present any quantitative figures to substantiate financial benefits or economic returns. However, attempts are being made to work out such benefits which will be included in the final report of this project.

- In the future

3. Title: Irrigation Systems Management (ISM) Project

Project Leader: D.J. Merrey

Objectives: To provide research results which strengthen implementation of the USAID-funded ISM Project; and to strengthen national capacity for carrying out effective applied research on irrigation management problems in a mode that enhances the likelihood of implementation.

Start date: 18 August 1987

Completion date: 30 June 1990 (likely to be extended by two years)

Donor: U.S. Agency for International Development

Total Estimated cost: US\$395,150

3. IRRIGATION SYSTEMS MANAGEMENT (ISM) PROJECT IN SRI LANKA

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	
- Strategic:.....	
- Applied:.....	15%
- Adaptive:.....	20%
ii. Implementation or Application of Research Findings:.....	20%
iii. Training:.....	10%
iv. Other (Please specify)	
Discussions, Workshops** .....	25%
Administration, reporting (formal), planning	10%

\*\* This is a highly collaborative project involving 2 irrigation agencies, the donor, research subcontractors, and IIMI

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Development of close working relationships, and a more effective mode of operation, between agencies and private firms doing research; preliminary research results indicate some problems in implementation of rehabilitation and institution-building projects for which specific recommendations are being made; serious deficiencies in Irrigation Department financial management which reduce maintenance effectiveness.

2. What do you perceive to be the potential impact of this project or program?

1. Strengthening programs for building and promoting farmers' organizations.
2. Improved management of maintenance of systems.
3. Improved data base for performance monitoring on 4 systems.
4. Development of a clear policy on future rehabilitation and modernization projects.
5. More effective use of applied research by agencies, and delivery by firms, in future.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

Not possible to quantify.

- In the future

Possible in terms of more effective use of maintenance funds if recommendations are adopted.

4. Title: Development of an Analytical Framework for Irrigation Management

Project Leader: Khir Ky.

Objectives: To develop an analytical framework for irrigation management that covers all management concerns that are related to water delivery; for the development of irrigation capacities: determination of general objectives, feasible objectives, functional and technical requirements, and for the development of irrigation capacities: seasonal and in-seasonal water management and operational methods and plans.

Start date: January 1988

Completion date: March 1992

Donor: Netherlands/IIMI unrestricted

Total Estimated cost: IIMI unrestricted: US\$7,350 for 1988 and US\$24,000 for 1989; Estimated Government of Netherlands' contribution US\$20,000 for 1988-1989

5. Title: Irrigation Investments Trends in Sri Lanka

Project Leader: M. Kikuchi

Objectives: To provide the policy makers and IIMI with better understanding of relative economic profitability of different investment alternatives among new irrigation construction, irrigation rehabilitation, and irrigation management improvement.

Start date: October 1988

Completion date: March 1990

Donors: JICA; and IIMI unrestricted

Total Estimated cost: US\$9,000 (not including staff time)

5.

IRRIGATION INVESTMENTS TRENDS IN SRI LANKA \*\*

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	25%
- Strategic:.....	25%
- Applied:.....	
- Adaptive:.....	
ii. Implementation or Application of Research Findings:.....	
iii. Training:.....	50%
iv. Other (Please specify)	
- .....	
- .....	

\*\* This project has been carried out partly as a thesis research of a MS student under IIMI's Professional Development Program.

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Nile, so far.

2. What do you perceive to be the potential impact of this project or program?

We expect that the results of this research would give basic/critical information to the policy makers in restructuring the policies on irrigation development and irrigation management in Sri Lanka.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently (if so, describe)

- In the future

Though impossible to quantify, the returns to this research will be enormous if the government and donor agencies restructure irrigation policy according to the implications from this research in such a way as to direct the investments to the opportunities of best economic pay-off avoiding miss allocations of the public funds.

INDONESIA

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6. Title: Efficient Irrigation Management and System Turnover in Indonesia

Project Leader: H. Murray-Rust

Objectives: a) To develop procedures and methodologies for more effective irrigation management in government-managed irrigation systems; b) to assist in the development of a process for turning over O&M responsibilities in irrigation systems less than 500 ha from government to farmers.

Start date: 1 October 1987

Completion date: 31 December 1989

Donors: Asian Development Bank; Ford Foundation

Total Estimated cost: US\$1,024,000

6. EFFICIENT IRRIGATION MANAGEMENT AND SYSTEM TRANSFER IN INDONESIA

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	5%
- Strategic:.....	
- Applied:.....	15%
- Adaptive:.....	30%
ii. Implementation or Application of Research Findings:.....	45%
iii. Training:.....	5%
iv. Other (Please specify)	
- .....	
- .....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

- To assist the government in implementing the policies aimed at greater concentration on O&M as funds for new construction gradually diminish, and in reducing recurrent costs by turning over small systems to farmers.

- To develop and pilot test low-cost techniques for improved management of existing irrigation facilities, including upgrading of information bases for management, operational procedures and planning for irrigation operations;

- To assist in the development of a long term program for the turnover of O&M responsibility to farmers in all irrigation systems less than 500 ha (20-25% of total irrigated area in Indonesia)

2. What do you perceive to be the potential impact of this project or program?

- The adoption by provincial irrigation authorities of a set of pre-tested management techniques that are within the staff and financial resources of the irrigation agency, and which lead to more effective use of existing investments in the irrigation sector;

- The establishment of a management-focussed unit or cell at national level that can help provide advisory service to provinces on effective management of their O&M resources.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

Currently it is difficult to assess the impact in financial terms. This is because the net benefits are indirect, potentially resulting in greater cropping intensity in the dry season through more effective water distribution, and greater farmer investment due to more reliable water deliveries. The time frame involved has been too short to make evaluation of impacts, particularly since pilot testing has only recently been implemented on a wide enough scale to have the desired impact on irrigation system performance.

In the future, once turnover of smaller systems has been successfully accomplished, it is possible to expect clear financial

benefits through the redevelopment of agency staff to other areas, thus reducing recurrent costs with no loss of agricultural benefit.

- In the future

THE PHILIPPINES

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7. Title: Study on Irrigation Management for Diversified Crops

Project Leader: A. Valera

Objectives: The overall objective was to determine irrigation management practices most likely to enhance cultivation of selected non-rice crops in limited parts of the irrigation systems, during the dry season and to field test the most promising of these practices. The specific objectives were to:

1) develop a methodology for identifying those parts of irrigated areas with comparative advantage for growing selected diversified crops; 2) compare the profitability of selected diversified crops under irrigated versus rainfed conditions and their irrigated performance with that of irrigated rice; 3) determine the primary factors and their interaction which condition how farmers prepare land for irrigated rice in the wet season and for one or more diversified crops in the dry season; 4) develop on-farm irrigation methods for at least one upland crop; design and field test operating procedures for publicly-managed portions of irrigation systems; and 5) recommend those policies which are likely to support more profitable farming practices and investment in irrigation development as related to diversified crops; and prepare a set of specific guidelines and practices to be carried out by irrigation managers and farmers for the productive irrigation of diversified crops in association with rice in the dry season.

Start date: February 1987

Completion date: August 1989

Donor: Asian Development Bank (ADB)

Total Estimated cost: US\$450,000

STUDY ON IRRIGATION MANAGEMENT FOR DIVERSIFIED CROPS

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

	<u>Activity</u>	<u>% of Total Effort</u>
i.	Research	
	- Basic:.....	
	- Strategic:.....	10%
	- Applied:.....	
	- Adaptive:.....	70%
ii.	Implementation or Application of Research Findings:.....	10%
iii.	Training:.....	5%
iv.	Other (Please specify)	
	Information and Publication	5%

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

a) The project proved that existing rice gravity systems can effectively irrigate non-rice crops in the dry season. However, improvement in terms of irrigation procedures and facilities will have to be provided if the potential for dry season non-rice crop production will be realized on a larger scale. The project provided new design para..... which will improve the irrigation of non-rice crops.

b) The project was able to provide and field test portions of the guidelines for operating NIA irrigation systems with diversified cropping in the dry season. Presently, NIA does not have any rules nor procedures for operating systems with non-rice crops. It is expected that these guidelines will become the basis for the operations manual for systems with diversified cropping, This is an objective of another project at NIA.

c) The project also developed a computer-aided-mapping program for identifying parts of systems suitable for diversified cropping. This technique can also be modified to map other spatially generated information for wider applications.

2. What do you perceive to be the potential impact of this project or program?

The potential impact of this project is in the optimum utilization of irrigation water in the dry season which will increase the production of non-rice crops in the dry season.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

The simulation study results of the project for one of the study sites (Upper Talavera River Irrigation System, dry season area 1,900 ha) indicated that following the project's recommendation will increase the systems's financial returns above variable production cost by as much as 267% or by as much as 51 million Philippine pesos. This is based on current prices of rice and onions and also with the assumption that appropriate irrigation procedures will be implemented with modifications on control and irrigation facilities. The production costs for not include the

rehabilitation costs in these estimates. Similar results were obtained for the other four study sites.

- In the future

NIA strongly recommended a follow-up project to pilot the results of this project. ADB is also keen in supporting this pilot project. NIA indicated that before implementation to a larger scale. Presently, there are at least 30,000 ha of identified potential irrigated area in Region III suitable for non-rice crop production in the dry season. Considering the above increased productivity, the potential impact of this study in the future is very clear.

8. Title: Accelerated Agricultural Production (AAP) Project, Irrigation Component - Research and Special Studies

Project Leader: C.M. Wijayaratna

Objectives: a) To evaluate, refine and improve NIA's present package of Management Innovations. b) To identify new innovations to strengthen Irrigators Associations (IAs) and improve and sustain the Performance of irrigation systems. c) To strengthen NIA's capacity to conduct and manage applied research.

Start date: February 1989

Completion date: End of February 1991

Donor: USAID

Total Estimated cost: US\$640,000

8. ACCELERATED AGRICULTURAL PRODUCTION (AAP) PROJECT,  
IRRIGATION COMPONENT - RESEARCH AND SPECIAL STUDIES

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	25%
- Strategic:.....	25%
- Applied:.....	**
- Adaptive:.....	
** Here we followed CGIAR definition. According to NIA terminology, the project involves 100% applied research.	
ii. Implementation or Application of Research Findings:.....	
iii. Training:.....	10%
iv. Other (Please specify)	
Strengthening National Irrigation Administration's (NIA) capacity to conduct/manage research.....	40%

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

- Identified pertinent research issues
- Identified potential regional research institutions and ascertained their capabilities.
- Developed partnership or working relations between National Irrigation Administration (NIA) and regional research institutions.
- Provided technical, administrative and fiscal support to research undertaken by NIA/regional institutions.

2. What do you perceive to be the potential impact of this project or program?

- Identify ways and means to a) strengthen irrigators associations (IAs) and b) improve relations between NIA and Irrigators Associations.
- Improve NIA's ability to enhance and sustain performance of irrigation systems.
- Strengthen NIA's capacity to conduct and manage research.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

Difficult to quantify at this stage.

- In the future

As the project is being conducted in close collaboration with the national agency, NIA, it is expected that the project outcome - such as management innovations - will have direct and indirect impact on water distribution and crop production. At present there are no plans to measure this impact.

BANGLADESH

9. Title: Support to Bangladesh in Research and Training for Irrigation Management

Project Leader: D.E. Parker

Objectives: To strengthen the capacity of relevant institutions and people in managing irrigation systems and irrigation development in Bangladesh.

Start date: Head arrived in Bangladesh in October 88

Completion date: Ford Foundation grant is for three years

Donors: Ford Foundation

Total Estimated cost: US\$600,000 of which Ford Foundation covers US\$450,000

9.

SUPPORT TO BANGLADESH IN RESEARCH AND TRAINING

FOR IRRIGATION MANAGEMENT

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	5%
- Strategic:.....	15%
- Applied:.....	
- Adaptive:.....	20%
ii. Implementation or Application of Research Findings:.....	5%
iii. Training:.....	20%
iv. Other (Please specify)	
Provision of Institutional Arrangements for Identification of Research Agendas and Management Support	35%

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Providing a legal base for IIMI to collaborate with the host country through an MOU, which establishes the rights, duties and obligations of the two parties and immunities and privileges for IIMI to operate as an international agency.

Providing a forum through a Consultative Committee for inter-agency/interdisciplinary interaction to identify a programme of work and determine priorities for collaborative activities and policies for irrigation management.

Providing opportunities through National workshops and seminars and through regular informal contacts for close interaction between different disciplines, professions and a variety of institutions - at times with overlapping functions - to focus on irrigation management.

Creating an environment for close collaboration between different disciplines and agencies with a focus on irrigation management.

Creating an awareness about irrigation management, sociological, equity and sustainability issues among nationals and thereby strengthening national capacity in irrigation management.

Establishing contact with international agencies and donors and sensitizing them to the real research and investment needs of the host country.

2. What do you perceive to be the potential impact of this project or program?

Strengthening the capacity of national agencies and institutions with a multi-disciplinary focus and thereby contributing to increased productivity and employment opportunities in the rural sector.

Establishing and strengthening linkages among irrigation management research and operation groups through joint action research projects.

Making available to other countries in the region, the Bangladesh experience, especially in the area of groundwater utilization and placing this experience in the broader context of irrigation development in Asia enabling mutual reinforcement and information exchange.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

It is difficult, at this stage, to quantify either in financial or in economic terms as most benefits are indirect or tied up with other factors.

- In the future

In the future however, innovations developed on the basis of action research will contribute to reducing constraints to performance leading to higher productivity through better irrigation management which could be measured at a later stage.

Planners and policy-makers will make rational investment decisions when evidence of increased productivity through improved management is made known through these collaborative efforts.

NEPAL

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10. Title: WECS/FORD Project in Sindhupalchok

Project Leader: R. Yoder

Objective: The primary objective of this action-research project is to develop a viable process by which to assist farmer-managed systems in overcoming the constraints limiting intensification and expansion of irrigated agriculture.

Start date: January 1986

Completion date: December 1989

Donors: Ford Foundation and IFAD

Total Estimated cost:

11. Title: Performance Evaluation of a Large-Scale Farmer-Managed Irrigation System

Project Leader: R. Yoder

Objectives: Examine the agricultural system to determine if 1) cropping decisions are constrained by lack of dependable irrigation water, and 2) spacial variation in yield of each crop is related to water stress. Evaluate the performance of the irrigation system by monitoring 1) access to water both among systems competing for the same source and by potential new members, 2) equity of access by members of the system with the right to use water, 3) the effectiveness of organized response to water stress and conflict among members.

Start date: May 1988

Completion date: Mid 1990

Donor: Ford Foundation

INDIA

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12. Title: Collaborative Research and Training Activities with Indian Institutions

Project Leader: R. Sakthivadivel

Objectives: To explore, initiate and implement collaborative research and training projects by IIMI in association with Indian institutions engaged in research and training activities, and exchange information in irrigation management through exchange of visits and scientific literature. The principal objective is to strengthen the research and training capabilities of selected Indian institutions to contribute to the improvement of irrigation performance in India.

Start date: 2 September 1987

Completion date: 31 March 1991

Donor: The Ford Foundation and the USAID (India)

Total Estimated Cost: US\$700,000

12.

COLLABORATIVE RESEARCH AND TRAINING ACTIVITIES

WITH INDIAN INSTITUTIONS

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

	<u>Activity</u>	<u>% of Total Effort</u>
i.	Research	
-	Basic:.....	
-	Strategic:.....	50%
-	Applied:.....	
-	Adaptive:.....	30%
ii.	Implementation or Application of Research Findings:.....	10%
-	four sets of institutions were selected for collaborative research and training.	
-	research topics for collaboration were identified and preliminary research proposals are being prepared by the Indian collaborating institutions in association with implementing agencies.	
iii.	Training:.....	10%
	With the help of IIMI training specialist, it is proposed to organize one training program in Training Needs Assessment.	
iv.	Other (Please specify)	
-	.....	
-	.....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

- signing of MOA with WAPCOS of Government of India.
- constituting and holding the Coordinating Committee meeting.
- identifying collaborative research and training institutions and research themes through IIMI exploratory missions.
- finalizing a set of institutions, research themes and initiating preparation of collaborative research proposals.
- signing of Collaborative Agreement with USAID
- completing research on application of expert systems to tank diagnostics by a pre-doctoral fellow.
- participating in seminars, workshops and short courses.

2. What do you perceive to be the potential impact of this project or program?

- to strengthen the institutional research and training capabilities of selected Indian institutions to contribute to the improved irrigation performance in India.
- to assist the researchers to adopt a more interdisciplinary approach to research transcending narrow disciplinary boundaries.
- to assist in linking the researchers to the larger international management network.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

The research projects are yet to be implemented.

It may be possible to provide such quantitative benefits at the end of the project.

- In the future

MOROCCO

13. Title: Morocco Program Development

Project Leader: J. Verdier

Objectives: The two basic objectives of the program development in Morocco are: (1) tapping the skills and working capacities of Moroccan input); and (2) "exporting" Moroccan innovations outside the country and "importing" foreign innovations in Morocco. Three projects are now under discussion with Moroccan clients and partners: (a) local application of a multi-country project on the implementation of the techniques, methods and principles of management to irrigation agencies (other countries involved : Burkina Faso and Nigeria); (b) improvement of farmer management in a traditional irrigation system included in a large scale project on the Tessaout valley (this project could benefit from IIMI experience in Nepal); and (c) increase of water productivity through the development of water delivery system following the water requirements of crops. Exploratory contacts have been made with Pakistan to evaluate the interest of "exporting" Moroccan expertise on distributary canal regulation and on on-demand systems to Pakistan.

Start and Completion dates: March 1989; Initial phase is two years

Donor and Estimated cost: France and African Development Bank; approx. US\$150,000 per year.

13.

MOROCCO PROGRAM DEVELOPMENT

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

	<u>Activity</u>	<u>% of Total Effort</u>		
		Project (a)	Project (b)	Project (c)
i.	Research			
-	Basic:.....	-	15%	-
-	Strategic:.....	-	35%	-
-	Applied:.....	-	10%	10%
-	Adaptive:.....	15%	20%	20%
ii.	Implementation or Application of Research Findings:	50%	20%	70%
iii.	Training:.....	35%	-	-
iv.	Other (Please specify)			
-	.....			
-	.....			

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

The development of projects has made IIMI known in Morocco and helped a higher involvement of Moroccans in other IIMI activities, such as the FMIS network or the IIMI/ODI network.

2. What do you perceive to be the potential impact of this project or program?

The potential impact of the IIMI program under development in Morocco is the improvement of irrigation management skill in the country through:

- a much more important use of the results of basic and strategic research already existing in Morocco, by Moroccan field organizations (mainly (c)).
- the introduction of disciplines unknown to irrigation agencies (mainly (a)).
- the collaboration between field organizations and research institutes in an international context (all project, mainly (a) and (b) for the international aspects).

It is too early to make assessment on the potential impact of the exploration of Moroccan innovations to other countries, such as Pakistan.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently (if so, describe)

- In the future

SUDAN

14. Title: Sudan Establishment and Program Development

Project Leader: S.M. Shafique

Objectives: Promote and participate in research in irrigation management, provide training and professional development to Sudanese irrigation staff and provision of advise on irrigation management.

Start and Completion dates: Head took office in June 1989 - the program covers two years.

Donor and Estimated cost: Total cost of program is US\$621,000 of which Ford Foundation has provided US\$495,000.

14.

SUDAN ESTABLISHMENT AND PROGRAM DEVELOPMENT

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	5%
- Strategic:.....	10%
- Applied:.....	
- Adaptive:.....	25%
ii. Implementation or Application of Research Findings:.....	5%
iii. Training:.....	15%
iv. Other (Please specify)	
Provision of Institutional Arrangements for Identification of Research Agendas and Management Support.	40%

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

An MOA with the Government of Sudan provides a legal basis for IIMI to operate in the host country by establishing rights, privileges, duties and obligations of the two parties and providing immunities and privileges for IIMI to operate as an international agency, and is indicative of national support for its research in irrigation management.

Identification of a research agenda through intensive interaction with national agencies, professionals, non-governmental organizations and donors at a national workshop.

Highlighting that social and institutional issues are as important as technical issues and creating an awareness among professionals and agencies of the benefits of Irrigation management.

2. What do you perceive to be the potential impact of this project or program?

The strengthening of research and management capacity of irrigation agencies to enhance system performance through training, workshops and formal and informal professional interaction, thereby promoting increased productivity.

Focus on the need for an inter-agency and interdisciplinary collaboration and need for consultation with farmers in the management of large irrigation systems currently having highly structured and rigid operational procedures.

Sharing of the Sudan experiences with other countries, especially in Africa, for mutual benefit, especially that in relation to small gravity and pumped irrigation schemes.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

It is difficult, at this stage, to quantify either in financial or in economic terms as most benefits are indirect or tied up with other factors.

- **In the future**

In the future however, the adoption of innovations and improvements resulting from the collaborative research will contribute to improved performance through better irrigation management and lead to higher productivity and cropping intensities, which could be quantified at a later stage.

Planners and policy-makers will make more rational investment decisions when evidence of increased productivity through improved management is made known through these collaborative efforts.

WEST AFRICA

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15. Title: West Africa Establishment and Program Development. (Regional program covering Burkina Faso, Niger, Mali, Senegal and Nigeria).

Project Leader: J.C. Legoupil

Objectives: Develop methodologies to achieve effective management of irrigation systems and farmer participation in small, medium and large systems.

Develop research agendas relevant to the countries in the region and provide training and management support to enhance national capacities.

Arrange for cross-country transfer of information and synthesize management innovations and training to facilitate dissemination across borders by development of network programs.

Start and Completion dates: Regional Representative was posted to Burkina Faso for the regional program in June 1988. The initial phase is two years.

Donor and Estimated cost: The estimated cost for two years is approx. US\$650,000, of which USAID has provided US\$344,000.

15.

WEST AFRICA ESTABLISHMENT AND PROGRAM DEVELOPMENT.

(REGIONAL PROGRAM COVERING BURKINA FASO, NIGER, MALI,

SENEGAL AND NIGERIA

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

	<u>Activity</u>	<u>% of Total Effort</u>
i.	Research	
-	Basic:.....	5%
-	Strategic:.....	
-	Applied:.....	
-	Adaptive:.....	30%
ii.	Implementation or Application of Research Findings:.....	
iii.	Training:.....	30%
iv.	Other (Please specify)	
-	Provision of Institutional Arrangements for Identification of Research Agendas and Management Support	35%
-	.....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Providing the legal basis through an MOU with the Government of Burkina Faso, which establishes rights, duties and obligations of the two parties and immunities and privileges for IIMI to operate as an international agency, and also an operational base from which IIMI could collaborate with other countries in the region.

Providing opportunities through workshops and seminars and through regular informal contacts for close interaction between different disciplines, professions and agencies with a focus on irrigation management.

Developing research priorities and agendas in consultation with national agencies and beneficiary involvement, including development of proposals addressing national concerns which, in addition, have regional relevance.

Establishing contact with international agencies and donors and sensitizing them to the real research and investment needs of the countries in the region.

Creating an awareness about irrigation management, sociological, equity and sustainability issues among nationals of these countries and thereby strengthening national capacities in irrigation management.

2. What do you perceive to be the potential impact of this project or program?

The strengthening of capacity of national agencies and institutes to better manage irrigation systems and thereby contribute to increased productivity.

Linking of irrigation management research and operation communities through joint action research projects both in-country and in the region.

Establishment of information and training networks to facilitate cross-country transference and access, especially among countries in the region.

Establishment of importance of beneficiary/agency relationships and social and equity issues in irrigation management.

Create awareness and understanding of need for enhancing capacity for increasing productivity and sustainability of irrigation systems in preference to heavy investment in hardware.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

It is difficult, at this stage, to quantify either in financial or in economic terms as most benefits are indirect or tied up with other factors.

- In the future

However, the adoption of innovations and improvements resulting from the collaborative research and sharing of information and research in the region, will contribute to improved performance through better irrigation management and lead to higher productivity and cropping intensities, which could be quantified at a later stage.

Beneficiary participation in system management have implications for operation and maintenance costs of systems which may be quantified.

Planners and policy-makers will make more rational investment decisions when evidence of increased productivity through improved management is made known through these collaborative efforts.

16. Title: Collaborative Research with Ahmadu Bello University on "Diagnostic Analysis of Large Irrigation Project and Development of Farmer Managed Irrigation System".

Project Leader: S. Manor

Objectives: To develop and evolve farmer-managed irrigation package for large scale surface irrigation systems and pilot testing in selected projects. (The study is proposed to be implemented under two phases. The first part of the study is diagnostic analysis which is being implemented under phase-1).

Start and Completion dates: December 1988 to November 1990

Donor and Estimated cost: The Ford Foundation - US\$233,000

16. COLLABORATIVE RESEARCH WITH AHMADU BELLO UNIVERSITY ON "DIAGNOSTIC ANALYSIS OF LARGE IRRIGATION PROJECT AND DEVELOPMENT OF FARMER MANAGED IRRIGATION SYSTEM".

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	
- Strategic:.....	60%
- Applied:.....	
- Adaptive:.....	30%
ii. Implementation or Application of Research Findings:.....	
iii. Training: National and International Workshops	10%
iv. Other (Please specify)	
- .....	
- .....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

The principal objective of this project is to diagnose the operation and management problems encountered in large irrigation systems managed by the River Basin Authorities in Nigeria and to identify the constraints in turning over the system from agency managed to farmers. An interdisciplinary team assembled from among the ABU faculties has initiated field research in two large irrigation systems. Data collection both from social science perspectives and main system management.

2. What do you perceive to be the potential impact of this project or program?

The project will come up with a methodology for diagnosing the values and constraints of large scale irrigation systems in Nigeria. The research results of this study would also help to formulate interventions under Phase-II of this project for turning over the system from agency managed to farmers.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

The project is just started. It is too early to assess its impact in terms of financial benefits or economic returns.

- In the future

PAKISTAN DIVISION

17. Title: Irrigation Constraints to Crop Production

Project Leader: J.W. Kijne

Objectives: 1) Investigate irrigation-related constraints and their impact on production of principal crops; 2) Assess from existing information, optimal patterns of irrigation for major crops; 3) Investigate farmers' decisions regarding irrigation to ascertain how and why their practices differ from the optimal and to assess the impact of such differences upon crop yield.

Start date: October 1987

Completion date: September 1992

Donor: USAID, IFAD, proposed to ODA

Total Estimated cost: US\$400,000

17.

IRRIGATION CONSTRAINTS TO CROP PRODUCTION

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

	<u>Activity</u>	<u>% of Total Effort</u>
i.	Research	
-	Basic:.....	
-	Strategic:.....	10%
-	Applied:.....	30%
-	Adaptive:.....	20%
ii.	Implementation or Application of Research Findings:.....	10%
iii.	Training:.....	25%
iv.	Other (Please specify)	
-	Efforts were made to implement important findings such as "Negative impact of canal closure during the most critical stage of wheat growth" and "increase in wheat yields because of additional late Irrigation".	
-	About 80 extension agents of Punjab Agriculture Department were trained on water management techniques through collaborative activities of research and data collection under "Irrigation Constraints" study. Five formal one week training courses were held to enhance the irrigation research and management capabilities of GOP officials	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

The principal contribution is through institutional strengthening. IIMI Pakistan is collaborating with the Punjab Agriculture Department to examine the impact of various irrigation-related constraints to crop production and to suggest management interventions to overcome or minimize their adverse effects.

2. What do you perceive to be the potential impact of this project or program?

Potential impact of this project is manifold. Better understanding of irrigation-related constraints at farm could help in:

- identification of system level changes required to manage the system more efficiently and responsive to farm needs;
- improving water use efficiency through generating update irrigation extension messages presently available to the farmers; and
- increasing agency capabilities to carry out future research.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

Potential long term benefits are quite clear and obvious but difficult to quantify at this point in time. Even slightest improvement towards efficient and productive use of irrigation supplies will yield direct benefits in terms of better revenues.

- In the future

18. Title: Impact of Lining Secondary Channels and Rehabilitation Strategies

Project Leader: E.J. Vander Velde

Objectives: 1) Evaluate impact of rehabilitation strategies upon surface water deliveries; 2) Determine most cost-effective approaches for distribution system rehabilitation through comparative analysis of actual rehabilitation strategies.

Start date: 1 December 1986

Completion date: 31 December 1991

Donor: USAID

Total Estimated cost: US\$326,000

**18. IMPACTING LINING OF SECONDARY CHANNELS AND REHABILITATION STRATEGIES**

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	50%
- Strategic:.....	
- Applied:.....	
- Adaptive:.....	50%
ii. Implementation or Application of Research Findings:.....	
iii. Training:.....	
iv. Other (Please specify)	
- .....	
- .....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Because research progress is conditioned by phased Irrigation Department completion of distributary canal lining, only primary data collection to determine canal performance changes from pre-lining conditions to phase I lining completion has been done. With completion of Phase II lining at end of Kharif, 1989 season, primary data collection to determine canal performance changes between phase I lining and phase II lining is only just underway. Hence, there is no contribution or impact to report as yet.

2. What do you perceive to be the potential impact of this project or program?

This project is expected to provided a comparison of distributary canal performance improvements obtainable under two different rehabilitation strategies that have been differentially followed by the Irrigation Department, viz, heavy or major maintenance and channel lining. Comparative costs and benefits of the improved performance obtained through each rehabilitation strategy are sought to be determined as well. Heretofore, there has been no reliable basis for determining which (or how much of which) strategy to pursue when planning for canal system rehabilitation.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

Impact as yet can not be quantified in terms of financial benefits or economic returns. However, expected outputs will include a determination of comparative costs and benefits of canal performance obtained through two different rehabilitation processes.

- In the future

19. Title: Combined Surface and Groundwater Irrigation Systems

Project Leader: E.J. Vander Velde

Objectives: 1) Determine existing distributary command water budgets and de facto conjunctive use irrigation operations; 2) Define institutional constraints and solutions for more effective private tube well operations and management and in varying hydrologic environments; 3) Identify groundwater quality conditions and management options that reduce or minimize negative impacts; 4) Identify potential impacts of public tube well turnover on overall irrigation system performance; 5) Determine options to balance groundwater extraction and maintenance of water tables.

Start date: 1 February 1988

Completion date: 31 December 1991

Donor: USAID, IFAD, World Bank

Total Estimated cost: US\$513,000

19.

COMBINED MANAGEMENT OF SURFACE AND GROUND WATER

IRRIGATION SYSTEMS

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	75%
- Strategic:.....	
- Applied:.....	
- Adaptive:.....	25%
ii. Implementation or Application of Research Findings:.....	
iii. Training:.....	
iv. Other (Please specify)	
- .....	
- .....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

1) Provided 1st private tube well census and database in Pakistan for entire distributary command area (database subsequently used by ENERCON--National Energy Conservation Centre--Project in pilot activity to improve energy consumption performance of private tube wells); 2) Tested/demonstrated new methodologies to obtain reliable private tube well operations data; 3) Determined relative magnitudes of contribution of public and private pumped groundwater and surface water to irrigated agriculture; 4) Identified emergent groundwater quality problems in a distributary command where none were acknowledged to exist.

2. What do you perceive to be the potential impact of this project or program?

1) An enhanced, more reliable basis for determining major water allocation decisions, especially in the recognition of the importance of surface supply for groundwater utilization which has significant implications for current and future investments in canal lining; 2) Recognition of the opportunities for more effective conjunctive irrigation operations, as well as constraints and possible solutions to them; 3) Management options for surface and groundwater system operations to minimize poor water quality impacts on irrigated agriculture.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently

The impact of this work can not be quantified in terms of financial benefits or economic returns at this still early stage of research implementation. (ENERCON pilot activity being planned based upon IIMI-developed private tube well database estimates an energy consumption improvement of at least 20% per tube well; about 200 tube wells are expected to be included in the pilot activity).

- In the future

20. Title: Distributary Performance: Variability and Equity in Secondary Canals

Project Leader: E.J. Vander Velde

Objectives: 1) Determine distributary channel performance in terms of water supply variability minimization and distributional equity objectives in different hydrologic environments; 2) Identify causes of poor distributary performance in achieving operational objectives; 3) Assist IDs in identifying management options to better achieve operational objectives of distributional equity and minimum variability in water supply; 4) Adapt computerized hydraulic model to support management decision-making in secondary canal operations.

Start date: July 1987

Completion date: 1991

Donor: USAID

Total Estimated cost: US\$629,000

20. DISTRIBUTARY PERFORMANCE; VARIABILITY AND EQUITY IN SECONDARY CANALS

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	40%
- Strategic:.....	
- Applied:.....	30%
- Adaptive:.....	10%
ii. Implementation or Application of Research Findings:.....	20%
iii. Training:.....	
iv. Other (Please specify)	
- .....	
- .....	

**B. Please provide your evaluation of the impact or potential impact of this project/program.**

**1. What do you consider the principal contributions or impact of this project or program to date?**

Research has confirmed several causes for failure of ID to achieve distributary operation objectives. Progress has been made in development and testing of a modified hydraulic model calibrated to predict water supply distribution to off-takes using a minimum set of discharge data for a specific distributary. This model was used in an "action research" mode to assist Punjab ID in planning targeted annual maintenance to achieve distributary operational objective of improved water distribution equity. Initial results showed that planned, targeted distributary maintenance could achieve greatly improved equity in canal water distribution. Results also demonstrated need for additional institutional mechanisms to sustain improvements.

**2. What do you perceive to be the potential impact of this project or program?**

1) A shift from relative neglect to increased emphasis on maintenance activities to achieve distributary operational objectives, 2) facilitated by a decision support capability that can assist ID operational officers in prioritizing distributary-level maintenance activities relative to resources available, and 3) institutional mechanisms that support and sustain improved distributary performance.

**3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.**

The impact of this work cannot be quantified in terms of financial benefits or economic returns at this time. However, quantification of economic costs of and returns to achieving improved distributary performance (as well as costs of and returns to declining or poor performance) would be possible with appropriate inputs of economic analysis expertise heretofore unavailable.

21. Title: Managing Irrigation Systems to Minimize Waterlogging and Salinity Problems

Project Leader: J.W. Kijne

Objectives: 1) Identify and define linkages between irrigation and drainage systems management and the incidence of waterlogging and salinity (W&S) problems; 2) Design, test and refine irrigation and drainage system management strategies to minimize W&S.

Start date: Third quarter 1988

Completion date: 1993

Donor: Royal Netherlands Government

Total Estimated cost: Approx. US\$2,000,000

21. MANAGING IRRIGATION SYSTEMS TO MINIMIZE WATERLOGGING AND SALINITY PROBLEMS

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

	<u>Activity</u>	<u>% of Total Effort</u>
1.	Research	
-	Basic:.....	0%
	Strategic:.....	5%
	Applied:.....	30%
	Adaptive:.....	40%
ii.	Implementation or Application of Research Findings:.....	25%
iii.	Training:.....	15%*
iv.	Other (Please specify)	
	.....	
	.....	

\* Subsumed under Research

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

The project has created an awareness of the importance of the likely impact which management of Irrigation Systems can have on the mitigation of Waterlogging and Salinity Problems. Interest has been generated in the local agencies and research institutions to collaborate with IIM in the Project.

2. What do you perceive to be the potential impact of this project or program?

With the wide incidence of Waterlogging and Salinity in Pakistan (and under similar environments in other countries), Drainage and Reclamation Investments and continued subsidization of the O&M represent a very heavy burden on the national resources. Both investment costs and recurring costs can be saved if the drainable surplus can be reduced through management interventions in the irrigation systems. Many possibilities for doing this exist which need to be exploited.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

Currently (if so describe)

The project is still in a very early stage of implementation.

22. Title: Irrigation Efficiencies in Farmer-Managed Irrigation Systems in Hunza Gojal

Project Leader: J.W. Kijne

Objectives: 1) Comparative assessment of irrigation system goals and efficiencies in new and previously existing Gojal FMIS; 2) Identification of major factors (both physical and operational) that govern irrigation efficiencies in Gojal FMIS.

Start date: 15 March 1989

Completion date: 15 September 1989

Donor: Aga Khan Foundation

Total Estimated cost: US\$50,000

22. IRRIGATION EFFICIENCIES IN FARMER-MANAGED IRRIGATION SYSTEMS IN HUNZA GOJAL

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	75%
- Strategic:.....	25%
- Applied:.....	
- Adaptive:....	
ii. Implementation or Application of Research Findings:.....	
iii. Training:.....	
iv. Other (Please specify)	
.....	
.....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

The project has provided information in particular in the field of water use efficiencies that so far was lacking and as such gave use to speculations and doubts, notably among financing agencies, about the justification of investments in irrigation infrastructure.

2. What do you perceive to be the potential impact of this project or program?

The large variations in present application efficiencies indicate that improvements could be made. One expects that a more precise control of water at the field inlet, better levelling of the fields, and appropriate intervention by the irrigator during the process of irrigation would lead to improved efficiencies at field level. The indication present in the data that field losses are less in the new areas than in the old ones, points to the importance of farmer's presence during irrigation and his or her intervention in it.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently (if so, describe)

Limited time frame and highly focussed objectives did not allow quantification of impacts.

- In the future

PROGRAMS DIVISION

A-101

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23. Title: Application of mathematical models for simulation of main canal operations (Phase 1).

Project Leader: H. Sally

Objectives: 1) To provide IIMI with a state-of-the-art research tool to investigate the interactions between the design, management and performance of main canals; 2) To demonstrate, through a real-life application, the feasibility of using simulation models to identify effective and responsive main canal operational practices. (The user-friendly computer software developed could also serve as a training tool for irrigation professionals).

Start date: November 1987

Completion date: February 1990 (revised from October 1989)

Donor: Government of France, Core Support

Total Estimated cost: US\$158,000 exclusive of IIMI's staff time; contribution of CEMAGREF in terms of staff time was estimated at US\$41,000, but now revised to US\$133,000

23. APPLICATION OF MATHEMATICAL MODELS FOR SIMULATION OF MAIN CANAL OPERATIONS (PHASE I)

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	20%
- Strategic:.....	20%
- Applied:.....	
- Adaptive:.....	40%
ii. Implementation or Application of Research Findings:.....	2%*
iii. Training:.....	3%*
iv. Other (Please specify)	
- Study Advisory Committee	15%
- .....	
Total	----- 100% -----

\* Implementation of research findings and training of Irrigation Agency staff are planned under Phase 2 of this project.

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

In interacting with IIMI staff during project implementation, Irrigation Department personnel were sensitized to various aspects of canal regulation, especially to the consequences of improperly adjusted water level control devices on the conveyance and distribution of water flow. IIMI also provided the Department with information on key physical and hydraulic parameters of canal and contributed to enhancing their understanding of the hydraulic behavior of the canal. We also created an environment of acceptance within the Department of the potential of simulation modeling to effectively address main canal design and management concerns.

2. What do you perceive to be the potential impact of this project or program?

Demonstrate that simulation modeling is a viable alternative to on-site field experimentation as a research tool to study the interactions between the design, management and performance of irrigation systems.

Demonstrate, on a real life system, the usefulness of simulation technique as a decision-support tool in support of the management of a manually-operated main canal system.

Use the simulation model software as a training tool to sensitize irrigation professionals to canal regulation concepts.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently (if so, describe)

No

- In the future

No

24. Title: Research Network on Irrigation Management for Diversified Cropping in Rice-Based Systems

Project Leader: S. Miranda

Objectives: 1) To compare differences and similarities of national objectives related to irrigated crop diversification; 2) To determine existing irrigation management technologies for non-rice crops at the main system, tertiary-system, and farm levels; 3) To identify technical, institutional, and economic potentials for diversified cropping in general, and for selected crops for each country/region under irrigated conditions; and 4) To determine and evaluate alternative practices and technologies to match the national objectives/goals.

Start date: August 1989

Completion date: December 1994

Donor: Ministry of Agriculture, Forestry and Fisheries MAFF (JAPAN) through the Ministry of Foreign Affairs (MFA)

Total Estimated cost: US\$1.369 million

25. Title: IIMI-IRRI Collaborative Project on Problems of Irrigation Management for Rice-Based Farming System (Philippines, Indonesia and Bangladesh)

Project Leader: S. Miranda

Objectives: 1) To characterize the factors which influence the options for changes in rice-based farming systems, and to identify the more important options in selected geographic locations; 2) to determine the degree to which different levels of irrigation system performance influence the ability to effectively incorporate changes in the farming systems; 3) to develop efficient and economical methods for managing irrigation water delivery and use of post-rice residual water for rice-based systems in which non-rice crops are grown, with special reference to implications for agronomic practice and for institutional performance and change; 4) to transmit and interpret the research findings to agricultural and irrigation system managers, planners and policy makers to encourage informed and better decision-making; 5) to enhance the development of trained professionals in the area of irrigation problems through provision of graduate research opportunities; and 6) to provide opportunity for IRRI and IIMI staff to interact in a variety of collaborative activities which would permit the development of an effective and mutually supportive long-term relationship.

Start date: 1 July 1987

Completion date: Originally 30 June 1990 but extension to end of December 1990 has been requested.

Donor: Rockefeller Foundation

Total Estimated cost: US\$1.2 million to IIMI and US\$0.3 million to IRRI

25. IIMI/IRRI COLLABORATIVE PROJECT ON PROBLEMS OF IRRIGATION MANAGEMENT FOR RICE-BASED FARMING SYSTEMS

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
Basic:.....	5%
Strategic:.....	5%
Applied:.....	20%
Adaptive:.....	30%
ii. Implementation or Application of Research Findings:.....	5%
iii. Training:.....	25%
iv. Other (Please specify)	
Information Exchange	10%
.....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Development of effective collaborative field-work in an interdisciplinary framework, both between the two international institutes and with numerous national agencies, universities, etc., in each of the three project countries.

2. What do you perceive to be the potential impact of this project or program?

Impacts will be mediated through the national irrigation managing organizations in each country. The potential benefits will be in the form of enhanced farm incomes, if the organizations adopt management practices that facilitate the irrigation of non-rice crops and thus provide farmers with a wider, more flexible, market-responsive choice of crops.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently (if so, describe)

- In the future

Evidence from the Philippines shows that the potential enhancement of farm incomes, if non-rice crops can be planted in the dry season, should be in the range \$50-500 per hectare per year. There are some 7 m.ha. in the three countries. Gross diversification is not clear, and might be in the order of 1 m.ha., depending on national food policies.

26. Title: Performance Evaluation of Irrigation Systems. Criteria and Norms for Cooperative and Evaluative Purposes.

Project Leader: K.M. Kyi

Objectives: 1) To develop a conceptual foundation for measuring the performance of irrigation systems; 2) To devise a set of performance measures based on the conceptual foundation developed and the accumulated experience with evaluation techniques and indicators which have already been tried; 3) To test the suggested measures with existing data from samples of systems classified by category; 4) To make available to potential users the strengthened set of indicators and methods for their use, together with baseline results (statistical norms) generated from application of this approach to different classes of irrigation systems.

Start date: 9-12-1988 Phase I

Completion date: December 1990 Phase I

Donors: Ford Foundation

Total Estimated cost: Phase I - US\$413,627

26. PERFORMANCE EVALUATION OF IRRIGATION SYSTEMS: CRITERIA AND NORMS FOR CO-OPERATIVE AND EVALUATIVE PURPOSES

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	30%
- Strategic:.....	30%
- Applied:.....	30%
- Adaptive:.....	10%
ii. Implementation or Application of Research Findings:      Research is not completed yet	
iii. Training:.....	
iv. Other (Please specify)	
.....	
.....	

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Not yet. The project has not turned out any output yet.

2. What do you perceive to be the potential impact of this project or program?

This project has the high probability of having strong impact on both theory and practice of irrigation management. So far, no minimal common criteria of measuring irrigation system's performance exists. As such, it is very difficult to evaluate the results of innovations and practices in a single system, a sub-set of systems or systems across national frontiers. This research will provide a common methodology for measuring the performance of an individual system, a set of systems or cross national systems. In addition, this research will also provide a baseline data for comparison between the comparable sets of system, such as standards for irrigation systems in arid region emphasizing allocation function etc.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently (if so, describe)

Not yet.

- In the future

Not yet.

27. Title: Farmer Managed Irrigation System

Project Leader: S. Manor

Objectives: To develop and disseminate improved mechanisms for governmental assistance to farmer-managed irrigation systems.

Start and end date: January 1988 to December 1990

Donor and Estimated cost: IFAD, BMZ; US\$750,000

28. Title: Design/Management Interaction Studies

Project Leader: C. Abernethy

Objectives: To collect standardized sets of data describing the design, management arrangements, and performance of numerous irrigation systems in different environments, and analyze them to identify interactions among these three factors.

Start and end date: March 1990; Indefinite

Donor and Estimated cost: Unrestricted Funds; US\$28,000 per location

28. DESIGN/MANAGEMENT INTERACTION STUDIES

A. Please characterize the nature of activities associated with this project or program in terms of percentage of time devoted to the activity.

<u>Activity</u>	<u>% of Total Effort</u>
i. Research	
- Basic:.....	40%
-- Strategic:.....	40%
-- Applied:.....	
- Adaptive:.....	
ii. Implementation or Application of Research Findings:.....	
iii. Training:.....	
iv. Other (Please specify)	
- Information Exchange	10%
- Initiation of a unified statistical data-base	10%

B. Please provide your evaluation of the impact or potential impact of this project/program.

1. What do you consider the principal contributions or impact of this project or program to date?

Project activities should start in March 1990.

2. What do you perceive to be the potential impact of this project or program?

This project should improve research capacity and quality, by generating standardized sets of performance data on numerous irrigation systems in different environments and management styles. The standardization of data should facilitate inter-system comparisons. By collecting data also on design parameters and other possible determinants of performance, the project should clarify causal relations.

3. Can the impact of this work be quantified in terms of financial benefits or economic returns? If so, provide some indication of the magnitude of such benefits or returns.

- Currently (if so, describe)

Director economic impact would be hard to assess.

- In the future

ANNEX V

COPIES OF LETTERS AND QUESTIONNAIRES SENT TO  
IIMI DONORS AND COLLABORATORS

(Sample of donors' letter attached; a similar letter was sent to collaborators in all countries in which IIMI has had active program)

Building 106  
University of Florida  
Gainesville, Florida, 32611  
U.S.A.

23 November 1989

Letter to the Donors

Dear.....

After some five years of operation, the International Irrigation Management Institute(IIMI) has initiated an external review of its program and management. The external panel commissioned to conduct the review is comprised of Dr. Vijay Vyas, Chairman, Dr. Roger Corbione, Ms. Joan Joshi, Mr. Syed S. Kirmani and me. As a part of its efforts the Panel would greatly appreciate your views concerning the work of IIMI.

It would be most helpful if you could fill out the enclosed questionnaire and return to me so that it will be received at the above address no later than December 31, 1989. This date is critical if the information is to be used by the Panel.

Your comments will be treated in complete confidence by the Panel.

Thank you for your cooperation and assistance.

Sincerely,

E. T. York, Jr., Member  
IIMI External Review Panel

(Telephone Fax Number - 001-904-392-3161)

QUESTIONNAIRE CONCERNING IIMI  
(use additional pages for response if needed)

I. Information concerning questionnaire respondent.

Name -

Organization -

Responsibility or mission of organization -

Title or responsibility of respondent in organization -

II. Information concerning IIMI

1. IIMI's stated mission is "to strengthen national efforts to improve and sustain the performance of irrigation systems in developing countries through the development and dissemination of management innovations." IIMI has identified seven major program themes for carrying out this mission.

i. Please rate these themes on a scale of 1 to 5 in terms of your evaluation of their importance (5 - very important, 1 - not so important)

Your rating

- Improving institutions for irrigation management.....
- Managing water in irrigation systems.....
- Financial management of irrigating systems.....
- Managing facilities of irrigation systems.....
- Managing irrigation organizations.....
- Managing support services to farmers.....
- Managing change (involving irrigation systems).....

ii. From your perspective, should IIMI's mission be different than that stated. Should there be different themes or areas of emphasis. If so, what?

2. How relevant is IIMI's work to the needs and interests of your organization? (Rate each activity 1 to 5, with 5 representing very relevant, 1 not so relevant.)

<u>Activity</u>	<u>Rating</u>
a) Thematic research.....	
b) Field operations (country specific research).....	
c) training.....	
d) information.....	

3. How effective do you consider IIMI to be in achieving its goals or objectives? (Rate on a scale of 1 to 5, with 5 being highly effective) Add comments.

4. What do you consider IIMI's strengths and weaknesses?

5. If your organization is currently not an IIMI donor, what are the considerations and/or prospects for your support in the future?

6. Other comments.