NEPAL

DRAFT

IRRIGATION MANAGEMENT PROJECT

(367-0153)

PROJECT PAPER SUPPLEMENT

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USAID/NEPAL

KATHMANDU

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NOTE: Because presentation of the redesign of the Irrigation [illegible] Project requires discussion of the changes required [illegible] discrete entities (the Irrigation Management Center a[illegible] Systems Management Division), the following analyses [illegible]ated in two annexes as noted below:

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Technical Analysis	Annex 1 [passim] Annex 2 [passim]
Administrative/Institutional Analyses	Annex 1 [passim] Annex 2 [passim]
Training Plan	Annex 1 [p.] Annex 2 [p.]
Technical Assistance Plan	Annex 1 [pp.] Annex 2 [p.]
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EXECUTIVE SUMMARY

The Government of Nepal has placed great emphasis on the reform of its irrigation policies to increase the effectiveness of irrigation. It has moved to encourage a coordinated, sectoral approach to achieve more participatory management, improved operations and maintenance, and local resource mobilization. Increased agricultural yields from improved irrigation is a key element in the Government's plan to alleviate poverty and stimulate agricultural growth.

The donor community has responded with major investments in infrastructure and in support of participatory approaches to irrigation management. The Irrigation Management Project was originally designed (1985) to strengthen management, training and applied studies, anticipating the need for new farmer participation approaches to irrigation management. However, the original project design attempted to meet this need by establishing "parallel structures" in a project context outside the regular structure of the Department of Irrigation's predecessor. This project structure hindered the possibility of institutionalizing and sustaining this effort beyond project completion.

The IMP Mid-Term Evaluation of March 1989 recommended restructuring the project; additional funding while extending the project's life to ten years; and redesign to more effectively address the sector's institutional needs in a sustainable way. This Project Supplement responds directly to the recommendations of the evaluation.

The aim of the Irrigation Management Project is to establish a sustainable capacity within the Department of Irrigation to engage in participatory irrigation development and management. This will be done through establishing and strengthening two units in the administration of the Department of Irrigation, in close collaboration with other donors involved in irrigation. The reorientation of the project toward institutionalizing its functions in the Department of Irrigation (DOI) is based in large part on the recent development of the GON's Master Plan for the Irrigation Sector and the revised organization of the DOI it entails.

The Research and Training Unit (RTU) will replace the more narrowly defined Irrigation Management Center created by the original Irrigation Management Project. In lieu of a separate and "autonomous" training institution as originally designed, the RTU will operate under the direct supervision of the Deputy Director General of the Planning, Design and Research Division,

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as recently proposed in the Organizational Plan of the new Irrigation Master Plan. The training and applied research functions of the old "IMC" will be integrated into the regular operations of the Division to fulfil the overall training requirements of the Department and the sector. It will be staffed by a senior professional, with core staff absorbed from the current Irrigation Management Center. It will design, administer, and conduct training and applied studies responsive to the needs of the Department as a whole, through either its own resources, agreements with other Nepali technical training organizations, or specific contracts with private consultants.

The original Irrigation Management Project's Systems Management Division (SMD) will be integrated into the Planning, Design, and Research Division of the Department as a separate Unit, in accordance with the approved Operational Plan for the Division put forward by the Irrigation Master Plan design team. The Systems Management Unit (SMU) will develop guidelines and improve the participatory aspects of irrigation; enhance sound operations and maintenance activities; and build into all DOI operations evaluation and feedback mechanisms to improve irrigation efficiency. The two pilot irrigation sites now supported by the current project will be transferred to full farmer management responsibility in one case, and joint farmer-DOI management in the other. Operational links will be established with comparable Systems Management units at the regional and district levels to ensure a field-oriented approach.

AID will assist this newly conceptualized effort by providing long and short term local and expatriate technical assistance to the Research and Training Unit and the Systems Management Unit. This effort will significantly strengthen the DOI's Planning, Design, and Research Division in training design and administration; operations and maintenance engineering; institutional and socio-cultural analysis of water user organizational issues; and the employment of local institutions, firms, and specialized consultants for field training. Short term training courses and study tours in the region and elsewhere will be provided. Limited support funds will be provided for equipment, and for certain non-recurrent operational costs and applied studies.

The current Irrigation Management Project Office in Kathmandu, and the Irrigation Management Center facility in Pokhara, will be disbanded, and personnel and physical assets will be transferred to the appropriate Units in the DOI Planning, Design, and Research Division in Kathmandu.

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The Irrigation Management Project, now scheduled to terminate in June 1992, will be extended until June 1994. Joint internal and external evaluations have been built into the design of the extended project. Although the proposed redesign may entail greater USAID/Nepal Mission monitoring, the opportunities for positively influencing performance across the irrigation sector in Nepal, and thus increasing agricultural growth, warrant this action. A total of approximately $5,022,000 remaining under the currently authorized Irrigation Management Project will be reprogrammed for this redesigned project. An additional $900,000 will be authorized by USAID/Nepal to increase overall authorized project funding to $5,921,000.

ACRONYMS AND TERMS

ADB	Asian Development Bank
AO	Association Organizer
DDG	Deputy Director General
DIO	District Irrigation Office
DOI	Department of Irrigation (Ministry of Water Resources)
EST	Essential Structural Improvements
FMIS	Farmer Managed Irrigation System
GON	Government of Nepal
HMG/N	His Majesty's Government, Nepal
IDA	International Development Association (World Bank window)
ILO	International Labour Organization
ILC	Irrigation Line of Credit
IMC	Irrigation Management Center
IMP	Irrigation Management Project
IMTC	Irrigation Management Training Center
ISP	Irrigation Sector Program
ISPAN	Irrigation Support Project for Asia and the Near East
ME&F	Monitoring, Evaluation, and Feedback
O&M	Operations and Maintenance
PDRD	Planning Design and Research Division
RID	Regional Irrigation Directorate
RTU	Research and Training Unit
SAL	Structural Adjustment Loan
SMD	System Management Division
SMU	System Management Unit
TA	Technical Assistance
UNDP	United Nations Development Programme
USAID/N	United States Agency for International Development/Nepal
WUA	Water User Association

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I. THE PROJECT RATIONALE

A. THE SETTING

Recent events have reinforced both the importance of the irrigation sector in Nepal's development and the potentially pivotal role of USAID programming in this field. Since the Irrigation Management Project (IMP) was first approved in 1985, indeed, since the Midterm Evaluation in April 1989 which recommended a project revision, significant developments have taken place and new analyses have become available, emphasizing the need for restructuring the project and institutionalizing it within the permanent organizational framework of the Government of Nepal. USAID now has a greatly enlarged opportunity to influence this important sector positively. Changes have taken place both within the Government of Nepal and in the donor community which make support for an irrigation sector program imperative.

1. The Government of Nepal

His Majesty's Government of Nepal (GON) promulgated a Programme for Fulfillment of Basic Needs by the year 2000, which calls for essentially doubling grain production from 4.3 million metric tons in 1984/85 to 8.7 million metric tons by the year 2000. Grain, including potatoes and lentils, constitutes over 86 percent of total caloric intake of the Nepalese people, which is still decidedly substandard. To achieve this goal requires the expansion of effective irrigation. In the past, donor support to irrigation has been largely uncoordinated and results disappointing, even though such assistance totalled over US$ 982 million between 1975 and 1987. To approach the issue in a comprehensive manner, the government formulated an Irrigation Sector Strategy in February 1988 into which all donor activities were to fit to ensure the effective use of limited resources. An Irrigation Sector Master Plan is now in final stages of review and approval by the GON.

To achieve the Basic Needs targets, the GON has called for expansion of irrigated land by an additional 816,000 hectares by the year 2000. The government plans to enhance irrigation water supply by expanding public and private systems, rehabilitating existing systems that do not function to their full potential; turning over smaller irrigation systems to farmers; and by adopting a joint agency-farmer management approach in larger systems. This highly significant shift toward greater private involvement is predicated on the early and widespread formation of private water user

organizations, the recovery of a substantial portion of new irrigation construction costs from farmers, an increase in farmer involvement in operations and maintenance of existing and planned systems, together with increases in waterfees (user fees). The economic and social salience of this effort is underscored by the projected estimates by the World Bank of population increases in Nepal from 15.8 million in the Census of 1981 to 24.4 million by the year 2000.

The Basic Needs statement, emanating from the highest authorities, is as much a political manifesto as a set of diverse socially oriented objectives. Carrying great bureaucratic weight because of its royal auspices, it has been supplemented and given administrative form through three additional key documents in the field of irrigation. The Working Policy on Irrigation Development for the Fulfillment of Basic Needs [Kathmandu 1988] details fee and construction costs and sharing arrangements. The Action Plan for Participatory Management Program [Department of Irrigation, May 1989] and the Action Plan for Turnover Program [Department of Irrigation, May 1989] spell out the timing and methods for meeting governmental targets in these areas. Government Irrigation Regulation 2045 [April 3, 1989] sets forth regulations and provides potential modest refunding to water user associations through retention of certain fees collected. Together these documents indicate two major changes in the thinking of the Government of Nepal: emphasis on improving irrigation performance is now urged at the highest levels; and increased farmer involvement in irrigation, together with a reduced role for the state in water management, are seen as vital. Both developments are highly welcome. Both themes were key components of the USAID/Nepal's Irrigation Management Project.

These key policy changes in irrigation management have been supplemented by institutional and administrative reforms. Until 1987, three ministries and four agencies controlled irrigation. Now such activities have been centralized within the Department of Irrigation of the Ministry of Water Resources (although the Agricultural Development Bank of Nepal provides loans and the Ministry of Panchayats and Local Development continues to support some very small systems). The Department (or "DOI") itself has been reorganized into five divisions, each headed by a Deputy Director General. This reorganization has accompanied a new emphasis on decentralization throughout the government. The DOI has also reformed its district functions, creating district irrigation engineering offices, where previously engineers under District Technical Offices handled all local infrastructure construction. The result is a government potentially primed to make significant improvements in what has been a lackluster and disappointing performance over the past decade.

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2. The Donor Community

Recent donor analyses have supported the GON's assertion of the critical role of irrigation. The World Bank, in its Nepal: Policies for Improving Growth and Alleviating Poverty [Washington 1989] notes that "irrigation is nevertheless a prerequisite for any significant increase in agricultural production." [p.29] Conversely, it maintained [ibid., p.24]: "Perhaps the main factor responsible for unsatisfactory agricultural growth has been the slow and ineffective development of irrigation." The Bank's Nepal Agricultural Sector Review [May 26, 1989] has reinforced the earlier Bank analysis of the role of irrigation, while specific and positive irrigation policies, such as new water-user legislation, improved operations and maintenance, turnover to farmers of smaller systems, and greater coordination between irrigation and agriculture, have been encouraged under the Bank's Structural Adjustment Loan II, and include specific measures that directly relate to project elements.

Over the past decade, donors have increased their emphasis on irrigation. The World Bank has engaged in the Mahakali Irrigation II project, totalling $41.3 million in loan funds for irrigation and drainage for 6,800 hectares of new irrigation, an Irrigation Line of Credit for 9,000 additional hectares of rehabilitated and new surface systems, emergency flood rehabilitation of irrigation and river control in the Western Region, and institutional development support to the Department of Irrigation. The Bank is also planning a Groundwater Irrigation III project, to begin in fiscal year 1990 at a cost of $45 million in IDA funding, which is expected to contain another Irrigation Line of Credit to extend the program to the Mid-West and Far West Regions.

The Asian Development Bank launched its Irrigation Sector Project in January 1989. It will provide $36 million in support for construction, as well as training. In addition, in February 1989 the United Nations Development Program allocated $3.8 million for an Irrigation Sector Support Program in the Eastern and Central Regions, with the Asian Development Bank and the World Bank as implementing agencies. The UNDP has also assisted the International Labor Organization in a program of labor-intensive construction of local infrastructure called the Special Public Works Program ($1.6 million), some of which is irrigation. It is also in the last phase of a Planning and Design Strengthening Project that has provided support for design of the Irrigation Master Plan, and preparation of several technical irrigation manuals.

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B. OPPORTUNITIES AND CONSTRAINTS

The present situation in Nepal offers unprecedented opportunities for improving irrigation, and thus overall food supplies, but significant unaddressed or unresolved that warrant caution in planning and expectations.

1. The Opportunities

The international donor community has provided the GON Financial means by which to make significant achievements in the field of irrigation. Motivated both by the knowledge that farmer involvement is essential in managing irrigation systems, and by the need to lower the mounting costs of increasingly complex and inefficient public irrigation systems, the government is implementing a policy to turn over smaller public systems to farmers through water users' associations, and increase their management participation in larger ones.

Both the government's plans and expanded donor support require more irrigation staff at all levels; training throughout the Department from senior officials to engineers and supervisors; association organizers (AOs) to help farmers organize Water User Associations (WUAs); and farmers themselves. This calls for greatly strengthened engineering and management skills in the capital, the regional centers and, most importantly, in the districts, if the program is to succeed.

The donors and the GON recognize that even well-funded projects that stop when their foreign support ends without integration into the Nepali system can no longer be tolerated. Thus there is general agreement that an irrigation sector approach is needed, and that although donors may continue to use the term "project" to describe their activities, an irrigation program is being created: the institutionalization of discrete activities into a manageable and more effective whole.

It is now apparent that USAID/Nepal's Irrigation Management Project was substantially correct in identifying the sector's need and [illegible] attempts to improve training, applied research, and irri[illegible] systems management. Although IMP encountered

substantial difficulties for reasons described in the Mid Term Evaluation, its timely initiation in 1985 has now placed USAID in a pivotal position in the irrigation sector. Through the restructured Irrigation Management Project (IMP) herein presented, USAID is uniquely situated to affect the totality of the irrigation sector through the two elements of its planned program. The proposed institutionalization of a Systems Management Unit (SMU) and a Research and Training Unit (RTU) will serve the Department of Irrigation as a whole, complementing activities funded by the World Bank, Asian Development Bank, UNDP and other donors.

2. Constraints and Limitations

Improvement in irrigation systems and their management are necessary conditions for enhanced food production in Nepal, but they are not sufficient to solve other production, distribution, and equity issues, which must be the subject of related but separate efforts. Expectations must thus be restrained. Irrigation cannot in itself address issues of equity. Many farmers in the irrigated areas assisted are not those in most dire need, although some may be quite poor. Irrigation cannot alone resolve problems of land tenure (63.5 percent of households own 10.5 percent of land; 9.8 percent own 59.5 percent); incentives for increased production; availability of agricultural inputs; or rural credit. Alone it neither can provide adequate technological packages for agriculture nor an effective extension service to deliver them. These problems of complementarity in improving agricultural production are clearly recognized in the Irrigation Master Plan's design, and irrigation's role is made clear. Dialogue at high levels is now underway between the Ministries of Agriculture and Water Resources, and between the GON and donors, to address these issues.

The very positive changes in GON policies also offer challenges. The high political profile of the irrigation targets could result in mechanistic attention to achieving unrealistic quantified goals, such as hectarage under new irrigation. Turning over irrigation systems to farmers' organizations, without providing adequate training and incentives, could lead to farmer frustration and lack of improvement in production. The desirable goal of improved water fee collections could prove inequitable for the tenant. Even improved production in the Terai could provide more food for the Indian market rather than in the hills, where it is needed. Increased production does not necessarily lead to greater purchasing power or consumption.

The macroeconomic crisis now facing Nepal, which has been acutely accentuated by the recent India Nepal trade and transit treaty dispute, has resulted in Nepali government deficits that cannot long be sustained. Even with improved relations with India, the next half decade will no doubt witness governmental fiscal stringency. The Irrigation Department's FY 1989/90 budget has already been cut 23% from about $63.2 million to $48.6 million. The possibility of the Government of Nepal maintaining past funding levels, let alone providing significant additional support for irrigation from its own resources, is remote.

Although the Irrigation Management Project was advantageously situated and timely, it too is now a constraint, for as demand for its services has increased, it has not been able to perform to meet the challenges under its current organizational structure.

These questions are raised to demonstrate that although the revised project has great potential capacity to influence policy and performance at relatively modest cost, it is not a panacea for the irrigation sector nor for the goals to which the nation aspires: greater food production and improved incomes for the rural poor.

C. THE NEW STRATEGIC FRAMEWORK

USAID's new strategic framework for irrigation programming in Nepal is designed to institutionalize critical capacity and activity within the Department of Irrigation. It is thus devoted to sustainability: enhancing the permanent capacity of the Department of Irrigation to manage its increased responsibilities beyond A.I.D.'s support, and to adapt to changing needs in the sector. It supports the sector programming approach by encouraging the DOI and other irrigation donors to engage in mutually reinforcing sector activities. And it aims directly at enhancing the opportunities for Nepali farmers, through water user organizations recognized as legal entities under the Government, to manage irrigation activities and relations with the DOI as a service-providing agency, in their own interest. Although this strategic approach recognizes that both [illegible] and expatriate technical assistance will be needed by the Department, it incorporates such assistance within the regular administrative framework of the Department of Irrigation and its Sector Program, jointly with assistance provided by other donors, rather than maintaining it as a separate, "projectized", and ultimately unsustainable element.

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USAID's original project identified several key elements needing support. These include: (1) building staff capacity through training; (2) fostering action oriented and practical research related to immediate needs and the training process; and (3) irrigation systems management, including support to effective water user associations, operations and maintenance (O&M), and monitoring, evaluation, and feedback (M&E). Through the redesigned Project, these will be developed within the Department's approved new organizational structure, and will have direct links with irrigation activities carried out at the regional and district levels. Close collaboration and mutually supportive activities with other donors will be an important element of the strategic framework.

These Functions will be included in a discrete Department of Irrigation organization: restructured Research/Training and Systems Management Units under the direct supervision of the Deputy Director General for the Planning Design and Research Division.

II. PROJECT DESCRIPTION: THE RESTRUCTURED IRRIGATION MANAGEMENT PROJECT

1. Goals and Objectives

The goal of the redesigned Irrigation Management Project is to improve the capacity of the Government of Nepal, through its Department of Irrigation, to respond to the increased national need for effective irrigation systems. Its purpose is to strengthen the Department's capacity to implement participatory approaches in irrigation management and farmer assistance programs by institutionalizing an in-house training institution and a departmental unit responsible for field directed activities. It will perform these roles through the establishment of permanent Research and Training and Systems Management Units within the Planning, Design, and Research Division of the Department.

The context in which this goal and purpose will be achieved is the widely held understanding of the necessity of improved irrigation systems management: farmer participation in irrigation; more effective operations and maintenance of existing systems within overall sector programming; and donor coordination and collaboration in the execution of projects and training activities. To these ends, A.I.D. will provide support for technical assistance, training, practically oriented field and action studies, and a limited amount of commodities.

The revised project is designed with greater flexibility than the previous effort, to encourage rapid response to new irrigation needs and to allow the Department to negotiate with other donors, on whom Nepal must rely for major support for new and improved irrigation infrastructure. Without administrative flexibility on the part of the DOI and USAID, any project designed to meet anticipated needs will fall short of its potential. Moreover, through institutionalization of key functions within the DOI itself, it will be capable of sustained effort after termination of USAID support.

2. End of Project Status

At the close of this project in 1994, USAID anticipates that the Department of Irrigation will have increased its capacity to respond to Nepal's irrigation needs:

For the Research and Training Component:

* By establishing an Research and Training Unit on a permanent basis within the Planning, Design and Research Division,

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* Providing administrative and fiscal flexibility in the administration of training needs,

* Appointing a professionally qualified Manager of the Research and Training Unit of appropriate rank with permanent status,

* Providing the appointment and posting of core professionally qualified staff,

* Having developed curricula, modes of teaching, and programs of in-service training through its own resources and in cooperation with other institutions recognized by the Government toward promotions,

* Having developed active collaborative links with Nepali and international training and research organizations,

* Having provided effective training programs after preparing relevant annual plans at regional, district, and central levels,

* Having developed and executed applied studies directly or through consultant assistance, externally reviewed for quality, that address priority issues in the irrigation sector,

* Having formed close collaborative links with other donors for assistance in meeting training needs.

For the Systems Management Unit:

* Establishing a Systems Management Unit in the DOI Division of Planning, Design, and Research staffed by a professionally qualified Manager, with permanent professionally qualified employees,

* Having the Systems Management Unit develop close support links with newly reorganized regional level Systems Management Sections, and augmented District Irrigation Engineers' offices,

* Ensuring this Unit's staff fully trained in the principles of Operations and Maintenance, Farmer Participation, and Water User Organization in consonance with the key policy themes of DOI operation,

* Completing Essential Structural Improvement activities at pilot irrigation sites, and developing and disseminating manuals and guidelines for ISI to field units,

* Completely turning over the Sirsia Dudhaura and the Handotar irrigation systems to farmers; application of improved operations and maintenance principles at these pilot sites, with lessons disseminated elsewhere through relevant operational procedures and guidelines,

* Assisting DOI field staff in forming and registering effective water user associations with support based on experience gleaned from the pilot, as well as other, irrigation areas,

* Having effective monitoring, evaluation, and feedback systems in place at the district and regional levels,

* Establishing close collaborative links with other donors.

This new approach eliminates the IMP as a separate entity, and thus will enable USAID to have more direct contact on a continuing basis with the Department as a whole, and especially with the Planning, Design, and Research Division as well as Regional and District systems management staff.

In sum, an effective redesigned Irrigation Management Project will institutionalize innovative and critical skills, knowledge, and relationships within a bureaucratic context where they are effective forces for improvement. The influence of this project is thus designed to radiate throughout the irrigation sector, responding to newly articulated needs expressed by the farmers, the Department, and the donor community.

3. Project Elements

The project is designed to provide support to two complementary elements within the Department of Irrigation: The Research and Training Unit, and the Systems Management Unit of the Planning, Design, and Research Division.

A. The Irrigation Management Center/ Research and Training Unit

The earlier stages of the Irrigation Management Project have produced limited accomplishments--its problems, as identified by

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its Midterm Evaluation, are due to a lack of institutionalization within the Department, inadequate expatriate technical assistance, over reliance on local contractors, and an insufficient vision of service opportunities to sector needs. The redesigned project anticipates correcting these deficiencies with a two-stage approach to institution-building and training support service (See Annex I for details): a short term response for a transitional period from project to an institutional unit within the Department, ending by July 1990; and an institutional phase from July 1990 until the end of the project in 1994.

The objective of the Research and Training Unit component is to improve irrigation performance through training and applied studies. It will implement training and applied studies programs for the Department as a whole. It will promote and carry out, primarily through local consultant contracts, an applied studies program designed to meet essential needs in the Department of Irrigation to overcome constraints in the irrigation sector.

It will have a variety of roles:

* To execute or administer the Department's training in support of irrigation sector activities especially regarding participatory management and agency turnover to farmer-managed systems, but also including intake and in-service technical training for DOI staff,

* To assess the current and future training requirements of the Department and its clients, and develop appropriate programs to meet them,

* To commission training and field oriented practical studies, the conclusions from which can be incorporated into training programs,

* To develop and maintain collaboration with appropriate national and international training and research institutes.

To perform these roles adequately, there are certain critical requirements for a training and applied research organization's success. Of vital importance are its position within the Department of Irrigation, its bureaucratic flexibility to respond to changing needs, and its staffing. After extensive discussions within the Ministry and the Department, USAID has concluded that the Irrigation Management Center which was to be established as a separate institution through the original Irrigation Management Project, should be absorbed into the Research and Training Unit, placed directly under the Deputy Director General (PDRD), and be staffed by an experienced Gazetted Officer.

Training and studies must be field oriented. Since the roles, functions, and prerequisites for the catalytic element in participatory management, the Association Organizers (AOs), are still in flux and are likely to continue to be disparate throughout the country, the RTU must be equipped to respond to these different needs by instituting diverse training modules for varying requirements at a number of sites. Thus, the project anticipates that many of RTU's essential functions will be executed at the district level.

The transitional phase of reorganization of the IMC should begin immediately, with the transition within NFY 2047/48 July 1990-July 1991). Two-year training and studies plans (always subject to reconsideration based on new needs) should be formulated to start on July 15, 1990, the beginning of the Government's fiscal year. This will be augmented by annual plans and budgets.

Expatriate technical assistance is required for project success. Both long-term and short term support will be necessary. Local technical assistance will be contracted to perform various specified tasks, as required. Technical performance capacity will be built within the Department and in the RTU to the extent possible.

B. The Systems Management Unit

The original concept behind the IMP Systems Management Unit (SMU) was to implement systematic operations and maintenance procedures; assist in formation of water user associations; and initiate monitoring, evaluation, and feedback procedures, essentially on three pilot sites. Two sites have already been chosen and assisted; Sirsia-Dudhaura and Handetar.

This component under the redesigned project is to be institutionalized into the Department at the center, and equally important, into the regional directorates and the district levels.

As per the proposed Master Plan for Irrigation Development, the SMU will become a part of the Planning, Design, and Research Division of the DOI. It will be led by a Manager (First Class rank). The unit and its components will be linked to the field

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through the Regional Directorates, which will have a Systems Management Section. At the District level and reporting to the Regional Directorate, the District Irrigation Engineer will be responsible for site-level activities.

The roles of the SMU include the following:

* Strengthening the WUAs by developing procedures for formation, registration, watercess collection, farmers' training, AO requirements, assisting in access to technical inputs and services, and formulating procedures for development of monitoring, evaluation, and feedback in such activities.

* Formulating O&M policies regarding the demarcation of responsibilities between farmers and the Agency for turnover and participatory management.

* Developing guidelines for undertaking the O&M learning process on physical improvements, including ESI activities.

* Developing maintenance guidelines for participatory management and for emergency assistance to farmer-managed systems, and those turned over to them.

* Using pilot sites to test methodologies of the SMU's various functions under different field conditions, and incorporating the results into policies and procedures, and into training modules and methodologies.

To perform these roles, the SMU must be integral to the Division and the Department, be staffed by career employees at appropriate levels, have the flexibility to undertake pilot site experimentation in collaboration with the RTU and regional and district offices, and maintain effective links with other divisions of the department.

Long and short-term technical assistance will be required from both expatriate and local sources. Masters degree-level and short-term training and study tours will be provided, as well as a limited amount of essential equipment. Also there is provision for in-country B.Sc. Engineering for upgrading the skills of experienced overseers with permanent status in DOI.

III. COST ESTIMATE & FINANCIAL PLAN

The following tables present the costs of the redesigned project, expenditures by categories and years, and contributions of GON. Some figures have been based on the original project' design, and funds remaining for the project as a whole have been calculated by USAID/N.

Previously Approved Project	$9,000,000
Expended & Committed Projection as of July 15, 1990	$3,978,133
Funds Available from Original Project	$5,021,867
Additional Funds to be Committed	$ 900,000
Total Funds	$5,921,867

[Table I & II USAID Planned Expenditures, for RTU & SMU is on the following page]

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Table 1

Planned Expenditures (US $'000)
Research & Training Unit

Category	FY'90	FY'91	FY'92	FY'93	FY'94	Tota
1. Technical Assistance						
a) Long-term Expatriate	20	240	240	220	0	72C
b) Short-term Expatriate	0	138	230	230	92	69C
c) Long-term Local	3	32	32	32	29	128
d) Short-term Local	0	20	26	20	13	79
1.1 Adminstration & Logistics Support Services	2	25	25	25	0	77
2. Training						
a) Long-term, MS	0	0	40	40	40	12C
b) Short Courses & Study Tours, Seminars, Conference, etc.	0	50	50	50	50	20C
3. Applied Studies	0	200	200	0	0	40C
4. Commodities	0	20	30	15	5	7C
5. RTU Operation Supp. Costs	150	120	80	40	30	42C
						2,904

Table II

Planned Expenditures (US $'000)
System Management Unit

Category	FY'90	FY'91	FY'92	FY'93	FY'94	Total
1. Technical Assistance						
a) Long-term Expatriate	20	240	240	100	0	600
b) Short-term Expatriate	0	69	115	92	69	345
c) Long-term Local	3	32	32	16	13	96
d) Short-term Local	0	4	6	5	4	19
2. Training						
a) Long-term, MS	0	0	30	30	0	60
b) Long-term, In-country BSc. Eng. for overseers	0	20	20	20	10	70
c) Short-courses/tours	0	30	30	40	30	130
3. Commodities	0	20	20	10	0	50
4. Construction [EST]	150	130	100	60	40	480
5. SMU Operation Supp. Costs	120	100	80	60	40	400
6. Evaluations(for RTU/SMU)	0	10	100	10	100	220
						2,470
Total RTU & SMU						5,374
Conting. & Inflation						548
						5,922

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Table III

Cost Summary (US$ 000)

	AID Grant FX	AID Grant LC	HMG/N* LC	HMG/N* FX	Total LC
Training					
Long-term (Overseas)	180	--	..	180	..
Short-term (Overseas)	330	..	..	330	..
In-Country(Long-term)	--	70	..		..
Applied Studies	400	..	..	400	..
TA, expatriate	2355	--	..	2355	..
TA, Nepali	..	322			322
Adm/Log. Support(TA)	--	77			77
Commodities	120	--	..	120	..
Construction, (ESI)	--	480	..	--	..
RTU Support	--	420	..	..	..
SMU Support	--	400	..		..
Evaluations & Audit	220	..	--	220	..
Conting/Inflation	358	190	..	358	..
Total	3963	1959	..	3963	..

TABLE IV

Planned AID Obligation Schedule (US$ 000)

Fiscal Year	Obligation	Expenditure	Pipeline
Until 1990	6880 [1]	4446	2434
1991	1000	1432	2002
1992	1000	1661	1341
1993	800	1086	1055
1994	220	1275	0

Note: [1] [illegible] obligated until FY90.

IV. IMPLEMENTATION PLAN

The redesigned Irrigation Management Project will have a substantially different mode of implementation from its predecessor. In place of a separate project with a Project Director and office, USAID proposes a sector mode calling for institutionalization of two separate entities within the Department of Irrigation, both reporting to the Deputy Director General (PDRD). This redesign will result in a more intimate USAID collaboration with a higher level within the Department.

Since the project will be integrated into the Department's operations, the Nepali fiscal year and budgetary process will play important roles in its operations. Thus, all evaluations have been scheduled for February, the period when the Department prepares its budget for the Ministry of Finance for the coming fiscal year beginning July 15 (see Evaluation Plan). This redesign calls for a semiannual report from the two organizations, coordinated through the Deputy Director General (PDRD), to USAID by February 1. This report then can be considered in the evaluation. An annual report on August 1, covering the previous fiscal year, will provide both fiscal and programmatic detail. USAID financial reimbursements and other fiscal and procurement actions will be tied to the consideration of these actions.

The previous Project Paper, because of a specificity that has proven spurious, offered only limited hope for innovation and timely responsiveness to the newly articulated needs of GON or the other donors in the sector. This Implementation Plan is designed to allow more scope for rapid response, for in that capacity lies the hope of institutional sustainability.

The fiscal methodology included in the original Project Paper [page 28] will be modified for this redesigned project as follows: direct AID contracting for expatriate technical assistance, participant overseas training, commodity procurement; and evaluations; and direct reimbursement to GON for local contracting and support costs.

A partial implementation schedule is included here for the critical transitional period for the redesigned project. Annexes 1 and 2 contain detailed information on IMC and SMU transformation. In August 1990, and in subsequent years upon the close of the Nepali fiscal year, USAID and the GON will prepare an implementation

plan for the coming fiscal year, which will allow USAID to incorporate detailed actions into the new US Government fiscal year beginning October 1.

The period prior to July 15, 1990 is critical, and will require more intensive monitoring by the Mission (see Section V). The following actions are required by the times indicated:

March 1990	Approve Project Paper Supplement. IMP and PDR Division Work Plans for 2047/48 reflect transition to sector support mode
April 1990	Sign Approved Project Agreement Amendment.
	- IMP Office is dissolved, its staff absorbed into the RTU or SMU, as appropriate, and its physical resources distributed between those two organizations.
	- USAID begins process of recruitment for long term technical assistance. (Arrival scheduled for September 1990).
	- Department establishes RTU and SMU, and staff assigned and/or recruited for both.
	- USAID and DOI determine detailed commodity requirements; USAID begins process of ordering commodities.
July 1990	
	- Department submits to Ministry of Finance financial needs to support redesigned project per Project Paper Supplement.
	- USAID and DOI meet to determine additional administrative/fiscal actions required for GON and US fiscal years.
September 1990	
	- Long-term expatriate technical assistance arrives in Nepal and begins functioning.

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V. PROJECT MONITORING AND IMPACT PLAN

Routine Project Implementation Monitoring

This project gains in potential program effectiveness what it loses in simplicity of normal USAID monitoring. With the elimination of the IMP project office, monitoring will be more Mission labor intensive over the short term.

Contact must now be maintained both with the RTU and the SMU, rather than with a single entity and individual. Close coordination will be necessary with the Deputy Director General (PDRD). Field monitoring in the past was limited to two field sites; it will soon have additional irrigation systems to monitor. The RTU and SMU organizations will reach into the regions and the districts, where it is important the USAID project manager have intimate knowledge of on-site conditions.

Most critical for the longer term, however, is the movement of the assistance concept from a project demarcated by defined irrigated hectarage to a program encompassing the total sector, and thus the nation. The Project Officer will in effect become USAID's sector manager, and his/her duties will entail intimate understanding of national irrigation issues as well as donor activities.

Under the restructured project, there must be closer and more frequent liaison with a wide range of individuals in the irrigation sector within the government and among the donor community. There must be more time spent in the field, gauging training needs and effectiveness, assessing participatory and jointly managed systems, and the turnover process to farmers.

The present project has been managed by one full-time Project Officer within USAID/N/ARD. A Rural Development Specialist within that office also spent a portion of his time on that program. Under the redesigned project, a full-time FSN Project Officer, together with a USDH Supervisory Project Officer, will be assigned to its administration. The first year will be spent dismantling the old project, establishing the new program, and developing procedures and systems for liaison with which all parties are comfortable. It will be management intensive. One and one-half person years will be necessary for this period; a somewhat reduced level of effort will be required for the remainder of the project.

Technical assistance personnel, both expatriate and local, long and short term, will be required to submit periodic or completion reports to both the unit within the Department to which they are assigned and to USAID.

Each project component within the Department will submit one semiannual report on February 1, which will be used for the annual evaluation (see Section VI, Evaluation Plan). The PDR Division will submit an annual report on August 1, delineating progress during the past fiscal year ending on July 15. This document will cover the activities of both the RIU and the SMU. It will be used in the preparation of an annual plan, which will include all expected implementation actions for that period.

Monitoring Project Impact

The previous project, with a goal devoted to increased food production, conceived of project impact in those terms. Thus crop cutting surveys were executed to demonstrate progress. The goal to which this redesigned project will contribute cannot be determined by project-sponsored research. It is the long term, cumulative effectiveness of irrigation systems and the increased agricultural production which stems from that effectiveness that will attest to its success and impact. It will not be statistically measurable in any meaningful way during the life of the project on the national level.

Impact of project purpose can be measured only in part. It may be necessary, but it is grossly simplistic only to consider the number of WUAs on the hectarage, or systems returned to farmers or jointly managed. Equally important are the quality and vitality of that participation and its effect on irrigation operations, and eventually on yields. The numbers may be easily ascertained, but as the "Constraints" section of this report notes (see Section I), there is the ever-present danger of attempting to meet quantifiable targets at the expense of quality and significance.

In a real sense, the entire RIU and SMU operations are in effect a continuous means for monitoring impact. Field studies will determine the effectiveness of training, and the retraining of certain groups will inevitably result in monitoring the effectiveness of their earlier training experience. As the SMU develops guidelines and operational criteria for irrigation associations, operations and maintenance, and close links with the districts through the regions, the mechanisms for evaluation and feedback into action will be an important component of that effort. Thus the project, as institutionalized in support of the irrigation sector program, is in itself a continuous, multi-faceted monitoring and evaluation system for irrigation management.

Impact evaluations (exploring project effects on beneficiaries) may be carried out, but they normally are done upon completion of the project unless evident problems surface. Although likely to be anecdotal, they may be able to ascertain the effectiveness of WUAs, and provide clues for areas of concern or success.

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VI. EVALUATION PLAN

USAID plans to conduct both annual and special evaluations to ensure continued adherence to project objectives, and to determine future needs and direction. These will be both internal and external reviews.

All evaluations will be conducted in February to ensure that the results are built into the Department of Irrigation's budgetary process. The Department prepares its budget in February and March, after which it is submitted to the Ministry of Finance for the fiscal year beginning July 15. This scheduling will guarantee that there is no hiatus in government budget allocations caused by inadvertence or oversight. In each case, the results of the evaluation shall be submitted to the Director General of Irrigation for review and action.

Each evaluation will consider progress toward institutionalization of the project elements and the extent to which they are servicing the sector and the Department. Evaluations should be conducted in collaboration with other players on the irrigation scene in Nepal. The evaluations should consider the specific benchmarks of progress that are listed below, and in more detail in Annexes 1 and 2 of this paper.

The following evaluations are anticipated and funds included in the financial plan:

February 1991. A joint, in-country evaluation to determine progress toward full institutionalization.

February 1992. An external evaluation to consider overall progress for the IMP.

February 1993. A joint, in country evaluation similar to that of February 1991.

February 1994. A final, external evaluation to determine progress toward achieving the End Of Project Status.

Total evaluation costs: $150,000.

Benchmarks

(For more detailed benchmarks, see Annex 1 [pp. 19-23], and Annex 2 [pp. 23-24]

1990

Previous project mode support terminated, and a transitional phase underway. DOE begins to take administrative steps to staff and house RTU and SMU, create permanent positions, and provide RTU and SMU with fiscal and administrative flexibility.

April 1990

IMP prepares NFY Work Plan for 2047/48 aiming at transition to sector support mode within PDR Division, and annual operational plans and budgets for NFY beginning July 15, 1990.

July 1990

Transitional phase begins. Institutionalization phase begun. Long-term technical assistance for RTU and SMU has been contracted for and is either in place or scheduled for early arrival. Training programs related to sector priority needs are underway. Studies relevant to training and implementation planned or under way. Third pilot site activities initiated. Reintegration of Sirsia-Dudhaura and Handetar irrigation systems into their respective District and Regional Directorates completed. HMG/N provides local support costs for RTU and SMU in new fiscal year budget.

February 1991

First joint evaluation held to determine progress toward institutionalization. Lessons are built into annual program and budget for RTU and SMU. Special attention is given to RTU and SMU activities carried out at regional and district levels.

February 1992

First external evaluation held. Evaluation concentrates on progress toward institutionalization, field service, training and implementation plans of both RTU and SMU. Results of evaluation are built into two-year plan for 1992-94.

March 1992

DOI budget reflects institutionalization of RTU and SMU organizations and activities.

February 1993

Second annual joint evaluation to determine progress toward objectives and ensure RTU and SMU are responding to sector needs.

February 1994

Second external evaluation scheduled to analyze progress toward end-of-project status, make recommendations for post-project planning, and coordinate with donors on anticipated needs in the irrigation sector. Project ends, with consideration by DOI and USAID of future collaboration, if any, in this field.

VII. CONDITIONS PRECEDENT

The following conditions precedent are suggested:

1. That the Department of Irrigation start the process of dismantling the Irrigation Management Project, and planning distribution of its assets to the RTU and the SMU in accordance with need, according to the recommendations of this Project Paper Supplement by August 1990.

2. That the Department of Irrigation agree to and devise an action plan to turn over the Sirsia-Dudhaura and Mandotar irrigation systems to their respective Regional Directorates by July 15, 1990.

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ANNEX I

IRRIGATION MANAGEMENT CENTER

1. Objective

The purpose of this component is to establish a unit in the Department of Irrigation (DOI) that will be responsible for meeting the training and applied studies needs of the DOI. The Irrigation Management Center was first implemented in the IMP with the expectation that this component of the project would be institutionalized within the DOI. As the demand for training and applied studies steadily increased, it became apparent that an appropriate institutional setting must be provided for IMC, as originally envisioned in IMP, to ensure its long term sustainability and growth.

1.1 Context

The long-term benefits of training and applied studies are well documented and demonstrated in other countries. It is now recognized that increased levels of irrigation performance require sustained training and problem-solving studies programs.

The need for a comprehensive program of Human Resources Development in Nepal has been realized by the GON through a recent Ministerial notification which assigned IMC a national role in developing and implementing a comprehensive country-wide irrigation training program. Moreover, various donors supporting the sector program have also acknowledged and assigned high level priority to training and applied studies as a means to ensure better performance and long term sustainability of irrigation systems. The Master Plan for Irrigation, currently in final review by the GON, places strong emphasis on training for DOI staff to support the new objectives of the Department.

IMC since its inception has played an important role in raising the level of awareness of the benefits of a participatory approach to irrigation management. This has been further reinforced by the New Irrigation Policy (1988) issued by DOI which calls for farmer participation in all stages of irrigation development, including capital cost recovery.

In the present changing environment, training is expected to play a pivotal role in transforming the DOI from a construction oriented agency to a more dynamic, management oriented agency, responsive and technically prepared to meet the changing needs in the sector.

1.2 Rationale

The IMC was initially established and organized as a component of the USAID funded Irrigation Management Project (IMP), which also comprised the System Management Division. It was envisioned that IMC would provide new skills for job fulfillment, create awareness, change attitudes, and alter motivations, as well as contribute to the base of training experience and materials available for irrigation systems management in Nepal. In addition, IMC was to carry out applied studies on irrigation issues for the DOI. Several constraints, however, have limited the IMC's ability to meet these expectations. The Mid-Term Evaluation analyzed these constraints and identified the lack of an appropriate institutional setting as a critical limiting factor to the development of IMC.

The operation of the IMC as a separate "project", outside the regular GON structure, has hampered its ability to appoint permanent staff and, thereby, the opportunity to provide higher education essential to upgrade their skills. The temporary project-appointed status of the professional staff has caused a high rate of turnover due to job instability, limiting the ability to capitalize on the field experience required to run an effective training and applied studies program. Questions about institutional capabilities and responsiveness have been answered by increasing the local TA presence to such a degree that IMC's DOI staff are out-numbered and under-utilized. Moreover, the IMC is seen as a place, rather than a resource, thus requiring training to be held at the center itself, instead of mobilizing staff and resources to conduct training in places more appropriate to the needs of trainees.

The current "project" mode of operation also complicates the functional administration of the IMC. The additional bureaucratic intervention imposed by the IMP management apparatus before reaching the decision-making level of DOI limits the degree of autonomy, freedom and independence of IMC. In sum, under the current project arrangement, the IMC does not have the ability to adapt, evolve and grow in order to meet the needs of DOI and the sector program.

The challenges brought about by the increasing priority given to the irrigation sector provide the IMC with a unique opportunity to play an active role and expand into a meaningful resource. In order to capitalize on this opportunity, however, the IMC must become fully institutionalized within the DOI to overcome the constraints currently limiting its capabilities.

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Regularizing the IMC will not remove all constraints. However, when absorbed into the DOI, the training functions now performed by the IMC will get the official recognition they now lack; and will be seen as central, rather than peripheral. HMG/N regulations will still pose limitations, but dynamic leadership can mitigate their effect. With high level leadership, and a clear vision of its mandate, the DOI will be able to overcome many of the operational difficulties which now pose problems. This leadership and adequate resources should enable the redesigned IMC to develop and respond to DOI needs.

Meanwhile, the DOI will need to reorient its training approach, improve its ability to utilize available resources, internal and external, and develop a sense of commitment. Redesign of the IMC, and institutionalization of the training functions, will directly address this need.

1.3 Specific Objectives

The objective of this redesign is to establish a permanent national institutional capability within the DOI to satisfy the training needs of the Department of Irrigation and the sector program. It also will administer an applied studies program designed to conduct problem-solving research on the constraints in the irrigation program.

Training will play a central role in the development of the human resources for improving irrigation management in Nepal. Training is a new activity within DOI, yet it has already played an important role in consciousness raising on irrigation management issues. The rapidly changing environment within DOI and the irrigation sector program, however, will generate a substantially larger demand for training and applied studies. This broader program will require DOI to develop a planning, programming, administrative and networking capability which can only be achieved with an adequate institutional arrangement.

2. Institutionalization of Training and Applied Studies Activities within the Department of Irrigation

After [illegible] review of several options, including registration under the [illegible]lopment Board Act, and the establishment of IMC as a separat[illegible] of the DOI directly under the Director General, it has be[illegible] clear that the most timely and effective measure will be to [illegible] IMC as an internal unit -- the Research and Training Unit -- of the DOI's Planning, Design, and Research

Division under the Deputy Director General, as envisaged in the approved reorganization design presented in the Master Plan for Irrigation. This will enable the IMC, in its new organizational form as the Research and Training Unit, to develop and maintain the close ties, and assured budget support, that it requires to sustain itself and remain responsive to DOI priorities

2.1 Research and Training Unit Structure and Roles

As proposed in the Master Plan for Irrigation's approved re-organization of the Planning, Design, and Research Division of the Department of Irrigation, the Irrigation Management Center will be incorporated into the new structure as the Research and Training Unit (RTU). (See Attached Chart) The RTU will be administered by a professional Manager of G-1 rank, reporting directly to the Deputy Director General (Planning, Design, and Research). The DDG (PDRD) also is responsible for administration of the Irrigation Sector Program at the central level.

The RTU will be composed of two sections: Training and Research. Documentation, audiovisual, and support services will be incorporated into these two sections to enable them to operate in a self-sufficient manner.

The following major functions will be performed by the RTU:

a) Assess current and future training requirements of the DOI and the irrigation sector;

b) Manage, coordinate and carry out all training activities required to meet the training needs of DOI and its sector program;

c) Promote and carry out applied studies related to the operational needs of DOI and future developments in the sector;

d) Develop and maintain collaboration with other appropriate national and international training and research institutions.

2.2 Functional Operation of the Research and Training Unit

The Manager (Research and Training) will be responsible for planning the training program in consultation with the various divisions of the DOI and other agencies and donors, and will oversee its execution.

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The Deputy Director General (PDR) will review and approve the annual training and applied studies budget; facilitate coordination between the divisions of the DOI and the Training and Research Unit (formerly IMC) for planning and implementing the training and applied studies program; and periodically monitor and evaluate the training and research program

The Manager (R&T) will be a First Class Officer within the DOI, and must possess extensive experience in irrigation development and management, and appropriate exposure to development of training and applied studies programs. This will provide the RTU with the leadership necessary to perform its functions and responsibilities.

Staff within each section will be encouraged to participate in both training and research activities. Dual involvement of the staff in training and applied studies will permit the trainers to capitalize on field experiences and lessons learned through applied studies to enhance the training and extend the concepts of participatory irrigation management. Training will be field oriented in order to serve the needs of the sector program. This requires linking training with applied studies to encourage sound and productive innovations in the training program. All training will strongly emphasize the use of participatory methods and field exercises.

In order to delineate responsibilities for developing and implementing training courses, the RTU will follow a task-force approach to the extent possible. Task-force members will be selected for each training course from RTU sections as required by the areas of expertise and services involved. The task-force will have a coordinator who will be responsible for planning, development and implementation of the training activity.

For each training activity, the assigned team will perform a needs assessment consistent with the requirement of the client population, design a training syllabus, prepare a work plan, training schedule and budget, arrange to contract for outside resource persons and logistics, oversee implementation of the training if it is not conducted in-house, and evaluate the training [illegible]. The team coordinator will be responsible for overseeing [illegible] these activities. A similar approach will be followed [illegible] planning and execution of applied studies.

2.3 Staffing

In order to implement the training and applied studies activities required to meet the needs of the Irrigation Sector Program RTU must be staffed with qualified permanent DOI personnel in appropriate disciplinary areas. The core staff required for the

training and applied studies program will consist of professionals. The staff may be offered the opportunity to undertake Masters' level training after one year of service to the RTU on condition that they agree to return to the RTU for a period specified by DOI.

The breakdown of the proposed staffing plan is as follows:

RTU Manager (Gazetted First Class)	1 PhD/MS Civ/Agric Eng.

Professional Staff [TO BE PROVIDED BY DOI]

3. IMPLEMENTATION STRATEGY

The conversion of IMC to RTU will take place in two phases: (a) an initial period between March and July 1990; and (b) the institutional development period between July 1990 and June 1994.

3.1 Phase I: Present to July 1991

The institutionalization of IMC to RTU can begin immediately by an GON administrative decision placing it into the fabric of the DOI directly under the Deputy Director General (PDR). This will permit other steps which will lead to full institutionalization of the RTU as the DOI's national training and applied studies arm. An early transfer into the DOI will allow timely budgetary and staff provisions as well as facilitate RTU's rapid integration.

In this period, the RTU will concentrate on staffing issues, reorienting its approach for the implementation of the approved training and applied studies program, and utilizing technical assistance as a stop-gap until DOI staff are in position to take over full responsibility for the program.

3.1.1 Deployment of Core Staff

Beginning as soon as possible, and continuing through the NFY 2047/48, the DOI will identify suitable professional staff to man the RTU and immediately begin the process of posting them. Where possible, preference should be given to transferring and, where required, giving permanent appointments to professional and support staff now at IMC, who have proved themselves capable during the implementation of the previous phase of the IMP.

3.1.2. Training Program

At the time of this redesign, the IMC has developed a training plan for the period July 1989-June 1990 that has been approved by DOI and the National Planning Commission.

Although it is not practical to change the training program approved by the DOI and the National Planning Commission for 1989-1990, the DOI should reorient its training significantly for the period beginning with NIY 2047/48 (July 1990). For instance, the training of Association Organizers (AOs) should be decentralized, using a Task Force Mobile Training Team strategy, where trainees and trainers can benefit from the field environment and prepare for circumstances the trainers will actually face while working. In addition, the AO program should consolidate and better integrate classroom and field modules to reduce logistical problems, make the teaching learning process more effective, and be more cost-effective. Finally, group discussions and case studies should be introduced to replace formal academic lecturing.

The RTU will expand its functions to organize, on a systematic basis, training programs for intake cadre and in-service staff, as recommended by the Master Plan for Irrigation. This part of the DOI's training program will be designed by the RTU staff, but implemented for the most part by accredited training institutions, such as the Institute of Engineering, the National Administrative Staff College, and the Institute of Agriculture and Animal Sciences. The DOI will continue the current IMP arrangements with these and other institutions for such training. In addition, the RTU will enter into contracts with other national institutions, local consulting and research firms, or with individuals, for provision of training required to meet DOI objectives.

Estimated aggregate training demand for this period for the irrigation sector as a whole is as follows:

Class	Duration (weeks)	No. trainees	
Farmer leaders	1	20	
AO	6	50	(30 on-going)
Overseers	3	45	
Engineers (various categories)	3	85	
Seminars	1/2	60	

The number of trainees envisioned in this schedule is an estimate of the aggregate demand of the DOI, ISP and IIC programs in Nepal during this period. To carry out this strategy, the RTU will use resources available in appropriate disciplines from donors in the sector program. A 6 member ISP-IA trainer team will be assigned by PDR.Division to supplement RTU resources in delivering a program dealing with the participatory irrigation management theme. The RTU will also take this opportunity to help build up its capabilities in this area by having staff work closely with resource persons, and by maximizing time spent in the field.

3.1.3 Applied Studies Program

The profound changes in staffing patterns, functions, and priorities that RTU will undergo during the first phase of the institutionalization process will demand a redirection of its current applied studies timetable. During this phase, the RTU will be required to scale down the applied studies program, concentrating on completing on--going studies, overseeing studies contracted out, and documenting lessons learned in the Sirsia--Dudhaura and Handetar SMD field sites.

3.1.4 Technical Assistance

The current local TA contract has been extended until the end of March 1990. During the transition phase, the RTU will require a significantly lower but more specialized TA input as no new applied studies will be planned or executed and the training program will focus on one specific subject area, participatory irrigation management. The TA package required for the period beginning in July 1990 will consist of a reduced number of specialized consultants to support the training program and complete the on--going applied studies. The following consultants, who will report directly to the RTU Director, will be required:

.. 1 Water Users Institutional Development Specialist.

.. 1 Training specialist.

.. 1 Irrigation management research specialist with strong background in participatory irrigation management action research.

3.2. The Development Period (July 1991--June 1994)

During this period, RTU will develop and implement a training and applied studies program to meet the requirements of DOI and the Irrigation Sector Program.

3.2.1. Deployment of Core Staff

The required permanent staff for RIU will consist of professionals, plus appropriate support personnel. These professionals will either be posted to RIU by DOI, or deputed from other agencies of GON. In addition, the DOI may choose to employ temporary contract staff either through local consultant firms or individually to meet specific professional needs for limited periods.

3.2.2. Training Program

The initial period of institutionalization will emphasize implementation of a training program that will meet the immediate needs of the DOI and irrigation sector program. The training will focus on the participatory approach to development and management of irrigation systems, and on specific technical areas in irrigation management. The training and applied studies plan proposed herein covers the first two years of RIU's operation and has been developed through intensive consultation with the donors in the sector program, primarily UNDP, The World Bank and the Asian Development Bank. Similar planning exercises will be held every two years.

The detailed work plans for training and research will be prepared annually, based on inputs from DOI divisions and the recommendations from an annual review and planning workshop.

The following categories of training will be provided during this period:

Association Organizers (AOs)

Period	1990-91	1991-92
No. of Trainees	120	170

The primary objective of the AO training program will be to provide the necessary skills to:

- Assist the organization of Water User Associations,
- Mobilize farmers' resources,
- Train WUA members,
- Assist the turnover process,
- Assist the joint management process,

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- Assist farmers in credit management,
- Assist farmers in construction and rehabilitation.

In order to minimize the logistics involved in training a large number of AOs and also to provide maximum exposure to the field sites, training activities will be decentralized to the maximum extent possible. Furthermore, the RIU will organize this training in collaboration with the training facilities and training personnel of other line agencies, i.e. ADB/N, DOA, and Panchayat Training Centers, and will coordinate the participation of TA personnel of the donors involved in the irrigation sector.

The duration of the training program will be approximately 6 weeks, including classroom and intensive field exercises.

Association Organizer Supervisors

Period	1990-91	1991-92
No of Trainees	30	50

The primary objective of this training is to provide the necessary skills to: (a) supervise, monitor and evaluate the activities of field AOs; and (b) provide the necessary technical support to AOs' activities as required. The training program will include field site visits in order to discuss and exchange experiences with AOs and DOI field staff. The duration of the training should be approximately 4 weeks.

Overseers

Period	1990-91	1991-92
No of Trainees	60	85

The objective of this training is to provide an orientation to the concepts of participatory management, turnover and specific irrigation sector project activities. In 1991-92 the concepts of appropriate design and construction technology, and O&M of irrigation systems will be included in the curriculum. The training will include intensive field exposure to these activities in both agency and farmer-managed irrigation systems.

In addition, a limited number of outstanding Overseers will be supported for B.Sc. level training within Nepal under this element of the redesigned project.

Irrigation Engineers

Period	1990-91	1991-92
No of Trainees	65	80

Initially, the objective of this training will be to expose Engineers to the concepts of participatory management, turnover and specific irrigation sector programs and its implementation. In addition to this, in 1991-92 they will be trained in the subjects of O&M of irrigation systems and on-farm water management.

Water Users Association Members

Period	1990/91	1991/92
No of Trainees	30	60

The objective of this training element is to build up the leadership and capabilities of the Water Users Associations' members so that they can facilitate the organizational process and to orient them on WUA regulations and irrigation sector support activities. This training will aim to capitalize on experienced WUA members who later can assist in a farmer to farmer experience-sharing process in other irrigation areas. The duration will be approximately 2 weeks and will be carried out at the Regional/District Level.

Seminars/Workshops

Seminars and workshops will be held on a yearly basis to review and plan the annual training and applied studies program, present and analyze particular topics of interest and discuss special programs to be implemented with the participation of other donors and agencies involved in the sector program.

3.2.3 Staff Development

The training designed to improve staff skills will be conducted locally, whereas the improvement of technical proficiency will be achieved through a combination of overseas training, [illegible] support to backstop the initial implementation stage of [illegible] training and applied studies program.

The trainers will attend specialized short courses overseas and work in conjunction with subject matter specialists to develop new teaching materials and adapt existing ones to Nepali conditions. The subject matter specialists will later assist the RTU in delivering the training program during the initial stage in Nepal.

With extension of the project to 1994, long term MS/MA level training will commence after the candidates have been employed for one year. This time period will enable the RTU management to evaluate the performance and aptitudes of the candidates for graduate studies.

3.2.4. Applied Studies Program

Directly or through local consultant assistance, the RTU will implement a modest applied studies program that will focus on specific sites and topics documenting the lessons learned in the participatory management and turnover areas undertaken by the System Management Unit of DOI.

The RTU staff, with the assistance of long and short term TA staff, will develop an applied studies agenda for the next two years and identify critical areas complementary to the SMU main themes. The studies will be executed primarily by professional consultants contracted by DOI, and administered by the RTU staff with the advice of the TA staff. The size of the applied studies program for this period should be kept small, in order to maintain high quality while utilizing available professional resources appropriately.

4. PROJECT INPUTS

4.1 Technical Assistance

Technical assistance is designed to provide support to the RTU in developing capability for the design and implementation of training, either through DOI resources or via outside contracts, and guiding the applied studies program. The TA will consist of short and long term local as well as expatriate expertise in conjunction with the TA provided by ongoing donor administered projects.

The project will provide 132 man-months of long term and 90 man-months of short term TA. The long term technical assistance consists of one Irrigation Management technical expert (expatriate) to assist in the development and implementation of the RTU training and applied studies program, participate in RTU training activities, and coordinate the short and long term overseas training for the RTU staff; one Senior Advisor (Nepali) on training and research organization; and one Social Scientist (Nepali) to assist the adminstrative support staff in guiding the training and research program.

The short term expatriate TA will assist the RTU Manager in the development of the RTU training program and applied studies. Local consultants will implement specific training activities as required by DOI. The breakdown of technical assistance is summarized in Table 1.1 attached.

Table 1.1

Level of Effort for Technical Assistance

Research and Training Unit

Position	Specialization	Man months	Cost (US$1,000)
Long-Term Consultants			
Irrigation Engineer (expatriate)	Irrigation System Management, operations and maintenance, On-Farm Water Management, development of training and applied research programs experience	36	720
Institutional Development Specialist (Nepali)	Establishment of training and research institutions	48	64
Rural Sociology Specialist (Nepali)	Development of program for participatory irrigation management	48	64
	Sub Total	132	848
Short-Term Consultants			
Farmers/WUA Organizations Specialist (expatriate)	Establishment of WUA organizations, participatory management, training development experience	4	92
O&M of Irrigation Systems Specialist (expatriate)	Establishment of operational procedures, performance evaluation, training development experience	6	138
On-Farm Water Management Specialist (expatriate)	Establishment of interdisciplinary on-farm irrigation management programs, training development experience.	3	69

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Developmental Communication Specialist (expatriate)	Production of Irrigation extension/dissemination materials, audiovisual technology, training development experience	2	46
Management of Irrigation Agencies Specialist (expatriate)	Planning and budgetary processes, institutional arrangements, personnel management, training experience.	3	69
Microcomputer Use in Irrigation Specialist (expatriate)	Use of microcomputers for irrigation operation, data base management, and administration. Microcomputer training experience.	3	69
Provisions for consultant services as needs arise.		9	207
Subtotal Short-term expatriate consultants		30	450
Irrigation Institutional Development Specialist (Nepali)	Establishment of training and applied studies programs in participatory management.	15	20
Training Specialist (Nepali)	Teaching methods, and teaching skills development experience	15	20
Library Development Specialist (Nepali)	Establishment of documentation, library management experience	6	8
Developmental audiovisual specialist	Establishment of audiovisual systems and production techniques	6	8
Provisions for local consultant services as needs arise		18	23
Subtotal short-term local consultants		60	79
Total short term consultants		90	510
	Total	222	1617

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Table 1.2

Technical Assistance
Research and Training Unit

Position	FY'90	FY'91	FY'92	FY'93	FY'94	Total
Long-term						
a) Long-term Expatriate	1/20	12/240	12/240	11/220	0/0	36/720
b) Long-term Local	2/3	24/32	24/32	24/32	22/29	96/128
Short-term						
c) Farmers/WUA Organizational Specialist (Expatriate)	0	2/46	0	2/46	0/0	4/92
d) O&M Irrigation System Specialist (Expatriate)	0	2/46	2/46	2/46	0/0	6/138
e) On-Farm Water Management (Expatriate)	0	1/23	1/23	1/23	0/0	3/69
f) Development Committee Specialist (Expatriate)	0	1/23	0	1/23	0/0	2/46
g) Management of Irrigation Agencies (Expatriate)	0	1/23	1/23	1/23	0/0	3/69
h) Micro-computer use in Irrigation Spec. (Expatriate)	0	1/23	1/23	1/23	0/0	3/69
i) Provision for Unidentified Consultant (Expatriate)	0	3/69	3/69	3/69	0/0	9/207
j) Irrigation Institutional Dev. Specialist (Nepali)	0	5/7	4/5	3/4	3/4	15/20
k) Training Specialist (Nepali)	0	5/7	4/5	3/4	3/4	15/20
l) Library [illegible]opment Special[illegible]pali)	0	3/4	3/4	0	0	6/8
m) Developmental Audio-visual Specialist (Nepali)	0	3/4	3/4	0	0	6/8
n) Provision for Unidentified Consultant (Nepali)	0	5/7	5/7	4/4.5	4/4.5	18/23
Total	3/23	68/554	63/481	56/517.5	32/41.5	222/1617

4.2 Training

A number of short and long term training opportunities will be made available to RTU permanent staff as a means to provide incentives and improve their technical skills.

a) Short Term Training or Study Tours

As part of the program designed to improve the professional skills and technical proficiency of RTU staff in specific areas of irrigation management, research, and training administration, the permanent staff will attend various short courses and study tours in the USA and in countries in the Asian region. In selecting the training institutions, careful consideration will be given to their experience and expertise relevant to the particular subject matter. A total of 26 man-months of short term overseas training or study tours will be provided by the project in areas related to RTU training and research responsibilities. These training elements are summarized in Table 1.2.

b) Long Term Training

This category of training refers to those RTU personnel who will be sent abroad to obtain Masters degrees. The candidates will attend universities in the USA or in countries in the Asian region. These Masters degrees will be in the fields of agricultural/irrigation engineering, rural sociology, agronomy and development communications. Training opportunities will be awarded only after the candidates have worked for RTU for at least one year and (a) have demonstrated considerable initiative and creativity both in training and applied studies, and (b) agree to return to RTU for a period of time to be determined by DOI. A total of 96 man-months of long term training will be provided by the project.

4.3 Commodities

Commodities will be provided by the project primarily to upgrade the existing equipment used for production of audiovisual modules and microcomputer systems for training design, administrative monitoring, and analysis of applied studies. Other items include water measurement equipment, office furniture and equipment, and basic technical books and periodicals for the reference library now located in IMC.

Table 1.3

Short Term Training

Subject	Person-Month	Cost ($1,000)
Farmer Participation and Organization	10	60
On-Farm Water Management	3	20
O&M of Irrigation Systems	4	40
Microcomputer Use in Irrigation Management	4	35
Developmental Communication	2	15
Trainers Training	2	20
Management of Irrigation Agencies	1	10
Total	26	200

5. END OF PROJECT STATUS

The RTU program aims at the development of a national institutional capability to provide: (a) a comprehensive training program that will meet all the training needs of DOI; and (b) an applied studies program that will address important issues affecting the development and management of irrigation in Nepal, especially as related to the themes of turnover and joint management of irrigation schemes. The following results are expected by the end of the project:

- The RTU will be fully institutionalized within the Planning, Design, and Research Division of DOI:

  i) A Manager (First Class Officer) with experience in administration of training and research activities appointed and in place.

  ii) Permanent professional core staff transferred from IMC, or appointed, and in place; and,

  iii) Appropriate contractual and other arrangements for professional services negotiated, and services ongoing.

  iv) Administrative and support personnel as required appointed and in place.

- Core staff proficiency developed in the design and implementation of training and research activities through in-service orientation and training. These staff will be in place and fully operational.

- The RTU develops a comprehensive and relevant training program designed to meet all the DOI training needs, utilizing both in-house capabilities and appropriate contractual arrangements with accredited institutions, qualified consulting firms, and highly experienced and qualified Nepali professionals;

- The RTU develops an applied studies program which will [illegible] the participatory management and turnover [illegible] as priority areas within the strategic framework [illegible] System Management Unit of the Planning, Design, and Research Division of DOI;

- The RTU implements an external review mechanism to ensure that the applied studies address the needs of improved irrigation management, and the outcomes are both properly documented and of high quality;

- o The RTU implements an appropriate mechanism to monitor and evaluate the impact of the training program.

- o The DOI, through the RTU, establishes formal institutional linkages with national and international training and research institutions in which specific activities and their implementation mechanisms will have been identified.

6. BENCHMARKS

March 1990

- o Transitional phase of institutionalization process underway and reflected in IMP Workplan for 2047/48.

- o IMC Director begins planning transition to RTU.

- o Local TA selection process underway for next phase of IMP project.

- o Relocation of IMP staff and assets begins.

- o Detailed implementation plan of training and applied studies program for 1990-1991 developed.

July 1990

- o Transitional phase of institutionalization process is underway, including:

  - i) Approval of RTU organization by HMG.

  - ii) Appointment of Manager, RTU (First Class), professional and administrative staff.

- o Local long term TA for period 1990/1994 contracted and in place.

- o Selection of short term overseas training opportunities and locations, and short term expatriate TA requirements for 1990-1991 determined.

- o Long term expatriate TA for 1990/94 contracted and scheduled for early arrival.

February 1991

- o First annual training and applied studies review workshop held.

- All arrangements for selection and placement of first MS long-term training program finalized.

- Yearly implementation plan for short term overseas staff training and short term expatriate TA for upcoming fiscal year completed.

- Detailed implementation plan for training and applied studies program for upcoming Nepali fiscal year completed.

- Formal collaborative arrangements with national/international institutions underway.

- Implementation of short-term overseas staff training and expatriate TA underway.

July 1991

- Training and applied studies plan for new fiscal year underway.

- Long-term training program for first MS/MA candidate commences.

- Collaborative actions with national/international institutions implemented.

February 1992

- External project evaluation held. Evaluation concentrates on progress toward institutionalization, training and applied studies plans.

- Second annual training and applied studies review workshop held.

- All regular annual planning exercises for upcoming fiscal year finalized.

- [illegible] arrangements for selection and placement of second [illegible] or MS long-term training program finalized.

July 199[illegible]

- Second 2-year training and applied studies plan completed.

- Long term training program for second group of MS/MA candidates commences.

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February 1993

- o Third annual training and applied studies review workshop held.
- o All regular annual planning exercises for upcoming fiscal year finalized.
- o All arrangements for placement of last group of MS/MA candidates finalized.
- o First MS/MA graduate program completed.

July 1993

- o Third annual training and applied studies review workshop held.

February 1994

- o Fourth annual training and applied studies review workshop held.
- o All regular annual planning exercises for upcoming fiscal year finalized.
- o Second group MS/MA graduate program completed and graduates in place.
- o Second external evaluation scheduled to analyze progress toward end-of-project status, make recommendations for post-project five year plan, and coordinate with donors on anticipated needs in the irrigation sector over the medium term.

June 1994

- o Project ends, with consideration by DOI and USAID of future collaboration, if any, in this field.

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ANNEX 2

THE SYSTEMS MANAGEMENT UNIT

1. Objective

The objective of this component is to strengthen the capacity of the DOI to implement its Sector Program by establishing a Systems Management Unit in the Department of Irrigation (DOI) responsible for guiding and overseeing the DOI's newly-adopted participatory approach to irrigation development and management. The approach was first introduced in the DOI on a trial basis in the Systems Management Division of the IMP, with the expectation that it would eventually be regularized within the DOI. Subsequently, the DOI has adopted the participatory approach in all of its activities. The draft Irrigation Master Plan proposes incorporation of a permanent Systems Management Unit to administer Operations and Maintenance, Water User Organizations, and Monitoring and Evaluation aspects of the Irrigation Sector Program. This component of the redesigned Irrigation Management Project, therefore, follows both from predecessor activities and from evolving policy directions within the DOI and the Ministry for Water Resources.

1.1 Context

With the promulgation of the Basic Needs program, which emphasized irrigation development, HMG/N assigned formidable new responsibilities to the DOI, which it reorganized in 1987 to incorporate irrigation elements of the Department of Agriculture (FIWUD) and the Ministry of Panchayat and Local Development (MPLD). This led to a thorough restructuring to enable the DOI to undertake a considerably broadened role. Whereas the DOI had previously been highly centralized, concentrating primarily on the construction of large-scale projects since the mid-1970s, the reorganization gave more responsibility to Regional Irrigation Directorates, created District Irrigation Offices, and redirected its attention to small and medium-sized schemes, in addition to large ones.

In 1989 the DOI issued its New Irrigation Policy, which called for farmer participation in all stages of irrigation development, including capital cost recovery. The Irrigation Sector Program, initiated in 1988, contained the first manifestations of the new policy. Its provisions for farmer involvement in rehabilitation and new construction, the eventual turnover to farmers of small and medium-scale schemes, and the

introduction of joint management in large scale schemes, all signaled a significant reorientation of DOI priorities and operations which recognizes the need for water users to participate actively in irrigation development and management. The new orientation was further articulated in the Irrigation Legislation 2045 and Action Plans for Turnover and Participatory Management, issued in 1989, concurrent with implementation of the World Bank-funded Irrigation Line of Credit, and the ADB's Irrigation Sector Project, both supported by UNDP-funded technical assistance.

1.2 Rationale

The policy statements and donor-funded field operations share common elements of IMP's SMD approach: emphasis on farmer involvement from the beginning; the use of field staff (Association Organizers) to organize farmers; and the assumption that the DOI will eventually relinquish O&M responsibility for part or all of the system.

The directions are clear, but procedures are not. Much work remains to translate policies into practices, and to develop procedures which facilitate the processes and lead to desired outcomes. However, no part of the DOI currently has responsibility for developing policies and procedures, advising or directing, or monitoring the participatory process The draft Master Plan for Irrigation assigns these functions to a re-organized Planning, Design, and Research Division reporting to the Deputy Director General (PDR).

The Mid-Term Evaluation of the Irrigation Management Project recommended that its Systems Management Division be absorbed directly into the DOI, as originally designed, instead of being maintained on a project basis. The project structure isolates IMP activities from the Department, making it difficult to transfer lessons learned, and exacerbating the "project" tendency to apply resource levels and procedures which cannot possibly be sustained in a broader program. Subsequent events have demonstrated very clearly the need for the DOI to assign internal responsibility for the participatory process, to institutionalize the functions of the SMD, lest the Sector Program turn into yet another series of "projects" which cannot be sustained. Consequently, the DOI and USAID/Nepal agreed to redesign IMP to transform the SMD from a "project" to a "program."

This redesign has been guided by recommendations of the Mid-Term Evaluation, particularly the statement of a "New Strategic Framework," which was reflected in the DOI's "Theme

Paper" prepared for the design, as well as briefing notes prepared by IMP consultants and other notes from IMP staff. In addition, this effort has benefited greatly from the organizational and procedural recommendations contained in the Action Plans for Turnover and Participatory Management (see Bibliography), which provide a basic structure for institutionalization.

1.3 Objective

The objective of this institutionalization process is to strengthen the capacity of the DOI to implement its Sector Program by establishing permanent units within the DOI which are responsible for establishing policies and procedures, monitoring, and implementing those elements of the program which deal with irrigation user participation and the improvement of operations and maintenance capabilities within irrigation systems.

The Irrigation Sector Program aims to improve irrigation performance by directing attention to management questions, as well as civil works. In existing systems, it aims to engage the active involvement of beneficiaries in rehabilitation works and the preparation of operations and maintenance programs, and then either transfer the systems completely to farmer groups or establish a joint DOI-beneficiary participatory management structure. New systems will introduce the participatory concept from the beginning. Four concepts are integral elements of the SMD approach: (1) securing the participation of farmers through water user organizations (WUOs) and associations; (2) developing technically sound and socially acceptable operational plans; (3) jointly undertaking a physical improvement program (Essential Structural Improvements,[ESI] in IMP terminology which has been adopted by the DOI) which supports the operational targets; and (4) establishing viable maintenance programs with clearly defined responsibilities. The Sector Program also has recurrent cost recovery objectives which were introduced through the SMD and will be the responsibility of the new Systems Management Unit of DOI.

The participatory concept is new for the DOI, and its processes are neither well-developed nor certain to lead to desired outcomes; thus institutionalization requires a strong field base to provide necessary experience for refinement and promulgation. Similarly, new field staff are/will be inexperienced, and regular DOI staff are not necessarily familiar with the participatory approach, convinced of its value or prepared to implement it. Strong, clearly articulated

direction from Headquarters and the Regional Directorates is essential for success. Consequently, SMU will be institutionalized at Headquarters, Regions and Districts. Similar capacity must also be developed in the Project Offices which manage large schemes under DOI or Development Board management.

2. Institutionalization of systems management activities within the Department of Irrigation

SMD will be institutionalized at three levels of the DOI corresponding to its three major functional levels: Center, Regions, and Districts.

2.1 Existing Structure and Roles

The structure of the DOI is still evolving since reorganization in early 1988. It has three basic functional levels:

Headquarters -- sets general policies, plans, approves programs and budgets, manages central level projects, and provides general supervision and oversight.

Regional Irrigation Directorates (RID) -- set and implement policies; review and aggregate District programs and budgets; manage regional projects, allocate budgets to Districts; assist Districts in scheme identification, preparation of feasibility studies and approval of designs; supervise and monitor District-level activities.

District Irrigation Offices (DIO) -- design and/or manage implementation/rehabilitation of farmer managed irrigation systems funded through the District Panchayat, manage small and medium DOI schemes, promote farmer participation through water user organizations.

Large-scale projects are implemented and managed as Projects through the DOI centrally, or through Development Boards, which effectively create parallel bureaucratic structures. These Projects have their own offices outside of the jurisdiction of District Offices. These schemes, and all new ones, are to adopt participatory management regimes.

DOI headquarters is divided into five divisions: Planning, Design, and Research; Small Irrigation and Water Utilization; Medium and Large Irrigation; Groundwater Utilization; and River

Training and Environmental Protection. In addition, there are an Administrative Division and Account Division. Regional Directorates have two administrative sections and three functional sections: Construction and Maintenance; Planning, Design and Feasibility Study; and River Training and Monitoring. District Irrigation Offices vary in complexity, roughly depending on the magnitude of DOI involvement in the District. All DIOs have a Small Irrigation Project and River Training Section; larger ones have an O&M Section and a few others also have a Groundwater Utilization Section. The reorganization also calls for the creation of a District-level AO, or AO Supervisor, but these positions have not been filled yet, and will be filled only in conjunction with implementation of the Sector Program.

Overall, the DOI structure contains many empty or vacant positions because of an actual shortage of staff due to hiring freezes, and because many staff are seconded to temporary positions in Projects. Headquarters, Regions and Districts are all under-staffed.

The overall hierarchy is dominated by ties between office heads. That is, the District Irrigation Engineers report to the Regional Directors, who report directly to the Director General. Communications from a division or section flow up to the office head and down to the head of the lower unit, then to a section, and vice versa. There are no direct functional ties between divisions or sections on different levels.

2.2 New Structure and Roles

The institutionalization of SMD as the Systems Management Unit within the DOI will require changes at all three levels, with roles and functions corresponding to the level. Projects are also expected to establish similar units. The whole structure must be involved because to establish a unit only at Headquarters will not affect field implementation, and having units only at the District level, the operational level, will not affect policy.

The S[illegible]ll initially be institutionalized as the Systems Management [illegible] in the Planning, Design Division of DOI, led by an Assist[illegible]retary level Manager. As outlined in the Organizati[illegible] for the PDR Division, the Unit will consist of three sections: Operations and Maintenance (O & M); Water User Organizations; and Irrigation Law. On the Regional level, a Systems Management Section will be created, led by a Senior Divisional Engineer. On the District level, a Water Users Unit will be created, led by the Association Organizer Supervisor.

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Project offices will also assign such responsibilities, presumably to units similar to their counterparts in the regular DOI hierarchy.

The SMU in DOI Headquarters will have the following functions:

1. Develop methodologies, procedures and guidelines for mobilizing farmer participation in irrigation systems through Water Users Organizations (WUO), which assume responsibility for operations, maintenance and resource mobilization;

2. Design, contract for consultant assistance for, and oversee pilot activities to test and refine Turnover and Participatory Management concepts for broad application;

3. Based on the results of pilot activities, develop procedures and guidelines and provide guidance and supervision to the Regional Irrigation Directories (RID) to implement the participatory approach in all new systems and in the Participatory Management, Turnover and Assistance to Farmer Managed Irrigation Systems (FMIS) programs;

4. Develop methodologies, procedures and guidelines for systematic operation and maintenance (O&M) for the Turnover and Participatory Management programs in both new and existing systems;

5. Monitor the implementation of these programs and update guidelines and procedures as appropriate.

The role of the SMU is that of advocate, resource and guardian of the participatory process in all DOI operations. Regional and District units will be clients, informants and colleagues of the SMU, as described below.

Assistance to FMIS programs is not a new concept in Nepal. The former District Engineers under the Ministry of Panchayat and Local Development had such a program, as did the Farmer Irrigation and Water Utilization Division of the Department of Agriculture and the ADB/N. However, it is new for the Department of Irrigation. Until the District Irrigation Offices were created during the recent reorganization, the DOI could only assist existing systems by taking them over entirely. Currently, however, the DOI is mandated to help create WUOs, or strengthen them if they exist, and to involve them in the planning, design, resource mobilization and construction of new systems, as well as constraint/need identification in existing systems. Upon completion of the work, the DOI then withdraws, leaving the system completely in the hands of the WUO.

The Water User Organization Section of SMU will be responsible for formulating policies and procedures to assist DIOs and Projects promote participation by forming and/or activating WUOs.

The principal agent in the WUO activity, both in the IMP/SMD and the Irrigation Sector Program, is the Association Organizer (AO), a field-based person whose role is frequently characterized as that of a "catalyst." The AO is employed by the DOI, either on direct time-limited contract or through a larger contract with a private technical assistance consultancy firm. He is tasked with working with farmers to help them organize and strengthen the organization, facilitating communication between the agency and WUOs, training WUO leaders/members, and monitoring WUO performance. This model for the AO role has been adapted from the "Community Organizer" model first developed in the Philippines and then spread to Sri Lanka and elsewhere.

The AO role is still being defined in Nepal. The IMP followed the above outline, but other manifestations of AOs have added other bureaucratic functions to the AO scope of work. In addition, the role of the District-level AO, or AO Supervisor sanctioned in the DOI's organizational chart, will surely become more bureaucratic than catalytic. The SMU will guide the evolution of the AO role to assure the integrity and success of the participatory approach, and to keep the role as modest as possible in order to ensure that the DOI does not unwittingly create an impossible manpower burden for itself. The AO role in Turnover and Assistance to FMIS can be expected to be temporary, but AOs may have permanent roles in the systems which adopt participatory management.

Specific responsibilities of the Water User Organizations Unit will be as follows:

a) Strengthen the AO program by defining the role of AOs and the content of their training, and developing procedures for placement, field operations, supervision and phasing out of the AOs under different management regimes;

b) Assist [illegible] implementation of Irrigation Regulation 2045 by devel[illegible] procedures for registration, watercess collec[illegible] and WUO activities, and arranging for appropriate training for DOI staff through the Research and Training Unit of the PDR Division;

c) Supervise and document the process of Water User Organization development;

d) Develop farmer training programs in close collaboration with the Research and Training Unit of PDR, as appropriate;

e) Develop programs to facilitate access of WUOs to credit, agricultural inputs and services to increase agricultural production;

f) Assist appropriate units of the DOI to develop Monitoring, Evaluation and Feedback systems (ME&F);

g) Monitor and assess the relative impact of different AO roles, and compare the relative overall impact of AOs with different functions, education levels, origins, and so on;

h) Pay special attention to developing procedures which assure that DOI staff strengthen traditional WUOs when Assisting FMIS, rather than create alternative, competing organizations.

In conjunction with the Turnover and Participatory Management programs, the WUO Section will help identify pilot sites, supervise the implementation of programs, test procedures and document results, and commission or undertake comparative studies of similar activities in other projects and systems. Out of this knowledge base, the Unit will develop guidelines and procedures to be followed by the Regional Directorates and District Irrigation Offices in implementing the participatory approach in all schemes under the DOI.

Staff. The Water User Organizations Section will be composed of one Social Scientist with background in rural institutions (Class II Gazetted Officer), two Assistant Social Scientists (III Gazetted Officer), and appropriate support staff.

2.3.1.2 Operation and Maintenance

The overall goal of the operation of an irrigation system is to achieve equitable, reliable and timely water distribution resulting in increased agricultural production. However, sustained success depends on the effective planning and execution of water distribution plans or procedures -- operation and maintenance.

The responsibility of the Operation and Maintenance Section is to formulate field-based procedures and guidelines and provide overall guidance to carry out the activities required for both the Turnover and Participatory Managed systems. These tasks include establishing guidelines and procedures for

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effective implementation of Essential Structural Improvement programs; develop field based, detailed operational procedures and manuals as required; developing plans for systematic maintenance programs for DOI schemes and guidelines for assistance to FMIS and turnover systems in the event of unforeseen damage caused by landslides, floods, and similar disasters. Staff should initially consist of a Management Specialist, an Irrigation Engineer (2nd class), two Assistant Agricultural Engineers and two Overseers.

2.4. System Management Sections (SMS) in the Regional Irrigation Directorates

The Regional Irrigation Directorate (RID) sets policies, guidelines and procedures for the District Irrigation Offices, monitors their activities, allocates budgets, and provides general oversight of district level activities The RIDs have three sections: Construction Monitoring; Planning, Design and Feasibility; and River Control and Monitoring.

The SMU's counterpart in the RIDs will be a Systems Management Section or a sub-section of the Planning, Design and Feasibility Section of the RID, depending on the ease with which a new section can be created. If it proves difficult to create a new Section, a Systems Management Sub-Section should be established in the Planning, Design and Feasibility Section, duplicating the placement of the SMU in the Planning, Design and Research Division at Headquarters, and providing a strong link between the two levels.

The Systems Management Section's functions would be similar to those of the SMU, but involve closer ties to the DIOs. In effect, the SMS will translate general guidelines and policies into more specific instructions to DIOs, and provide feedback to the SMU.

Similar to the SMU in overall mandate, the SMS will provide guidance and monitor implementation of the participatory process on the district level. The SMS will also have a more direct role than the SMU in implementing the Action Plan pilot programs.

The SMS will be staffed initially by reallocating personnel within the RIDs.

2.5 System Management Functions in the District Irrigation Office

The District Irrigation Office (DIO) is the implementing unit of the DOI of all field activities except for systems managed centrally and by Development Boards. They will be

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clients and informants for the SMU and SMSs, using procedures and guidelines prepared by the SMU, and providing feedback for improving them.

The structure of DIOs will vary according to the relative DIO workload, consisting of from one to four technical sections. Systems Management functions will be centered in a WUA and Operations Section, headed by an AO Supervisor.

DIOs are still evolving. Some DIOs will be actively involved in the Turnover and Assistance to FMIS programs, other DIOs which have very little irrigation and irrigation potential will have a simple structure and very little responsibility

The WUA & Operations Section will be headed by the AO Supervisor with responsibility for implementing the participatory approach in all DIO activities through other staff of the DIO. Specific functions are as follows, particularly with regard to the Irrigation Sector Program:

- o to promote participation by assisting the farmers to organize;
- o to assist WUA registration under provisions of Irrigation Regulation 2045;
- o resource mobilization;
- o assist WUAs linkages with other agencies to obtain inputs.

AO Supervisors and AOs are to be assigned to the DIOs concurrently with the implementation on the district level of the ISP or ILC, respectively, in different regions.

2.6 Systems Management Functions in Large Scale Projects

An SMS, or equivalent, will be established in all large projects managed by the DOI or a Development Board to perform functions similar to those identified above, paying special attention to participatory management issues, as these systems are expected to shift ultimately to that type of management regime. These units would communicate directly with the SMU at Headquarters, rather than through the RIDs.

3. Implementation Strategy

Nominal institutionalization of the Irrigation Management Project's SMD can take place immediately by transferring it into

the SMU that has already been created within the Planning, Design and Research Division. However, to institutionalize the functions currently in the IMP/SMD, and adjust them to correspond to the requirements of the DOI and the Sector Program, will take time. Given an adequate commitment by the DOI, the process can be completed in three steps.

a) Conclude IMP/SMD's "project" activities, consolidate lessons learned, collapse the current project structure, integrate essential elements into the SMU, and develop linkages with RIDs and DIOs;

b) Strengthen parallel units in the RID and DIOs, develop the SMU agenda, train staff to undertake required functions, and prepare preliminary guidelines and procedures with RIDs and DIOs; and

c) Expand the SMU's capabilities to undertake the full spectrum of required tasks through provision of staff and increased budget allocations.

3.1 Phase I: Consolidation and Relocation, present to 7/91

The first task of the IMP (and SMD) is to take steps which will transform itself from a project to a program support entity and permit the SMU to function productively before the end of the 2047/48 Nepali Fiscal year. These include the following:

- Prepare concrete programs for Sirsia-Dudhaura and Handetar which identify specifically what is required to complete the ESI program, and develop and implement O&M programs
  - in Sirsia-Dudhaura, reach clear agreements on future DOI/WUO responsibilities and authorities;
  - in Handetar, reach clear understandings on the mechanism and timing of turnover.

- Develop a plan for continuing support and monitoring of all project sites until 1994.

- Discuss with RIDs and DIOs, and reach agreement on, the method and timing of complete handover of the systems to them, including resources required to implement the programs cited above, necessary assistance, costs, and sources of budgetary support.

- With the support of the Director General, DOI, and direct involvement of the Deputy Directors General, especially the head of the Planning, Design and Research Division, develop a manpower deployment plan which will most efficiently

absorb the skills and experience of current IMP staff into the SMU, and distribute remaining staff elsewhere to enable the DOI to gain maximum benefit from their skills and experience. Identify SMU positions which IMP/SMD staff cannot be expected to fill satisfactorily, and appoint personnel to fill them.

- Immediately implement the manpower deployment plan and integrate the IMP/SMD budget into the SMU

- SMU prepares its first Annual Plan for the next Nepali fiscal year, including realistic targets and budget estimates.

- Under supervision of SMU, transfer Sirsia-Dudhaura and Handetar to their respective Regional and District offices and begin implementation of the support and monitoring plan.

- Each RID should prepare a staff reorganization plan which results in the creation of a Systems Management Section or Sub-Section, the assignment of staff to positions, a clearly established set of relationships between these staff and others in the RID, and identification of needed staff or skill development.

- Each RID should prepare a staffing plan and timetable for the establishment of WUA and Operations Units in DIOs, corresponding to the implementation needs of the ILC, ISP, Action Plans, or other activities which depend on the presence and functioning of AOs and SAOs.

- DOI prepares a general plan for implementation of the pilot programs contained in the Action Plans, including a timetable for developing methods for preparing site profiles and institutional analysis, and methods for developing agreements, undertaking ESI, and planning final status. Plan is discussed with respective RID and DOIs and modified according to agreements reached on implementation, support and monitoring roles and responsibilities.

- With the support of ILC Technical Assistance, SMU begins developing maintenance guidelines and programs for DOI schemes.

- SMU arranges and conducts joint SMU/RID/DIO workshops to discuss roles and responsibilities, identify lines of communication, clarify guidance, support, supervision, reporting and implementation requirements of each unit, and program regular meetings to establish communication within and between units to support the institutional learning process.

3.2 Phase II: Establishing and Strengthening the SMUs and District Units, July 91 to July 92

The second phase will concentrate on establishing units on the Regional and District levels, articulating the SMU agenda and developing an action program, and preparing guidelines and procedures. The first task of the SMU is to begin strategizing and thinking in a programmatic mode, developing priorities and approaches to fulfil its role as advocate, resource and guardian of the participatory process.

- SMU prepares an institutionalizing agenda which specifies its mandate, develops a realistic timetable for assuming responsibilities and producing outputs, and highlights achievable benchmarks.

- SMU prepares a long term Action Plan which specifies the responsibilities of staff for producing outputs, identifies required resources, and sets a clear timetable for matching resources and responsibilities to meet required outputs.

- SMU develops detailed implementation plans for activities contained in the Action Plans and creates working procedures with RIDs and DIOs for carrying them out.

- SMU develops guidelines for implementing the participatory approach in the Sector Program, specifying differences in new construction, Turnover, Participatory Management and Assistance to Farmer Managed Irrigation Systems, and develops a long-term program to test and update the guidelines.

- With SMU support, RIDs and DIOs establish counterpart units, develop mutually compatible work plans, and begin functioning.

- Based on staffing patterns and capabilities, SMU works with the Research and Training Unit of the PDR Division to develop training programs appropriate to the needs of vario[illegible]its.

3.3 Phase [illegible] Managing the Participation Process, July 92 onwar[illegible]

Once the SMU and its counterpart units are established and functioning, The DOI will devote attention and resources to increasing their capabilities to guide, oversee and manage the participatory approach.

Table 2.1

Level of Effort for Technical Assistance

Systems Management Unit

Position	Specialization	Man months	Cost (US$1,000)
Long-term Consultants			
Irrigation Engineer (expatriate)	Irrigation System Management, operations and maintenance, Cost Recovery, On Farm Water Management, Microcomputer use for Operation of Irrigation Systems	30	600
Community Irrigation Specialist (Nepali)		36	48
Social Specialist (Nepali)		36	48
	Sub Total	102	696
Short-Term Consultants			
Irrigation Operations Engineer (expatriate)	Establishment of Maintenance procedures and performance evaluation gudelines for irrigation	5	115
Irrigation Maintenance Engineer (expatriate)	Establishment of Maintenance gudelines, procedures for diagonosis, planning and implementation	5	115
Water-Law Specialist (expatriate)	Irrigation institutions, administrative requirements and legal requirements	2	46
Provision for consultant services as need arise (expatriate)		3	69
Provision for consultant services as need arise (local)		15	19
	Sub Total	30	364
	Total	132	1060

Table 2.2

Technical Assistance Schedule
Systems Management Unit

(Person Month)
Cost (US $'000)

Position	FY'90	FY'91	FY'92	FY'93	FY'94	Tota
Long-term						
a) Long-term Expatriate	1 20	12 240	12 240	5 100	0 0	30 600
b) Long-term Local	2 3	24 32	24 32	12 16	10 13	72 96
Short-term						
c) Irrigation Operation Specialist (Expatriate)	0 0	2.5 57.5	2.5 57.5	0 0	0 0	5 115
d) Irrigation Maintenance Specialist (Expatriate)	0 0	2.5 57.5	2.5 57.5	0 0	0 0	5 115
e) Water-Law Specialist (Expatriate)	0 0	1 23	1 23	0 0	0 0	2 46
f) Provision for Unidentified Consultant (Expatriate)	0 0	0 0	1.5 34.5	1.5 34.5	0 0	3 69
g) Provision for Unidentified Consultant (Nepali)	0 0	5 7	4 4	3 4	3 4	15 19
Total	3 23	47 417	47.5 448.5	21.5 154.5	13 17	132 1060

- o SMU and its counterpart units establish clear linkages, and smooth working relationships.
- o Annual workshops are held on the regional and national level to review progress and highlight successes and additional needs.
- o Regular training programs are implemented, using the "Task Force" approach whenever appropriate.
- o Sector Program activities are monitored and evaluated to identify lessons learned and improve guidelines and procedures.
- o Guidelines and procedures are revised and updated, in light of experience.

4. PROJECT INPUTS

4.1 Technical Assistance

Technical assistance for this component of the redesigned Irrigation Management Project will focus not only on SMU requirements at central level to complement the TA provided through UNDP funding but also will assist in the establishment of SMS at regional and district levels. This technical assistance will support field activities in conjunction with the TA provided by UNDP for projects funded by the World Bank and Asian Development Bank.

The project will provide approximately 102 person-months of long term and 30 person-months of short-term TA. Long term technical assistance will consist of 1 Irrigation Engineer qualified in irrigation systems management (expatriate) and 1 Community Irrigation Specialist (Nepali). Both long term TA will be stationed in Kathmandu to assist in the establishment of SMU and the development of its programs but will spend considerable time in the field supporting regional and field staff.

The short term TA will consist of 15 person-months of foreign experts to provide expertise in specific fields related to SMU activities and 15 person-months of local consultant services mainly to support field activities.

4.2 Training

The Systems Management Unit staff at Headquarters, Regional

Directorates and District Irrigation Offices will receive training under this project specifically designed to strengthen staff contributions as individuals and as teams to develop and implement system management programs. Some staff will be sent abroad for Masters level degree training, short courses and study tours. Some staff will receive Bsc. Engineering training in-country for upgrading the skills of experienced overseers. In-country training will be provided through the regular procedures of the DOI, managed by the Training and Research Unit of the PDR Division.

4.3 Commodities

The office equipment, field equipment, and vehicles provided to SMD through the original Irrigation Management Project will be reallocated to the SMU by DOI. Additional equipment will be purchased under the redesigned IMP to support Systems Management Unit activities at Headquarters, Regional Directorates and District offices.

4.4 Construction

In order to consolidate the activities undertaken in the jointly managed systems, limited funding will be provided the Systems Management Unit to continue with an ESI program at the Chandra Canal field site, and a maintenance program for a limited period, complementing rather than substituting for the regular O&M budget of the District Irrigation Offices.

4.5 Operating Support

Over the duration of the project AID/N will fund some of the operating costs of SMU, such as a portion of the costs for the contract professional staff and AOs in the field sites and AO Supervisors in some of the locations where the participatory approach is being implemented. AID/N support for these costs will steadily decline while the HMG/N share will increase so that by 1994 HMG/N will be responsible for all recurrent costs.

5. END OF PROJECT STATUS

* System Management Unit is permanently established in the DOI Division of Planning, Design, and Research staffed by a Manager (first class), and composed of three sections: Operations and Maintenance, Water User Organizations, and Irrigation Law, all staffed with permanent employees,

* SMU has developed close links with reorganized regional level Systems Management Sections, and augmented District Irrigation Engineer offices,

* Staff engaged in Systems Management activities appropriately trained,

* Adequate budgets allocated by HMG/N to support Systems Management activities at center, regional, and district levels,

* System turnover at Handetar and participatory management at Sirsia Dudhaura and Chandra Canal sites function successfully.

* Effective water user associations formed with support from DOI Field staff and Systems Management Unit, based on experience from the IMP pilot activities as well as other irrigation schemes,

* Close collaborative links established with other donors,

* Detailed operational procedures and manuals to implement the O&M process developed and used in the implementation of irrigation management Action Plans,

* Guidelines to prepare maintenance plans and budgets developed and adopted by DOI,

6. Benchmarks

<u>July 1991</u>

* A System Management Unit (SMU) is set up within Planning Design and Research Division of DOI

* Staff appointed and in place

* IMP staff relocated as appropriate

* Long term TA contracted and in place

* Sirsia-Dudhaura and Handetar irrigation systems reintegrated administratively into their respective districts and regional directorates.

<u>July [illegible]</u>

* Guidelines for implementing the participatory approach in different components of the sector program completed and disseminated to DOI offices nationwide

* Detailed plans for implementation of Action Plan pilot programs developed

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July 1992

* Documentation completed for Sirsia Dudhaura and Handelar sites, and "lessons learned" disseminated

* SMU has established clear linkages, clear expectations and smooth working relations with regional and district units, as well as with other elements of DOI organization.

February 1992

* External evaluation on progress towards institutionalization completed.

February 1994

Second external evaluation to analyze progress toward end-of-project status, coordinated with evaluation of RTU component.

ANNEX 3

LOGICAL FRAMEWORK

I. Program or Sector Goal

To improve the capacity of the Government of Nepal, through the Department of Irrigation, to respond to the increased national need for effective irrigation systems contributing to enhanced food production [1].

[1] Note: The original Irrigation Management Project Paper called for the goal "to increase the total agricultural production from irrigation systems in Nepal." Because irrigation is a necessary but not sufficient condition of improved production, and increased production will not necessarily contribute to increased Nepali consumption, the project goal is redefined for clarification because of these obscured causal relationships, not because of a rejection of the earlier goal.

Objectively Verifiable Indicators

1. Irrigation effectiveness improves as measured by percentages of actual system coverage in both summer and winter seasons.

2. Farmer involvement, a prerequisite for effective irrigation in Nepal, is expanded through formation and registration of water user associations.

Means of Verification

1. HMG/N statistics on percentages of system area actually receiving sufficient water in both seasons.

2. HMG/N statistics on: 1) turnover systems to WUAs; 2) jointly managed systems that were completely state controlled; 3) traditionally farmer managed systems; (4) registration of water user associations.

Important Assumptions

1. HMG/N continues to stress Basic Needs approach to increased grain production.

2. HMG/N provides sufficient local resources to carry out program.

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3. HMG/N continues to stress O&M, WUAs, and other reforms

4. Donor support for irrigation reforms continues at high level.

2. Project Purpose

To strengthen the Department of Irrigation's capacity to implement participatory approaches in its irrigation management and farmer assistance programs by institutionalizing an in-house training institution and a departmental unit responsible for field-oriented activities.

End-Of-Project Status

Research and Training Unit:

1. Established on a permanent basis at division level with a permanent manager and appropriate permanent staff and status, and with fiscal and administrative flexibility.

2. Developed curricula and modes of training, with in-service training recognized by HMG/N as credit toward promotions.

3. Collaborative links with internal and external training and research organizations.

4. Delivered effective training programs at all appropriate levels with staff fully utilized.

5. Formulated and executed annual and biannual training and studies plans.

6. Close symbiotic relationships established with other donors in the irrigation field.

7. HMG/N provides sufficient local resources to cover operating costs of the Center.

System Management Unit

1. A permanent unit established within the DOI's Planning, Design, and Research Division appropriately staffed by professionally qualified career employees.

2. Effective monitoring, evaluation, & feedback systems built into the unit.

3. Appropriate and effective activities carried out at pilot sites with results applied in other systems and in training programs.

4. Close collaborative links established with other donors

5. Close integration of headquarters, regional, and district activities.

6. Testing and application of improved operations and maintenance activities undertaken, with some in place.

7. Pilot sites operating effectively turned over to Farmers or to joint Farmer-Agency operation.

Means of Verification

1. Joint DOI-USAID evaluations

2. 1992 external evaluation.

3. HMG/N reports.

Important Assumptions

1. HMG/N will take necessary steps to approve of institutionalization with assignment of permanent staff at appropriate levels.

2. HMG/N will approve a flexible management system to enable the organizations to operate effectively.

3. Field-oriented research can influence irrigation policies and training.

4. Close supportive links will be maintained between center, regions, and districts.

3. Outputs

Research and Training Unit

1. RTU established at Division level with appropriate permanent staff.

2. Region-oriented practical studies carried out by permanent staff and qualified professional consultants and incorporated into training.

3. Training programs executed at capacity levels and demonstrably effective.

Magnitude of Outputs

1a. Manager of RTU is Class One officer.

1b. RTU has appropriate fiscal and administrative flexibility.

2a. Training programs carried out at various levels with approximately 500 individuals trained during the first two years.

2b. Training recognized by HMG/N and donors as providing essential services in meeting Nepalese needs, and funding for core activities increasingly provided by them.

Systems Management Unit

1. A unit within the Planning, Design, and Research Division established.

Magnitude of Outputs

1a. A permanent Manager assigned with core permanent staff.

1a. Data on effective levels and criteria for WUAs and the AOs is fed back into DOI activities and training at appropriate levels.

Means of Verification

Through periodic evaluations and data collected from DOI and other donors.

4. Inputs

1. Training

RTU:	Long-term training, 96 months.	
	Short-term training, and Study Tours	26 months
SMU:	Short-term training Study tours	17 months

2. Technical Assistance

RTU:	Long-term, 132 months
	Short-term, 90 months
SMU:	Long-term, 102 months
	Short-term, 30 months
	Local technical assistance

3. Commodities

RTU:	$70,000
SMU:	$50,000

5. Construction

SMU:	$480,000

6. RTU Operations	$ 420
7. SMU Operations	$ 400
8. Project Evaluation	(see evaluation plan)

Means of Verification

Audit reports, site visits, annual evaluations, HMG/N reports to USAID/N semiannually and annually.

ANNEX 4

PROCUREMENT PLAN

Commodities

USAID has already supplied (or has on order) the essential commodities for the operation of the Irrigation Management Project. These include materials for the current IMP Office as well as the IMC and SMD. As the project is transferred to direct support of the Irrigation Sector Program in the Planning, Design, and Research Division of the Department of Irrigation, the physical assets of the Project Office will be distributed to the two project elements, the Research and Training Unit and the Systems Management Unit, which will become the components of the restructured project. Until the Department of Irrigation approves this restructured project, the actual allocation of each item of these assets to the RTU and SMU cannot be determined. Therefore this plan cannot provide the specificity possible in a new Project Paper.

The redesigned Irrigation Management Project will require additional equipment, however, to support expanded and more important central operation.

Of the $965,000 estimated for commodities in the initial IMP PP approval, $430,000 remained unspent and uncommitted on October 1, 1989. $50,000 for SMU and $70,000 for RTU is proposed for commodity procurement the remaining fund is reporgrammed for other activities. The RTU will require training and operational equipment, some of which has been identified by the IMC. The SMU will need greater mobility to communicate directly with sites in the field, and should have enhanced computer capacity, especially in dealing with watercess collection and other issues.

Upon project approval and the appointment of senior staff to each organization, USAID/Nepal and the Department of Irrigation will jointly prepare a revised procurement plan with appropriate specificity.

Services

Expatriate technical assistance under the original Irrigation Management Project, as the Mid Term Evaluation Report demonstrated, was inadequate from a number of standpoints, and local technical assistance was spotty. The new programming opportunities and mode within the Department call for a new, and more effective and efficient, set of technical assistance services.

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Upon approval of the redesigned Irrigation Management Project by HMG/N, USAID/Nepal will contract for long term expatriate and Nepali technical assistance, and together with the Department of Irrigation will begin identifying specific professionally qualified individuals and institutions who might be contracted for longer term assignments, or for specific short term tasks, related to the operations of the Research and Training or the Systems Management Units within the Planning, Design, and Research Division of the DOI.

ANNEX 5

(ATTACH EXECUTIVE SUMMARY PORTION FROM IMP MID TERM EVALUATION REPORT)

ANNEX 6

(ATTACH SCOPE OF WORK OF IMP REDESIGN)

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ANNEX 7

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ANNEX 8

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