

**FIRST QUARTER PROGRESS REPORT
Kirindi Oya Irrigation and Settlement Project**

PROJECT IMPACT EVALUATION STUDY

March, 1994

**International Irrigation Management Institute
Colombo, Sri Lanka**

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CHAPTER I

INTRODUCTION

1.1 Context for the Study

The study of the assessment of the benefits and the evaluation of the impact of the Kirindi Oya Irrigation and Settlement Project (KOISP) is being carried out under two Project Impact Evaluation Study Agreements, dated 29 December 1993, between the Director of Irrigation, Department of Irrigation, Colombo for and on behalf of the Government of the Socialist Republic of Sri Lanka' (GSL) and the International Irrigation Management Institute (IIMI), Pelawatte, Colombo.

In para 28 of the Memorandum of Understanding of the KOISP Phase II ADB Review Mission, June 1992, it was agreed to carry out a detailed and comprehensive impact study as an expansion to the originally envisaged post-evaluation study of the KOISP. According to the MOU, the study should assess and quantify the direct and indirect benefits and possible negative effects of the Project. The study should also formulate measures to enhance the benefits of the investments and mitigate or minimize negative effects.

This present Progress Report is a product of the International Irrigation Management Institute and is based on the Terms of Reference which were prepared by SLFO-IIMI by the end of 1992. The Project Impact Evaluation Study is a collaborative effort between IIMI and the Agrarian Research and Training Institute (ARTI) with the former having the overall responsibility. The two institutes share the responsibility of hiring and fielding the experts. Consultants from Ruhunu University have also been engaged by IIMI through a research contract to undertake the crop and livestock component of the study.

1.2 Objectives of the Study

The Impact Evaluation Study aims to assess the overall effects of the interventions as implemented under the KOISP. More specifically, the objectives of the study will be:

- 1) To identify and measure KOISP output and trends.
- 2) To measure the project benefits and evaluate the impact of the project.
- 3) To conduct a benefit-cost analysis of the KOISP.

¹ Through Asian Development Bank loan funds under the Technical Assistance Agreement (Loan No. 794-SRI (SF): KOISP (Phase II) Project between the GSL and the ADB.

Ad 1) The identification of outputs: specific physical outputs as produced by the project (e.g. new settlements, new irrigation infrastructure, woodlots etc.) will be identified and described in the study.

Ad 2) The measurement of benefits and the evaluation of impacts: attention will be given to three areas, viz. agriculture and livestock, the population in the project area and the environment and natural resources. The population will be differentiated in order to demarcate the impacts of the project on the specific beneficiary groups.

Ad 3) For the cost/benefit analysis of the project tangible and intangible benefits and costs will be included to conduct a with vs without analysis.

In addition, general lessons will be derived from the conclusions of this study, which may contribute to improvements in future irrigation development and land settlement projects and to improved policies in these areas.

CHAPTER II

THE KIRINDI OYA IRRIGATION AND SETTLEMENT PROJECT

2.1 Land Settlement in Sri Lanka

Land settlement and land development in Sri Lanka dates back to the 19th century. During the 1930s, the Dry Zone became the main focus for government development programs and policies. The most important strategy was the opening up of irrigated settlements to achieve the following objectives:

- increase food production, particularly by opening up irrigable land;
- relieving population pressure of the densely populated wet zone as well as the southern parts of the country by shifting the landless unemployed population to the dry zone areas in which land and irrigation water could be provided;
- provision of employment opportunities to the increasing population;
- protection of the peasant farmers as a class;
- promotion of agricultural development in general.

A review of land settlement policies in developing countries shows that the benefits of settlement schemes are not invariably positive. Land settlements are costly, yielding low rates of return as productivity levels are far below potential. They are administratively top heavy, suffer from internal social problems, very often resulting in a fairly high rate of physical desertion. The Sri Lankan case confirms this general picture (Economic Review, 1986).

It is within this setting that the KOISP impact assessment is being undertaken. The study will attempt to evaluate the performance of the KOISP Project in terms of the above objectives, and its impact on the beneficiaries as well as on the general economic and social conditions in the project area.

2.2 The Kirindi Oya Irrigation and Settlement Project: Phase I and Phase II

The KOISP is the largest irrigation and settlement scheme in the South of Sri Lanka implemented under the land settlement policy of the Government of Sri Lanka. The broad objectives of the scheme were the same as for other settlement schemes in Sri Lanka and thus consistent with the government's major economic plans.

The scheme is located in the dry zone of the southeast quadrant of Sri Lanka about 260 km from Colombo, and is an expansion of the old Ellegala system, a very old irrigated area. During the 19th century, the Ellegala diversion was constructed in the Kirindi Oya to divert water to five ancient and previously independent tanks: Deberawewa, Tissawewa, Yodawewa, Weerawila Wewa and Pannegamuwa Wewa.

The expansion plans were formulated in the 1970's. The KOISP was funded by three external donors - the Asian Development Bank (ADB), the Kredietanstalt fur Wiederaufbau, the International Fund for Agricultural Development (IFAD) - and by the Government of Sri Lanka. The loan was released in 1978 and the project was inaugurated in 1979. Because of substantial cost overruns due to implementation delays and local inflation, the project was reformulated in 1982, when two phases were proposed Phase I from 1982 to 1987 and Phase II from 1988 to 1993. The total initial funding amounted to US\$ 51.8² million, while Phase I included supplementary funding of US\$ 28.0 million. Phase II budgets amounted to US\$ 33.1 million. The revised total project cost were estimated at US\$ 106 million. The objectives of the KOISP will be summarized in the next section (2.3).

During the reformulation of the KOISP, project components were changed and new components were added. At the last appraisal of 1986, the project included the following 9 components: (1) irrigation and drainage works; (2) land settlement; (3) agricultural support services; (4) marketing; (5) support for participating banks; (6) livestock; (7) woodlots and homestead lot planting; (8) environment and (9) project monitoring and benefit evaluation.

The executing agencies of the project were the Irrigation Department (ID) and the Land Commissioner's Department (LCD), both under the Ministry of Lands and Land Development (currently, the Ministry of Forestry, Irrigation and Mahaweli Development). The ID was the principal executing agency responsible for irrigation system construction and settlement infrastructure construction. The LCD's main responsibility was the settler selection and subsidies. Other agencies involved were the Department of Agriculture (DA) (research, agricultural extension, seed production and training), the Irrigation Management Division (IMD) and other institutes such as the Central Bank of Sri Lanka and the Forestry Department. These institutes were responsible for specific components of the project. The ARTI performed the functions of project monitoring and benefit evaluation from 1982. The management and coordination bodies of the KOISP consisted of the Central Coordinating Committee (CCC), the Project Coordinating Committee (PCC), the Project Director (ID), the Project Manager (Settlement) and the Project Manager (Irrigation).

IIMI has been involved with the project since 1987. With ADB support, IIMI's involvement has been primarily in undertaking (action-)research studies to diagnose the constraints to improved irrigation systems performance of the KOISP. The major components of the Irrigation Management and Crop Diversification (IMCD) Project were: (1) development and implementation of a seasonal allocation plan; (2) improvement of main canal operations; (3) management of the main system maintenance; (4) institutional strengthening; (5) tertiary maintenance management; (6)

² ADB:US\$ 20.0 million; KFW/IFAD: US\$ 25.3 and the GSL US\$6.5 million.

seasonal planning and coordination of agricultural inputs; (7) tertiary operation during land preparation; (8) tertiary operation during growth period and (9) efficient use of scarce water to maximize production (IIMI, 1991).

2.3 KOISP - Objectives

The objectives and scope of the KOISP have been described in the three project appraisal documents (1977, 1982 and 1986) and refer on the one hand to broad socio-political and economic objectives, and on the other hand to more specific irrigation, settlement and agricultural objectives. The broad socio-political and economic objectives as formulated in 1977 remained valid during the re-appraisal of the project and can be summarized as follows:

Socio-Political and Economic Objectives

- increased food and fiber production (to reach self-sufficiency esp. in rice);
- generation of employment (construction, farm labor);
- foreign exchange savings to improve the balance of payments;
- settlement of landless people (to reduce the population pressure in the wet zone, to exploit the human resources of the peasantry and to improve the position of the peasant cultivator, more equitable land distribution);
- increased income for project beneficiaries through irrigation, improved crop management and livestock development.

Environmental and Public Health Objectives

Aspects of the environment and public health received attention during the appraisal of the project, and are associated with the creation of the reservoir, conversion of secondary forest area to settled irrigated cultivation and with the introduction of new settlers in the area. In 1977 the net environmental and health effects of the project were assumed to be positive and were to be realized by a) watershed management; b) erosion control and c) construction of drainage facilities to prevent the appearance of waterborne vector diseases, so that in combination with wells, the morbidity and mortality rates would be reduced.

In the appraisal document of 1982, the environmental and health effects were expected to be neutral or positive, and the report specifically mentions the goal to minimize negative environmental effects (e.g. by the proper use of agrochemicals by the farmers). This statement is reiterated in 1986, and has become one of the explicit objectives of the project (ADB, 1986):

- to prevent further environmental degradation associated with chena cultivation, by proper land use and application of appropriate farming systems.

Settlement and Irrigation Objectives

The general objective of the settlement policy of the Government of Sri Lanka is to raise the economic and social status of rural people, particularly the peasantry: the small farmers and the landless. The settlement goals of the KOISP have changed over time, to correspond with the insights into the development of the project and the actual availability of the water for the system.

In 1977, it was planned

- to settle **8,320** farm families in **32** hamlets and villages with the necessary infrastructure (roads, public health, education, rural water supply, cooperative stores, community services);
- to provide irrigation facilities to **8,409** ha. of new land;
- to improve the irrigation facilities for **4,525** ha of the existing system (Ellegala: **3,734** ha and Badagiriya: **850** ha).

The revised goals of the project under Phase I and Phase II were as follows:

Phase I (1982)

- to settle **4,200** farm families with the necessary infrastructure;
- to provide **4,191** ha with new irrigation facilities (8,775 minus 4,584³);
- improved irrigation facilities for **4,584** ha.

Phase II (1986)

- to settle **4,200** farm families with the necessary infrastructure;
- to provide **4,200** ha with new irrigation facilities.

Agricultural Objectives

The goals for agricultural development were based on the provision of irrigation to new lands and improvements to the irrigation facilities in the old area, but these changed as the project was being constructed. The initial objectives in 1977 were:

- double cropping of rice in the lowlands;
- non-rice crops on the uplands (cotton, pulses) in the dry season (Yala) and subsidiary (OFC's) crops (pulses, cereals) in the wet season (Maha);
- a cropping intensity of 184%.

³ The figures for the old and new area do not correspond for 1977 and 1982.

Phase I (1982)

- double cropping of rice in the lowlands;
- one rice crop in the wet season on the upland and intermediate soils followed by subsidiary crops in the dry season;
- a cropping intensity of 200%.

Phase II (1986)

- lowlands: one rice crop during the wet season and 50 per cent paddy and 50 per cent subsidiary crops during the dry season;
- intermediate lands: paddy during the wet season and subsidiary crops during the dry season;
- uplands: 80 per cent rice and 20 per cent subsidiary crops during the wet season and 100 per cent subsidiary crops during the dry season;
- a cropping intensity of 170 % .

CHAPTER III

KOISP: ASSESSMENT OF IMPACTS AND EVALUATION OF BENEFITS

3.1 Introduction

The KOISP covered a wide range of activities over its life span with impacts on a wide range of fields. This means that it will be virtually impossible to measure all of the resultant benefits and project impacts through this study. Therefore, priority will be given to the assessment of selected benefits and evaluation of their impact. Among the areas for detailed study are agricultural (crops and livestock) production, irrigation, employment and household income, and impact on forestry, wildlife and environment. Other aspects such as sanitation and water supply, education, regional development, health, etc. will also be covered by the study, but at a lower level of detail.

Water for irrigation from the Lunugamvehera Reservoir has been available for the last seven years; the first water issue to the new areas was made in Yala 1986. However, some components of the project were implemented very recently. The impact of these late interventions cannot yet be measured as yet. Therefore, the final benefits and impact of the KOISP cannot be determined by the this study.

In the next section the components of the KOISP selected for detailed impact analysis will be discussed.

3.2 Scope of the Study - Main Components

The KOISP impact assessment study will have the following main components:

- irrigation systems development, operation and maintenance;
- land development and settlement, infrastructure and socio-economic conditions;
- agriculture and livestock development;
- forestry and environment;
- institutional development, project management and beneficiary participation;
- cost-benefit analysis.

Irrigation System Development, Operation and Maintenance

This component will be implemented by SLFO-IIMI and will cover the following aspects:

- an assessment of the physical structures of the KOISP:
 - water storage, water conveyance and water distribution structures;
 - drainage and supporting structures;
 - land levelling and layout;
 - construction schedule;
 - maintenance practice and cost breakdown.

- an assessment of the area cultivated under the KOISP:
 - cropping intensity.

- an assessment of the resource base of the KOISP:
 - inflow and outflow to/from the reservoir;
 - reservoir storage;
 - area irrigated.

- an assessment of the hydrologic and agronomic conditions under the KOISP:
 - rainfall, evaporation and temperature;
 - S&P values;
 - canal losses;
 - RBE and LHG soils;
 - water quality, water logging and salinity;
 - flow measurement.

- an assessment of the organization and technical aspects of O&M:
 - personnel and changes;
 - resource base;
 - managerial aspects;
 - rules, regulations and policy;
 - socio-political aspects;
 - support services.

- as assessment of the seasonal and in-seasonal allocation in KOISP:
 - planning, scheduling;
 - implementation and M&E;
 - communication.
- an assessment of the training component of the KOISP:
 - officials;
 - farmers;
 - FRs.

Land Development and Settlement, Infrastructure and Socio-economic Conditions

This component will be implemented by the ARTI and will broadly cover the following elements:

- an assessment of the immediate benefits of land development and settlement under the KOISP on:
 - settler families, women and youth in the Newly Developed Area;
 - farmer families in the Old Developed Area;
 - employees in the private sector and
 - the people of Sri Lanka.
- an assessment of the socio-economic conditions (both pre and post project) of beneficiaries and an evaluation of the long term impact of land and infrastructural development on:
 - agriculture in the area;
 - people of the area, inc. special groups such as women and youth; and
 - the environment.
- an assessment of infrastructure development under the KOISP, including roads, education, health drinking water and other facilities.

Agriculture and Livestock Development

This component will be implemented by the Ruhunu University and will broadly cover the following elements:

- an assessment of crop production under the KOISP:

- rice (distribution, production increase, yield trends, performance, technology adoption)
 - OFC's (crop diversification, distribution trends, production increase, yield trends, technology adoption);
 - cropping index;
 - intensity of chena cultivation;
 - development mix (extension contacts, credit, inputs, marketing);
 - constraints (water, salinity, inputs, stray cattle).
- an assessment of the livestock production under the KOISP:
 - neat cattle (milk production, distribution, yield trends, stock improvements, adoption of technology);
 - buffaloes (milk production, distribution, yield trends, stock improvements);
 - pastures and fodder crops (area, production, carrying capacity);
 - services (extension, veterinary, marketing);
 - constraints (lands, water, storage).
- an assessment of the farms under the KOISP:
 - resource base (land, crops, animals, labor, machinery);
 - system instruction (cropping pattern, crop-livestock integration, risk management);
 - farm income (farm budget, cost of production, returns).

Forestry and Environment

This component will be implemented by SLFO-IIMI in collaboration with the Forest Department. It covers:

- an assessment of the forestry activities under the KOISP:
 - project outputs (nursery development, woodlot development, homelot development, live fencing, extension services, fuel efficient cookstove);
 - benefits to settlers (yield of firewood, round poles, timber, reduction of drudgery in gathering fuelwood);
 - forests in the project (forest cover, reforestation, illicit clearing and chena Cultivation);
 - Lunugamvehera National Park (elephant relocation, farmer elephant conflicts)
- an assessment of the environmental impacts of the KOISP:
 - disturbance in the lagoon ecology;

- Bundala bird sanctuary;
- soil erosion and silting of waterways;
- modification in hydrology of the old EIS;
- salinity hazards.

Institutional Development, Project Management and Beneficiary Participation

This component will be implemented by SLFO-IIMI and includes the following aspects:

- an assessment of the project management of the KOISP:
 - project management mechanisms of the existing agencies;
 - responsibilities of the agencies;
 - coordination arrangements;
 - monitoring and evaluation of project progress;
 - technical assistance arrangements to project components;
 - identification of strengths and weaknesses.
- an assessment of the institutional development component of the KOISP:
 - development of government institutions for the new settlers;
 - development of institutions for the management of the new infrastructure
- an assessment of the project beneficiary participation in the KOISP management:
 - project management arrangements;
 - newly developed institutions.

Cost-Benefit Analysis

This component will be implemented by SLFO-IIMI and will cover:

- an assessment of the benefits and costs of the KOISP:
 - direct and indirect benefits;
 - direct employment benefits;
 - direct and indirect costs;
 - foreign exchange savings;
 - economic and financial evaluation.

CHAPTER IV

IMPLEMENTATION ARRANGEMENTS OF THE STUDY

4.1 The Project Impact Evaluation Agreements

On December 29, 1993 the terms of reference for the KOISP impact assessment study were approved by the Irrigation Department and two Project Impact Evaluation Contracts were signed by the ID and IIMI. Contract (1) specifies the study tasks of IIMI, including the sub-studies for crop production, livestock, forestry and environment. The topics as covered under the contract are the following:

Topics	Institute Responsible
Irrigation	IIMI
Forestry and Environment	IIMI
Project Management	IIMI
Benefit-Cost Analysis	IIMI
Crop Production	Ruhunu University
Livestock	Ruhunu University

The Project Impact Evaluation Study Contract (2) determines the responsibilities of IIMI in collaboration with the ARTI, and will cover the following topics:

- Land Development and Settlement
- Infrastructural Development
- Socio-Economic Conditions

4.2 Overall **Strategy** and Coordination

IIMI has appointed two coordinators to guide the study, one senior researcher from the SLFO and one research associate from the IIMI Headquarters. The coordinators are responsible for the supervision of all aspects of the study. This will include administrative and logistic support, conduct of workshops, coordination of special studies, financial management and the conduct of coordinating committee meetings.

The study coordinating committee meetings will be held monthly or when necessary. This committee is expected to provide overall guidance and supervision to the study. It will address all issues and problems relating to the implementation of the study and the preparation of the reports.

At the field level, the ARTI will be the coordinating agency for the large sample survey. Enumerators hired by IIMI and Ruhunu University will work under the overall

supervision of the senior ARTI researchers during the conduct of the large sample survey.

With IIMI's and ARTI's presence in the KOISP for a substantial period, the study is able to draw from a wealth of information from the previous studies undertaken by various researchers of the institutes. In this respect, the baseline survey (pre-project socio-economic conditions, ARTI, **1983**) and the mid-project evaluation (ARTI, **1988**) are of importance in evaluating the impact of the KOISP on its intended beneficiaries. For the irrigation component, IIMI's studies on Irrigation Management and Crop Diversification (ADB Technical Assistance Study, Phase I and II) are an important source of data.

The research frameworks in respect of all components of the impact assessment study have been drawn up. These provide a detailed account of the research topics. These frameworks have been determined on the basis on the existing data on the KOISP, and are summarized in the previous chapter (Section **3.2**, Scope of the Study). In addition to synthesizing this secondary information, the impact study envisages collection of data through extensive field studies (participatory and rapid appraisals, special studies, large scale sample survey). In order to avoid overlap by the deployed field teams, IIMI has ensured coordination by streamlining the large scale sample survey, which will be conducted jointly by research staff of IIMI, Ruhunu University and the ARTI.

Prior to the signing of the contract between the Irrigation Department and IIMI, the members of the study team had preparatory meetings to design the survey and discuss the study plans. Meetings took place on a regular basis at the SLFO, Colombo. On March **10,1994**, a workshop was held in the project area itself, in order to interact with the local implementing and supporting agencies involved in the development of the KOISP. Representatives from the Irrigation Department, Department of Agriculture, Land Commissioner's Department, Irrigation Management Division, Forestry Department, Mahaweli Dairy Project, Agrarian Services Department and Divisional Secretaries of Tissamaharama and Lunugamvehera were invited to review the research plans with the study team. This interchange of information is expected to greatly improve the quality of the impact assessment study.

Once the field teams are on site, it is expected that IIMI -in addition to the regularly held coordination meetings- will organize more task-force type of meetings with the representatives of the different study teams.

4.3 Implementation Schedule

This study will be carried out over a period of ten months, starting officially **29 December 1993**. However, preparatory meetings of the study teams and recruitment of research staff took place, prior to the signing of the contracts between IIMI and the ID.

The first stage of the impact assessment (inclusive of the period before December 29, 1993) consisted of the formulation of the various research components, formulation of detailed workplans through discussions, firming up of the collaboration between the three research institutes ARTI, Ruhunu University and IIMI, and finalizing of the Progress Report. The refinement of the large sample survey, including the pre-testing of the questionnaire, was an important activity during this period. The mid-March workshop with the local officials involved and the commencement of the large sample survey marks the end the first stage of the impact assessment.

During the second stage of this study, most of the field work will take place. This will occur during March, April and May. Field activities are based on the detailed workplans finalized in the first stage.

Stage 3 of the impact assessment process will be the analysis of the data collected from the field. This will lead to a Draft Final Report in September, consisting of a detailed description of all components of the KOISP impact assessment, including a synthesizing chapter which sets out the lessons learned from the irrigation and settlement experience of the KOISP.

Work Plan Schedule

	January	February	March	April	May	June	July	August	September	October
Preparation of Questionnaire for Large Sample Survey	XXXXXXXXXX									
Revision of Questionnaire and its various components		XXX								
Finalization of Questionnaire, Recruitement of FAs, Pre-test of Questionnaire		XXXX								
Revision of Questionnaire			XX							
Workshop			X							
Large Sample Survey			XXXXXXXXXX							
Analysis of data of various components					XXXXXX					
Special Studies: Crops & Livestock Environment & Forestry						XXXXXX XXXXXX				
Analysis and Preparation of Draft Reports							XXXXXXXXXXXXXXXXXX			
Finalization of Draft Reports									XXXXXXXXXX	
Workshop										X
Final Report										XXXXX

4.4 Reporting Plan

A Progress Report --i.e., this present document-- is being presented by IIMI within three months after the start of the Project Impact Evaluation Study (31.03.1994). This report contains an overall workplan for the study period. By June 30,1994, the second quarter Progress Report will be presented, with an overview of the previous quarter's activities and accomplishments. A Draft Final Report will be prepared and the end of the third stage (30.09.1994), in which the results of the study will be analyzed and a preliminary assessment of the impact of the KOISP will be presented. These results will be presented in a workshop with the various implementing and supporting agencies and other interested officials to solicit their suggestions and comments. Subsequent to this workshop, the Final Report will be submitted in October and will present the study results, lessons learned from the KOISP experience, and recommendations for the improvement of irrigation and settlement projects in general and the KOISP in particular.

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APPENDIX 1
PROJECT IMPACT EVALUATION STUDY AGREEMENTS (1 & 2)

FORM OF AGREEMENT

PROJECT IMPACT EVALUATION STUDY CONTRACT(1)

KIRINDI OYA IRRIGATION AND SETTLEMENT PROJECT

"THIS AGREEMENT" is made and entered into by and between Director of Irrigation, Department of Irrigation, Bauddhaloka Mawatha, Colombo 07, (hereinafter referred to as "the Client") which term of expression as herein used shall as and where the context so requires of admits mean successors in the said office for the time being, and the officers who, for the time being, are acting in the Office of; or are performing the functions now exercised by, the Director of Irrigation acting herein for and on behalf of the Democratic Socialist Republic of Sri Lanka, on the ONE PART AND ^{INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE} Office. at 127, SUNIL MAWATHA, PEAWATTE, VIA, COLONAO (hereinafter sometimes referred to as "the Consultant" which term or expression as herein used shall as and where the context so requires or admits mean and, include the said ^{INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE} its successors and permitted assigns) of the "OTHER PART."

WHEREAS the Client wishes to engage the Consultant to carry out an Project Impact. Evaluation Study Contract(1) of Kirindi Oya Irrigation & Settlement Project upon the terms and condition hereinafter set. forth in the conditions of contract; and

WHEREAS the Consultant is willing to provide the services necessary to carry out the Project Impact. Evaluation Study Contract (1) upon such terms and conditions,

NOW THEREFORE the parties hereto hereby agree as follows;

The Consultant shall carry out the Project Impact Evaluation Study Contract (1) as described in the Term of Reference annexed as Appendix II upon the terms and cunditions hereinafter set forth in the Conditions of Contract and Complete it within ^{THREE HUNDRED} days.

The Client shall pay to the Consultant remuneration in respect of the services and provided for the Project Impact Evaluation Study Contract (1) at the rates agreed upon by the Consultant and Client as set out in Appendix III upon the terms and conditions hereinafter setforth in the conditions. of Contract.

This Agreement shall be governed by the laws of Sri Lanka IN WITNESS WHEREOF K. Yoganathan as the Director of Irrigation, Department of Irrigation, acting herein for and on behalf of the Democratic Socialist Republic of Sri Lanka, has set his hand, and the said ^{INTERNATIONAL} ~~MANAGEMENT~~ ^{IRRIGATION} ~~INSTITUTE~~ has caused set his hand and its Common Seal to be affixed, hereinto and to two others of the same tenor and date as these presents as Colombo on this .. 29th .. day of .. December .. One Thousand Nine Hundred and Ninety Three.

Nanda Abinayadana

 The Common Seal of
 INTERNATIONAL IRRIGATION
 MANAGEMENT INSTITUTE
 is affixed hereto in the
 presence of:

C. S. Kariyawasam
 Who do hereby attest the Sealing
 thereof Witness:

1. Signature *C. S. Kariyawasam*
 Name *C. S. Kariyawasam*
 Address *.....*

K. Yoganathan
 Common Seal of Director
 of Irrigation for and on
 behalf of the
 Democratic Socialist
 Republic Sri Lanka
 is affixed hereto in the
 presence of:
Eng. K. Yoganathan
 Director of Irrigation

2. Signature *J. W. M. R. T. Seiner*
 Name *J. W. M. R. T. Seiner*
 Address *Irrigation Department*

FORM OF AGREEMENT

PROJECT IMPACT EVALUATION STUDY CONTRACT(2)

KIRINDI OYA IRRIGATION AND SETTLEMENT PROJECT

"THIS AGREEMENT" is made and entered into by and between Director of Irrigation, Department of Irrigation, Bauddhaloka Mawatha, Colombo 07, (hereinafter referred to as "the Client") which term of expression as herein used shall as and where the context so requires or admits mean successors in the said office for the time being, and the officers who, for the time being, are acting in the Office of, or are performing the functions now exercised by, the Director of Irrigation acting herein for and on behalf of the Democratic Socialist Republic of Sri Lanka, on the ONE PART AND INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE Office at 127, SUNIL MANSAPPA, PELAWATTE, VIA COLOMBO (hereinafter sometimes referred to as "the Consultant" which term or expression as herein used shall as and where the context so requires or admits mean and include the said INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE its successors and permitted assigns) of the OTHER PART.

WHEREAS the Client wishes to engage the Consultant to carry out an Project Impact Evaluation Study Contract(2) of Kirindi Oya Irrigation & Settlement Project upon the terms and condition hereinafter set forth in the conditions of contract; and

WHEREAS the Consultant is willing to provide the services necessary to carry out the Project Impact Evaluation Study Contract (2) upon such terms and conditions.

NOW THEREFORE the parties hereto hereby agree as follows;

The Consultant shall carry out the Project Impact Evaluation Study Contract (2) as described in the Term of Reference annexed as Appendix II upon the terms and conditions hereinafter set forth in the Conditions of Contract and Complete it within THREE HUNDRED days.

The Client shall pay to the Consultant remuneration in respect of the services and provided for the Project Impact Evaluation Study Contract (2) at the rates agreed upon by the Consultant and Client as set out in Appendix III upon the terms and conditions hereinafter set forth in the conditions of Contract.

This Agreement shall be governed by the laws of Sri Lanka IN WITNESS WHEREOF, K. Yoganathan as the Director of Irrigation, Department of Irrigation, acting herein for and on behalf of the Democratic Socialist Republic of Sri Lanka, has set his hand, and the said ~~INTERNATIONAL IRRIGATION MANAGEMENT INSTITUTE~~ has caused set his hand and its Common Seal to be affixed, hereto and to two others of the same tenor and date as these presents as Colombo on this 29th day of December One Thousand Nine Hundred and Ninety Three.

Nandu Alayudh

 The Common Seal of
 INTERNATIONAL IRRIGATION
 MANAGEMENT INSTITUTE ...
 is affixed hereto in the
 presence of:

. C. S. Kariyawasam

Who do hereby attest the Sealing thereof Witness:

- Signature *C. S. Kariyawasam*
 Name *C. S. Kariyawasam*
 Address *I. I. N. I.*

K. Yoganathan

 Common Seal of Director
 of Irrigation for and on
 behalf of the
 Democratic Socialist
 Republic Sri Lanka
 is affixed hereto in the
 presence of:

Eng. K. Yoganathan
 Director of Irrigation

- Signature *[Signature]*
 Name *S. W. M. R. T. De Silva*
 Address *Imperator Refectory*

APPENDIX 2

PROJECT IMPACT EVALUATION STUDY RESEARCH STAFF

Staffing - IIMI

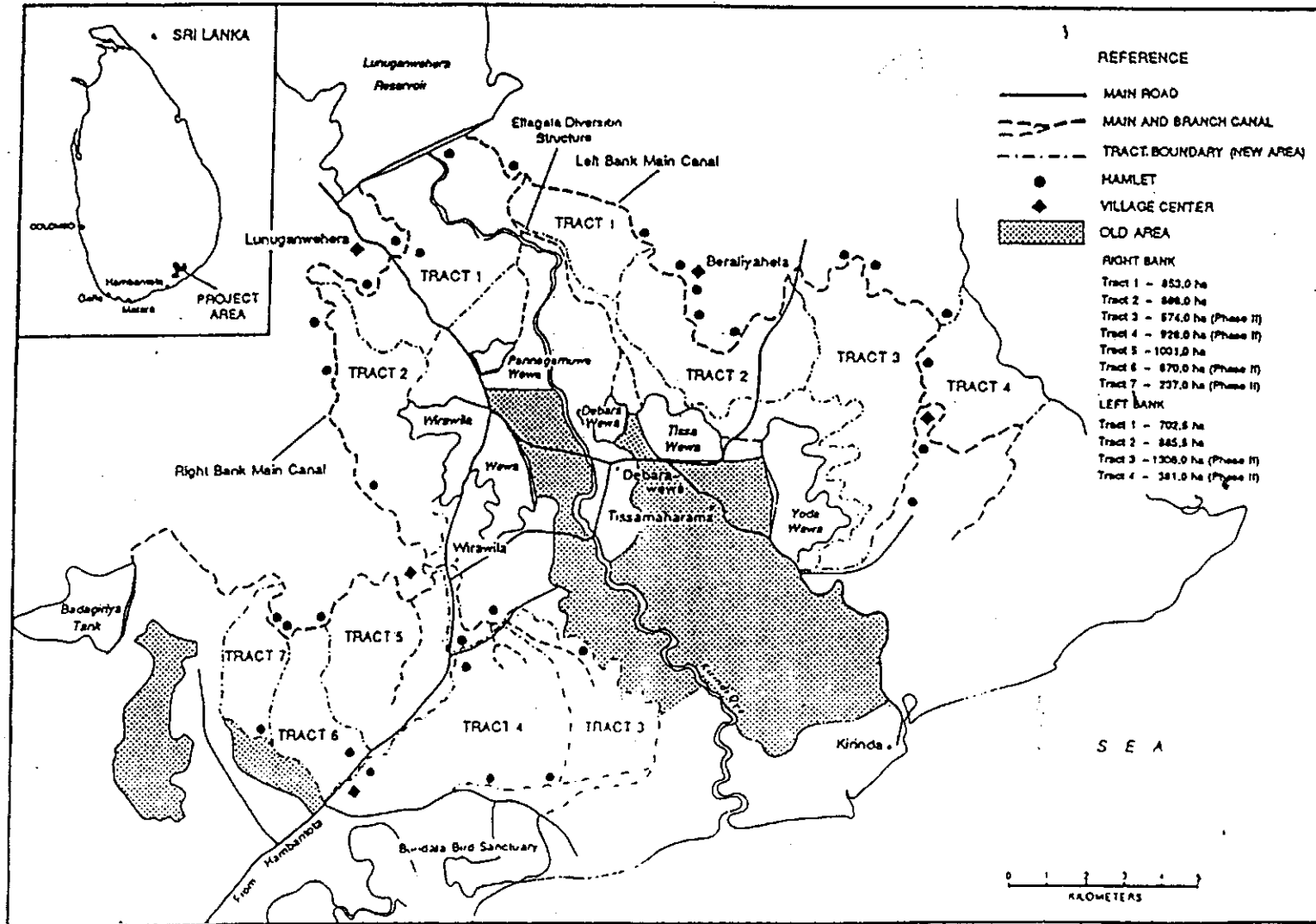
Dr C.M. Wijayaratna	-	Project Leader, Head SLFO
Dr R. Sakthivadivel	-	Sr. Irrigation Specialist
Dr F. Marikar	-	Coordinator
Mr P.W.J. Gosselink	-	Coordinator
Dr J.D. Brewer	-	Sr. Social Scientist
Dr C.R. Panabokke	-	Sr. Agronomist
Mr B.R. Ariyaratne	-	Agricultural Engineer, Research Officer
Mr P.G. Somaratne	-	Sociologist, Research Officer
Mr P.B. Aluwihare	-	Agricultural Economist, Research Officer

Staffing - Ruhunu University

Dr O. Amarasinghe	-	Senior Lecturer, Agricultural Economist
Dr M. Wijeratne	-	Senior Lecturer, Agricultural Economist

Staffing - ARTI

Mr W.A. Jayaratne	-	Head/Agricultural Planning and Evaluation Unit
Mr M.G.M. Razaak	-	Research and Training Officer
Mr J.K.M.D. Chandrasiri	-	Research and Training Officer
Mr T.A. Dharmaratna	-	Research and Training Officer
Mr G.B. Giragama	-	Research and Training Officer
Ms S.V. Sathgunarajah	-	Research and Training Officer
Mr H.M.J.K. Herath	-	Research and Training Officer
Dr Rajapaksa	-	Research and Training Officer



APPENDIX 3
MAP OF PROJECT AREA

Source: ADB 1986: IV