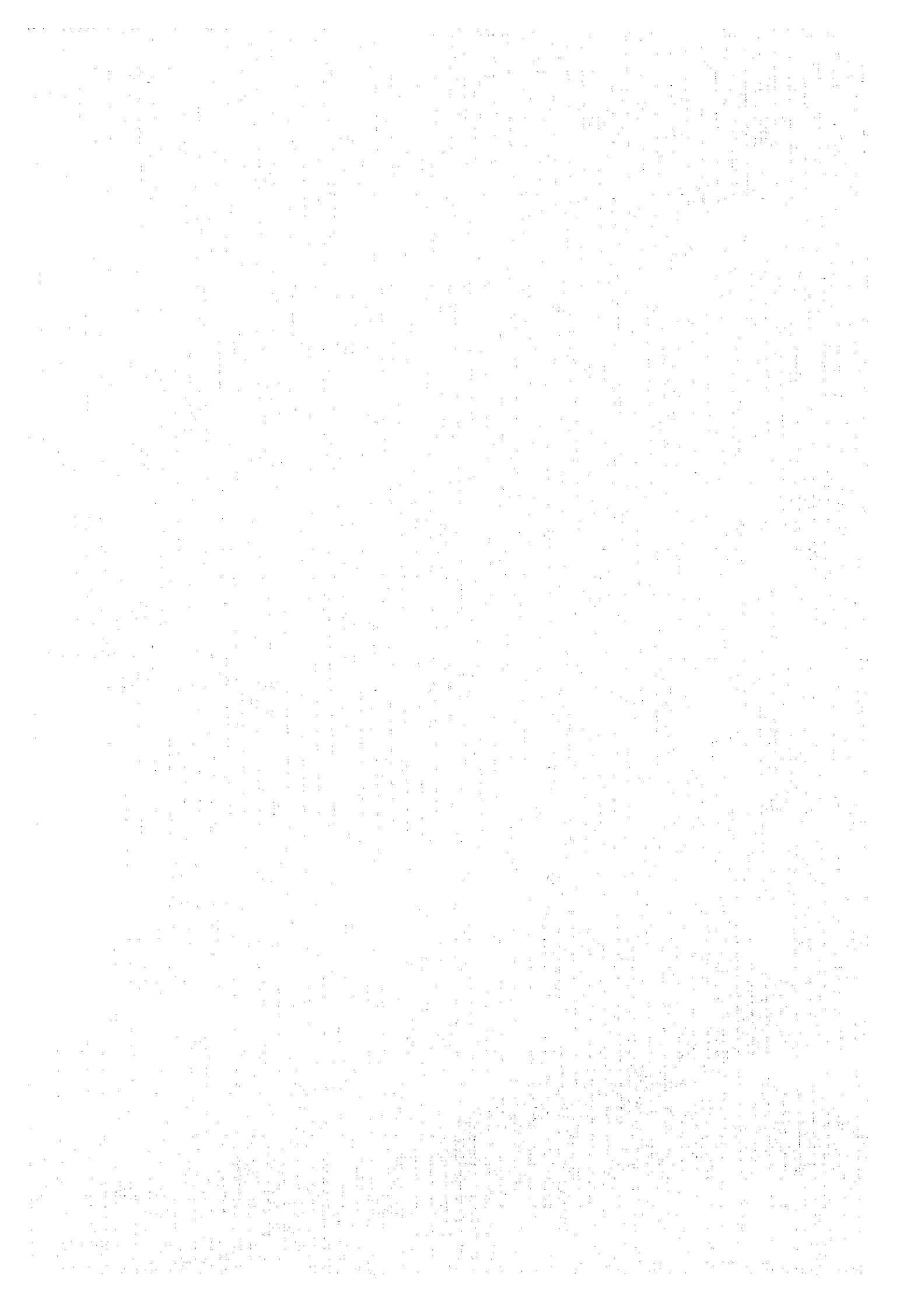


第 8 章



第8章 事業評価

8.1 事業評価の目的

事業評価は財務評価と経済評価から成る。財務評価の目的は事業の実施によって発生する事業収益性を個別経済的観点から、他方、経済評価では国家経済的観点から推計することにある。

8.2 事業評価の方法

事業を実施しない場合（以下 Future Without Project ケース：FW/Oと略称）と実施する場合（以下 Future With Project ケース：FWと略称）の便益と費用の比較を通じて、事業の収益性を純現在価値、便益・費用比率、内部収益率の3基準によって推計した。なお、財務評価は農家経済分析を中心に行った。

8.3 財務評価と経済評価

8.3.1 評価の基礎条件

(1) Future Without Project ケースの解釈

FW/O ケースでは、既存灌漑施設の老朽化及び灌漑用水の搬送損失の増加が将来の作付面積の減少及び単位収量の低下を来たすであろうと推測される。従って、現地関係機関との協議結果を踏まえて、現況農業と比較して作付面積5%減と単位収量10%減を想定し、それらの発生時期を着工から10年目以降とした。

(2) 評価期間

本事業の評価期間は改修灌漑施設の耐用年数を考慮して、25年とした。

(3) 便益と費用

財務評価では便益と費用を市場価格（財務価格）で、経済評価は国境価格（経済価格）で算定した。

(4) 投入産出財

1) 貿易財

貿易財（農産物、肥料等）の財務価格は1995年の国内市場価格を、経済価格は世界銀行の推定に基づく2005年の国際市場価格（1995年不変価格）を用いた。従って、インフレーション

ションによる影響は考慮されていない。水稲と肥料の農家庭先価格（経済価格表示）の算定に当たっては、C I F 価格を基に関税、港湾経費、流通経費、輸送費を考慮し、移転支出（関税、補助金、租税公課等）の削除や変換係数の適用によって推計した。但し、トウガラシとバナナの農家庭先価格（経済価格表示）は標準変換係数を乗じて算定した。

2) 非貿易財

非貿易財の財務価格は国内市場価格に基づき算定した。他方、経済価格は非貿易財の単価構成を貿易財、非貿易財、労働、移転支出に細分化し、貿易財に対しては国境価格、非貿易財と労働には標準変換係数を適用して算定した。

(5) 資本

スリ・ランカ国に対する世界銀行の推定値10%を資本の機会費用として用いた。

(6) 外貨

政府が柔軟な為替政策を押し進めており、公定為替交換率がほぼ近似的に実勢為替交換率を反映していると判断される。従って、本評価では潜在的為替交換率を適用せず、1995年12月時点の公定為替交換率US\$ 1 = Rs. 52 を用いた。

(7) 労働

財務評価では名目賃金を用いた。他方、経済評価では熟練労働に対して標準変換係数を、未熟練労働には係数 0.9（世界銀行報告書“NIRP, May 9, 1991”から引用）の調整を加えて、標準変換係数を適用した。

(8) 変換係数

標準変換係数を0.85（上記報告書から引用）とし、道路輸送変換係数は、0.814（“Feasibility Study on Katunayake-Anuradhapura Highway in Sri Lanka(Phase II), March 1996”から引用）を用いた。

8.3.2 総事業費

総事業費は灌漑排水システムリハビリ工事費、維持管理能力強化費、農民組織強化支援費、トレーニング費用、維持管理費で構成されている。

(1) 灌漑排水システムリハビリ工事費

工種別費用（財務価格表示）を経済価格表示に変換する為に、移転支出項目の削除や変換係数の適用を行った。改修施設の残存価値は事業費に占めるその割合が小額であるので、計上しないことにした。

(2) 維持管理能力強化費、農民組織強化支援費、トレーニング費用

本費用を経済評価表示に変換する為に、標準変換係数を乗じた。

(3) 維持管理費

維持管理に要する費用（財務価格表示）に標準変換係数を乗じて経済価格表示に変換し、FW/O（現行の維持管理費Rs. 300/ha）とFWケースの年間維持管理費の増分を計上した。

8.3.3 事業便益

事業の実施によって発生する便益は、外部経済（2次便益）を含め多様であるが、本事業の便益には計量可能な農産物とその副産物の増産便益（作付増減効果と単収増加効果）を計上した。

(1) 作物収量

水稲、トウガラシ、バナナの収量は、作付け可能年度から4年目に目標量を達成するものとした。

(2) 農産物の増産便益

農産物の増産便益はFW/OケースとFWケースの比較に基づき生産純増額で算定した。

(3) 副産物の増産便益

水稲の糠と籾殻を副産物として事業便益に計上し、それぞれの収量を水稲1tに対して50kgと265kgとした。

8.3.4 事業収益性の判定指標

本章8.2節で示されている3基準に基づき推計した結果は、下表の通りである。

計 画 名	純現在価値 (Rs. 1,000) (割引率10%)	便益・費用比率 (割引率10%)	内部収益率
Liyangastota	Rs. 276,389	1.4	13.7 %
Muruthawela Reservoir	Rs. 394,364	1.5	14.7 %
Badagiriya	Rs. 74,174	1.5	15.3 %

3スキームとも、妥当な経済的収益性を示し、事業の社会経済的波及効果も考慮すれば、事業収益性は更に増大する。

8.3.5 感度分析

経済的不確実性が事業の収益指標に与える影響を分析する為に、下記のケースを想定した。

- ケース① : 総事業費が10%増加した場合
- ケース② : 事業便益が10%減少した場合
- ケース③ : ケース①とケース②が同時に発生した場合

各ケースの事業収益性の感度分析結果は、以下の通りである。

計 画 名	ケース	経済的内部収益率 (%)
Liyangaslota	①	12.6
	②	12.5
	③	11.5
Muruthawela Reservoir	①	13.5
	②	13.4
	③	12.3
Badagiriya	①	13.9
	②	13.7
	③	12.4

事業の経済的収益性は、各スキームとも総事業費の増加よりも事業便益の減少に敏感に反応しているが、その経済的妥当性は上記いずれのケースでも損なわれることはないと判断される。

8. 3. 6 農家経済分析

農家経済分析は自作農と小作農を対象に、本事業の実施による農家の年間増加所得の推計を目的として行った。但し、これには農外所得が含まれていない。推計に際しては、小作料支払基準（水稻14 bushels/ac、トウガラシRs. 7,000/ac）を適用し、各スキームの農家の平均経営規模に応じて算定した結果は、以下の通りである。

項 目	Liyangastota スキーム	Muruthawela Reservoir スキーム	Badagiriya スキーム
1. 平均経営規模(ha)	0.57	0.53	1.40
2. 自作農			
(1) 純所得額 (Rs.)			
① 現 況	16,210 (16,210)	13,570 (12,870)	21,620 (19,770)
② FW/O	12,270 (12,270)	11,030 (10,480)	15,690 (14,230)
③ FW	34,090 (34,090)	32,960 (29,560)	90,220 (62,180)
(2) 純所得増額 (Rs.)			
③-①	17,880 17,880	19,390 (16,690)	68,600 (42,410)
③-②	21,820 (21,820)	21,930 (19,080)	74,530 (47,950)
3. 小作農			
(1) 純所得額 (Rs.)			
① 現 況	9,220 (9,220)	8,710 (8,540)	8,600 (8,070)
② FW/O	5,090 (5,090)	5,900 (5,870)	2,010 (1,930)
③ FW	26,360 (26,360)	29,230 (25,830)	86,640 (57,350)
(2) 純所得増額 (Rs.)			
③-①	17,140 (17,140)	20,520 (17,290)	78,040 (49,280)
③-②	21,270 (21,270)	23,330 (19,960)	84,630 (55,420)

注：（ ）内は稲作の数値である。

自作農の場合には、現在の農家所得に比してその純増額が1.1～3.2倍（稲作の純増額は1.1～2.1倍）で、特にBadagiriyaスキームの所得増が顕著である。他方、小作農の純増額は1.9～9.1倍（同1.9～6.1倍）で、自作農以上に事業効果が大きくなっている。もし将来、受益農民から一律に年間水利費Rs. 440/haを徴収することを想定すると、農家負担額は、

自作農の場合には純所得増額の 0.9~1.4 %に、小作農は 0.8~1.5 %に相当し、農家支払能力からすれば、水利費は徴収可能と判断される。

8.3.7 社会経済的波及効果

本事業の便益には、農産物とその副産物の増産便益などの直接効果以外に、下記の様な間接的波及効果がある。

(1) 前方関連効果

農産物の増産によって、肥料と農薬の消費量が増大し、関連産業の振興とそれらの産業に対する就業機会の創出が期待できる。肥料と農薬の輸入卸売企業の年間増収額は、以下の様に推定できる。

スキーム名	肥料輸入卸売企業 (Rs. 1,000)	農薬輸入卸売企業 (Rs. 1,000)
Liyangastota	1,610	80
Muruthawela Reservoir	2,710	440
Badagiriya	260	15

(2) 後方関連効果

本事業の実施によって増産される農産物の内、水稻の増産によって、下表の様な流通業者の年収増が期待できる。

スキーム名	集荷業者 (Rs. 1,000)	精米業者 (Rs. 1,000)
Liyangastota	5,920	14,800
Muruthawela Reservoir	6,790	16,960
Badagiriya	700	1,760

(3) 雇用機会の創出

本事業を実施することによって、農作業の雇用労働力の確保が必要となり、その年間必要人日は Liyangastota スキームが約55,200人日、Muruthawela Reservoir が約42,000人日、Badagiriyaが約14,000人日である。もしこれらの追加雇用を各受益地の現在の失業者で賄う

とすると、Liyangastolaスキームが5.9日分、Muruthawela Reservoir が4.2日分、Badagiriyaが20.3日分の労働日数に相当し、日雇い農業労働者の増収につながる事が予想される。

(4) 生活水準の向上

農業所得の増加によって農民の生活水準が改善されると共に、農民の購買力が増大し、灌漑区内の商業活動を活性化させて、都市部と農村部の地域格差の是正が促進される。

(5) 農作物の荷傷み防止効果

耕作道の新設によって、農業機械の搬出入が可能となると共に、農産物の運搬時間・費用の節約及び運搬中の荷傷み防止効果が期待できる。

(6) 付加価値の創出

事業の実施によって事業費のかなりの割合が現地産建設資材の調達に充当されると共に、建設労働者の大量雇用を通じて労働者の消費財に対する購買力が増大するので、その関連企業の生産活動が誘発され、新たな付加価値が創出されることになる。

以上の様な諸効果も考慮すれば、本事業の社会経済的な有益性は更に増大することになる。

第 9 章

第9章 結論及び勧告

- i. 本フィージビリティ調査は、スキーム内の農民組織（全129）の協力を得て実施された。JICA調査団と灌漑局職員は、過去に実施された灌漑プロジェクトの教訓と経験から学び、この調査時点から農民の事業への参加を試みている。
- ii. 調査期間を通じて、農民の事業への関心度は高く、JICA調査団の作成した地形図（S=1/5,000）上に過去数十年彼らが抱えてきた既存灌漑排水システムの問題位置、範囲等が確認された。JICA調査団はこれらの確認事項を事業計画に反映させている。
- iii. 本調査のベースライン・サーベイでは、対象3スキームの農民人口は105,200人（19,190世帯）、年間の平均農家所得は約Rs. 19,600（3スキーム荷重平均）である。3スキームが位置するHambantota県の平均農家所得はRs. 29,484であり（1994年データ）、本スキーム農家所得の低さが窺える。本事業の実施により平均農家所得は約Rs. 40,000（3スキーム荷重平均）まで引き上げる事が可能である。

早期に事業着手し、スキーム内農民層の生活改善を行うことを提案する。これによって、農民組織へのD水路全面移管がより早期に実現可能となる。
- iv. 本リハビリ計画は主体工事である既存灌漑排水システムリハビリ計画と灌漑局維持管理能力強化計画、農民組織強化支援計画プログラムから成り、更に参加型維持管理システム強化プログラム、モニタリング及び環境影響評価プログラムで構成されている。強化計画、支援計画の2プログラムは既存灌漑排水システムリハビリ計画に先行又は同時並行されるものとしてスケジュール化している。実施スケジュール策定上、配慮すべき最重点事項である。
- v. 更にリハビリ工事期間中は、水路改修に伴い一部農地の休耕が生じるものと思われる。本計画では、農民組織がコントラクターとして工事参加する計画としており、これによって休耕農作物の収入対策とする考えである。

この意味においても、強化・支援計画及び2プログラムは本事業を成功させるキー・ファクターとして事業実施スケジュール上に位置づける事が必要である。

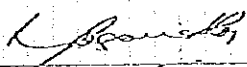
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添付資料 - 1

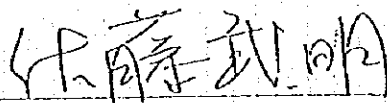
SCOPE OF WORK
FOR
THE FEASIBILITY STUDY
ON
THE REHABILITATION
OF
IRRIGATION AND DRAINAGE SYSTEMS
IN
THE RIVER BASINS OF SOUTHERN SRI LANKA

AGREED UPON BETWEEN
THE MINISTRY OF IRRIGATION, POWER AND ENERGY OF
SRI LANKA
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Colombo, September 21, 1994



Mr. K. Yoganathan
Director,
Irrigation Department
Ministry of Irrigation, Power and Energy



Mr. T. Sato
Leader,
Japanese Preparatory Study Team,
The Japan International Cooperation
Agency

I. Introduction

In response to the request of the Government of the Democratic Socialist Republic of Sri Lanka (hereinafter referred to as "the Government of Sri Lanka"), the Government of Japan decided to conduct the Feasibility Study on the Rehabilitation of Irrigation and Drainage Systems in the River Basins of Southern Sri Lanka (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Government of Sri Lanka.

The present document sets forth the scope of work with regard to the Study.

II. Objectives of the Study

The objectives of the Study are;

1. To conduct a feasibility study in order to formulate the rehabilitation plan of irrigation and drainage systems in river basins of the southern part of Sri Lanka.
2. To carry out, in the course of the Study, technology transfer to the Sri Lankan counterpart personnel concerned.

III. Study area

The study area is made up of 7 irrigation and drainage schemes located in Hambantota, Kalutara, and Matara, an area of approximately 20,000ha in total. (ANNEX 1)

IV. Scope of the Study

In order to achieve the above objectives, the Study will consist of 2(two) phases and the following items.

1. Phase I

- 1.1. Collection and analysis of the following data and information, through the field survey;

- (1) natural condition (topography, meteorology, hydrology, geology, soil, water quality, water resources, and environment);
- (2) social condition (population, regional socio-economic condition, social infrastructure, education, and regional development plan);
- (3) agriculture (land use, land tenure, cultivation technique, cropping pattern, yield, production, agricultural machinery, and livestock);
- (4) agro-economy (farmers economy, agricultural credit, processing, and marketing system);
- (5) agricultural infrastructure (water source, farm road, and rural water supply);
- (6) agricultural supporting system (government institutions, farmers' organizations, supporting organizations, and extension service organizations), and
- (7) situation of salt water intrusion problem.
- (8) others (WID, institutional strengths and weaknesses, etc.)

1.2. Review of existing development plans and projects related to the Study.

1.3. Composition of inventory list by investigation of structure scale, superannuation and damage of the irrigation and drainage facilities in the study area.

1.4. Identification of status (structurally and financially) of operation and maintenance for the irrigation and drainage facilities in the study area.

1.5. Formulation of a master plan for the rehabilitation of each scheme in the study area and preparation of an operation and maintenance program for the irrigation and drainage facilities.

1.6. Selection of the model schemes for the feasibility study.

2. Phase II

2.1. Field survey to collect supplementary data and information on the model schemes.

2.2. Formulation of an optimum rehabilitation plan for each scheme by considering the following components;

- (1) Land use;
- (2) Cropping pattern;
- (3) Irrigation farming system;
- (4) Irrigation requirement and drainage discharge; and

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- (4) Irrigation requirement and drainage discharge; and
- (5) Rural infrastructure

2.3. Formulation of agricultural supporting system development plan

2.4. Preparation of a preliminary design for the rehabilitation of facilities.

2.5. Formulation of an operation and maintenance plan.

2.6. Environmental Impact Assessment.

2.7. Preparation of the project implementation schedule.

2.8. Estimation of the project costs and benefits.

2.9. Overall evaluation of the project.

2.10. Recommendations.

V. Study schedule

The Study will be carried out in accordance with the attached tentative work schedule. (ANNEX 2)

VI. Reports

JICA will prepare and submit the following reports in English to the Government of Sri Lanka.

1. Inception Report
20 (twenty) copies at the commencement of the Phase I field work
2. Progress Report (1)
20 (twenty) copies at the end of the Phase I field work.
3. Interim Report
20 (twenty) copies at the commencement of the Phase II field work.
4. Progress Report (2)
20 (twenty) copies at the end of the Phase II field work.



5. Draft final Report

20 (twenty) copies at the end of the Phase II home office work. The Government of Sri Lanka will provide its comments on the Draft Final Report to JICA within 1 (one) month after receiving the Draft Final Report.

6. Final Report

50 (fifty) copies within 2 (two) months after the receipt of comments on the Draft Final Report.

VII. Undertakings of the Government of Sri Lanka

1. To facilitate the smooth conduct of the Study, the Government of Sri Lanka shall take necessary measures:

(1) to secure the safety of the Japanese study team;

(2) to permit the members of the Japanese study team to enter, leave and sojourn in the Democratic Socialist Republic of Sri Lanka for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees;

(3) to exempt the members of the Japanese study team from taxes, duties, fees and any other charges on equipment, machinery and other materials to be brought into and out of the Democratic Socialist Republic of Sri Lanka for the conduct of the Study;

(4) to exempt the members of the Japanese study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Japanese study team for their services in connection with the implementation of the Study;

(5) to provide necessary facilities to the Japanese study team for the remittance as well as the utilization of the funds introduced into the Democratic Socialist Republic of Sri Lanka from Japan in connection with the implementation of the Study;

(6) to secure permission for entry into private properties or restricted areas for the implementation of the Study;

(7) to secure permission for the Japanese study team to take all data and documents (including photographs and maps) related to the Study out of the

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Democratic Socialist Republic of Sri Lanka to Japan by the Japanese study team; and

(8) to provide medical services as needed with expense chargeable to members of the Japanese study team.

2. The Government of Sri Lanka shall bear claims, if any arise, against the members of the Japanese study team resulting from, occurring in the course of or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Japanese study team.

3. The Ministry of Irrigation, Power and Energy (hereinafter referred to as "MIPE") shall act as a counterpart agency to the Japanese Study team and also as a coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

4. Irrigation Department, MIPE shall act as the implementing agency. It shall undertake, at its own expense, to provide the Japanese study team with the following, in cooperation with other organizations concerned;

(1) available data and information related to the Study;

(2) counterpart personnel;

(3) suitable office space with necessary equipment and furniture in Colombo and project sites;

(4) credentials or identification cards; and

(5) additional surveys related to the Study, if necessary.

VIII. Undertakings of JICA

For the implementation of the Study, JICA shall take the following measures;

(1) to dispatch, at its own expense, the study team to the Democratic Socialist Republic of Sri Lanka

(2) to pursue technology transfer to the Sri Lankan counterpart personnel in the course of the Study.

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IX. Others

JICA and the Government of Sri Lanka shall consult with each other in respect of any matter that may arise from or in connection with the Study.

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The Rehabilitation of Irrigation and Drainage Systems
in The River Basins of Southern Sri Lanka

IRRIGATION

	SCHEME	RIVER BASIN	COMMAND AREA (ha)	DISTRICT
1	Liyangastota Scheme	Walawe Ganaga	6,480	Hambantota
2	Muruthawela Reservoir Scheme	Urubokka Oya/ Kirania Oya	6,250	Hambantota
3	Badagiriya Scheme	Malala Oya	860	Hambantota
4	Kachigala Ara Scheme	Kachchigal Ara	3,310	Hambantota
		sub total :	16,900	

DRAINAGE

	SCHEME	RIVER BASIN	COMMAND AREA (ha)	DISTRICT
1	Benthara Ganga Right Bank Scheme	Benthara Ganga	860	Kalutara
2	Polwatte Ganga Scheme	Polwatte Ganga	1,619	Matara
3	Thangalu Welyaya Scheme	Kirania Oya	607	Hambantota
		sub total :	3,086	
		grand total :	19,986	

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TENTATIVE SCHEDULE

ANNEX 2

ITEM	MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Work in Sri Lanka		[Shaded]							[Shaded]								[Shaded]		
Home office work in Japan							[Shaded]												
PHASE	PHASE I																		
	PHASE II																		
REPORTS		△ Ic/R		△ P/R (1)				△ I/R			△ P/R (2)						△ D/F/R		△ F/R

(Remarks)
 Ic/R: Inception Report
 P/R(1): Progress Report (1)
 I/R: Interim Report
 P/R(2): Progress Report (2)

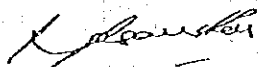
DF/R: Draft Final Report
 F/R: Final Report
 ⊙: Comments on DF/R by the Sri Lanka side

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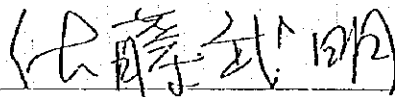
MINUTES OF MEETING
FOR
SCOPE OF WORK
FOR
THE FEASIBILITY STUDY
ON
THE REHABILITATION OF IRRIGATION AND
DRAINAGE SYSTEMS
IN
THE RIVER BASINS OF SOUTHERN SRI LANKA

AGREED UPON BETWEEN
THE MINISTRY OF IRRIGATION, POWER AND ENERGY OF
SRI LANKA
AND
THE JAPAN INTERNATIONAL COOPERATION AGENCY

Colombo, September, 21, 1994



MR. K. Yoganathan
Director,
Irrigation Department
Ministry of Irrigation, Power and Energy



Mr. T. Sato
Leader,
Japanese Preparatory Study Team
The Japan International Cooperation
Agency

In response to the request of the Government of Sri Lanka, the Government of Japan decided to dispatch through Japan International Cooperation Agency (hereinafter referred to as "JICA"), which is responsible for the implementation of technical cooperation programs of the Government of Japan, the preparatory study team (hereinafter referred to as "the Team"), headed by Mr. Takeaki Sato, to Democratic Socialist Republic of Sri Lanka from September 1st. to September 23rd., 1994 so as to discuss and exchange views on the Feasibility Study on the Rehabilitation of Irrigation and Drainage Systems in the River Basins of Southern Sri Lanka (hereinafter referred to as "the Study") with the officials concerned of Ministry of Irrigation, Power and Energy (hereinafter referred to as "MIPE").

MIPE and the Team mutually agreed with the Scope of Work on the Study.

The following Minutes were prepared to confirm the main issues discussed and matters agreed upon by both sides in connection.

1. Schemes for the Study proposed by Sri Lankan side

As a result of the coordination for the schemes in Sri Lankan side (Minutes of Meeting; see ANNEX 2), 4(four) irrigation and 3(three) drainage schemes for the Study were fixed as shown in ANNEX 1.

2. Necessary Equipment for the Study

Sri Lankan side requested the following equipment for the implementation of the Study and the Team promised to convey the requests to the Government of Japan.

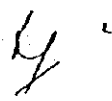
- (1) Water Level Indicators
- (2) Current Meters

3. Vehicle(s)

As for the difficulties of providing necessary vehicle(s), Sri Lankan side requested its arrangement by JICA. The Team promised to convey it to the Government of Japan. It was mutually agreed that the necessary driver(s) shall be arranged by Sri Lanka side.

4. Steering Committee

A steering committee on the Study will be set up by MIPE consisting of representatives of related organizations. The role of steering committee will be the support of smooth implementation of the Study by providing relevant information from related organization.



5. Model schemes for the feasibility study

In the light of the limitation of implementation schedule of the Study, Sri Lankan side and the Team agreed to select model irrigation and drainage schemes for the feasibility study at the end of Phase I. The number of model schemes shall be considered through the Phase I of the Study.

6. Counterpart Training

MIPE requested the counterpart training in Japan. The Team promised to convey its request to the Government of Japan.

7. List of participants

SRI LANKAN SIDE

Ministry of Irrigation, Power and Energy

Mr. K. Yoganathan	Director, Irrigation Dept.(ID)
Mr. K. Thurairajaretnam	Senior Deputy Director (planning and design), ID
Mr. L.T. Wijesuriya	Senior Deputy Director (major rehabilitation), ID
Mr. P.C. Senaratne	Deputy Director (planning), ID
Mr. B.K. Jayasundera	Irrigation Engineer, ID
Mr. S.P.P. Gamage	Irrigation Engineer, ID
Mr. K.M.P.S. Bandara	Irrigation Engineer, ID

JAPANESE SIDE

PREPARATORY STUDY TEAM

Mr. Takeaki Sato	Leader, Cooperation Planning
Mr. Kenichi Adachi	Member of the Team, Irrigation and Drainage
Mr. Masao Okawa	Member of the Team, Agriculture
Mr. Yasushi Osato	Member of the Team, Environment, Irrigation and Drainage Facilities
Mr. Masaru Uoya	Member of the Team, Coordinator

JICA SRI LANKA OFFICE

Mr. Jiro Iida	Staff of JICA Office
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The Rehabilitation of Irrigation and Drainage Systems
in The River Basins of Southern Sri Lanka

IRRIGATION

	SCHEME	RIVER BASIN	COMMAND AREA (ha)	DISTRICT
1	Liyangastota Scheme	Walawe Ganaga	6,480	Hambantota
2	Muruthawela Reservoir Scheme	Urubokka Oya/ Kirama Oya	6,250	Hambantota
3	Badagiriya Scheme	Malala Oya	860	Hambantota
4	Kachigala Ara Scheme	Kachchigal Ara	3,310	Hambantota
		sub total :	16,900	

DRAINAGE

	SCHEME	RIVER BASIN	COMMAND AREA (ha)	DISTRICT
1	Benthara Ganga Right Bank Scheme	Benthara Ganga	860	Kalutara
2	Polwatte Ganga Scheme	Polwatte Ganga	1,619	Matara
3	Thangalu Weliyaya Scheme	Kirama Oya	607	Hambantota
		sub total :	3,086	
		grand total :	19,986	

MEETING BETWEEN IRRIGATION DEPT. AND
MINISTRY OF FINANCE, PLANNING, ETHNIC AFFAIRS AND
NATIONAL INTEGRATION
17TH SEPT. 1994 AT REGIONAL DEVELOPMENT DIVISION

PRESENT

Mr. S. Amarasekera	DRD
Mr. W.P. Jinadasa	DD/Dept of Irrigation
Mr. T.G. Jayasinghe	PD/SPRDP
Mr. K. Turairajaratnam	DD/Dept. of Irrigation
Dr. S.S.I. Hettiarachchi	University of Moratuwa
Mr. G.E.M. Gomez	ECL
Mr. B.K. Jayasuntara	CE/Galle
Mr. P.C. Senarathne	DD/Dept. of Irrigation
Mr. Takeaki SATO	Leader, Cooperation Planning - JICA
Mr. Masaru Uoya	Coordinator - JICA
Mr. Kenichi Adachi	IE/MAFF
Mr. Masao Okawa	Examiner - MAFF
Mr. Yasushi Ohsato	Manager/IE
Mrs. B. Gunatileke	AD/RDD

Meeting was held to discuss the issue on Drainage Schemes identified for construction under SPRDP. Some of the same schemes had been identified under JICA assistance. The ADB has expressed their serious concern over this matter.

Irrigation Dept. Requested the following schemes for master plan studies to Govt. of Japan.

1. Bentota Ganga
2. Dedduwa
3. Maduganga
4. Madampe Lake
5. Hikkaduwa Scheme
6. Waggala Modara
7. Koggala Lake
8. Goyiyapana Scheme
9. Polwatta Ganga
10. Tangalle Welyaya

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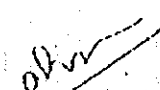
However, Except for 3 items (1,9, and 10) investigations for the rest of the schemes (7) have already been completed by SPRDP. At Present the University of Moratuwa is carrying out the pre-feasibility study on the same schemes.

Therefore the following decisions were taken:

- (1) Pre-feasibility studies will be done for all (7) schemes, except for item 1,9 and 10 under SPRDP by University of Moratuwa. The more detailed studies are carried out on

- (1) Delduwa Rantoluwila
 - (2) Madampe
 - (3) Koggala &
 - (4) Moragoda Ela
- by the University.

- (2) Irrigation Department requested HCA Mission to carry out the study for 3 schemes No. 1,9 and 10.


Director,
Regional Development.





添付資料 - 2

Minutes of the Meeting
on
The Inception Report for the Feasibility Study on the Rehabilitation of
Irrigation Drainage Systems in the River Basins of Southern Sri Lanka

Date: February 7, 1995.

Place: Conference Room of Irrigation Department, Ministry of Irrigation,
Power and Energy.

Attendants: As in the Attachment-1.

Agenda

1. The Government of Sri Lanka (Irrigation Department) received 20 copies of the Inception Report on the captioned project which was prepared by JICA Study Team based on the S/W agreed upon on September 21, 1994, between the Government of Sri Lanka and Japan International Cooperation Agency (hereinafter referred to as "JICA").
2. Mr. Masamitsu Fujioka, Team Leader of JICA Study Team, explained the contents of the Inception Report and the contents of the Inception Report were in principle accepted by the Government of Sri Lanka.
3. The command areas of each target scheme given in the Inception Report may be finalized through further in-depth study by JICA Study Team.
4. Both parties agreed that the study by JICA Study Team on the captioned project would be carried out putting most emphasis on rehabilitation of existing irrigation and drainage systems of the target schemes, also JICA Study Team would pay full attention to the problems in the target schemes which have been identified and highlighted by the Government of Sri Lanka in due consideration of positive output through the study.
5. The Government of Sri Lanka agreed to convene the personnel or their representatives (as in the Attachment-2) to attend the " Study Advisory Group " of which function is specified in the Inception Report. And as to the personnel to be convened for " Working Level Advisory Committee (WLACS), which is also specified in the Inception Report, the Government of Sri Lanka would provide the list of the personnel to JICA Study Team by February 10, 1995.

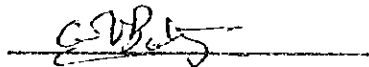
Amendments to the Inception Report

Following amendments were made to the Inception Report based upon the agreement by the both parties.

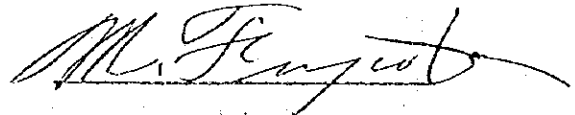
1. The sentence in lines 9-10 (from the bottom) on page 1.1 of the Inception Report should read " The World Bank would examine the possibility of financing the implementation of the rehabilitation project." instead of "

Implementation of the envisioned project is planned for financing by the World Bank".

2. The title given in line 8 (from the bottom) on page 3-1 of the Inception Report should read " Study Advisory Group " instead of " Central Coordinating Committees (CCC)". Likewise, the title given in line 8 from top on page 3-2 should read " Working Level Advisory Committee " instead of " Working Level Coordinating Committee ".
3. The title given on the top of page 3-4 of the Inception Report should read " Approach to Study on Farmers' Organizations (Cooperatives) and Status of Water Management and Agriculture " instead of " Approach to Study on Farmers' Organizations (Cooperatives) and Status of Water Management ".

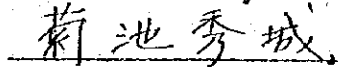


Mr. W.N.M Botejue
Director, Irrigation Department.



Mr. Masamitsu Fujioka
Team Leader, JICA Study Team.

Witnessed by



Mr. Hideshiro Kikuchi
Leader of JICA Advisory Committee.

(Attachment - 1)

Attendance List

Name	Organization	Position
MR.K.THURAIRAJARETNAM	Irrigation Department	Senior Deputy Director (Planning & Designs)
MR.L.T.WJESURIYA	Irrigation Department	Senior Deputy Director (Rehabilitation)
MR.S.SELVARAJAH	Irrigation Department	Deputy Director (Designs)
MRS.J.AMARAKOON	Irrigation Department	Deputy Director (Planning)
MR.H.A.G.KULARATNA	Irrigation Department	Chief Irrigation Engineer (Planning)
MR.S.P.P.GAMAGE	Irrigation Department	Irrigation Engineer (Planning)
MR.U.DEPLACHITRE	Irrigation Department	Deputy Director (Colombo Range)
MR.B.L.JAYASUNDARA	Irrigation Department	Deputy Director (Galle Range)
MR.G.V.RATNASARA	Irrigation Department	Deputy Director (Hambantota Range)
MR.M.U.G.GUNAWARDANA	Irrigation Department	Irrigation Engineer (Matara)
MR.H.A.WJEDASA	Irrigation Department	Irrigation Engineer (Kalutara)
MR.K.S.WJESEKARA	Irrigation Department	Chief Resident Engineer (Kirindi Oya)
MRS.D.SENANAYAKE	External Resources Dept.	Assistant Director
MR.M.SHOBAYASHI	World Bank (Washington)	Irrigation Engineer
MR.T.ABEYSEKERA	World Bank (Sri Lanka Office)	Agriculture Economist
MR.H.KIKUCHI	MAFF	Chairman of JICA Advisory Committee
MR.S.NABEYA	JICA (HQ)	Deputy Director
MR.J.HIDA	JICA (Sri Lanka)	Asst. Resident Rep.
MR.M.FUJIOKA	Study Team	Leader / Operation & Maintenance
MR.T.TANABE	Study Team	Co-leader / Irrigation & Drainage System I
MR.K.IWATA	Study Team	Irrigation & Drainage System II

(Attachment - 2)

List of Personnel for the Study Advisory Group

(1).Ministry of Irrigation and Power

1 Secretary	Mr.J.Madagama
2 Adl.Secretary	Mr.U.Weerakoon
3 Director (Planning)	Mr.Ananda Herath
4 D.D (Planning)	Mr.T.S.P.Peries

(2).Ministry of Fisheries Aquatic Resources Department

1 Secretary	Mr.S.B.Bandusena
2 Director (Planning)	Mr.A.Hettiarachchi

(3).Ministry of Agriculture

1 Secretary	Mr.D.M.Ariyaratne
2 Commissioner Agrarian Services	
3 Director Agriculture	
4	Dr.Balasuriya

(4).Ministry of National Planning

1 Adl.Director	Mr.H.B.Banduratne
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(5).IMD

1 Director	Mr.Ranjith Ratnayake
2 D.D (O&M)	Mr.N.J.Baranasooriya

(6).Irrigation Department

1 Director	Mr.W.N.M.Botejue
2 Snr.D.D	Mr.L.T.Wijesooriya
3 Snr.D.D	Mr.D.W.R.Weerakoon
4 Snr.D.D	Mr.K.Thurairajaretnam
5 D.D	Mr.S.Selvarajah
6 D.D	Mrs.J.Amarakoon

(7).Survey Department

1 Survey general	Mr.N.C.Seneviratne
2 Adl.Survey general	Mr.M.P.Salgado
3 S.S (R.S).	Mr.R.Palliakkara

(8).External Resources Department

1 Director general

Mr.S.L.Seneviratne

2 Director

Mrs.D.D.J.Kudaligama

3 Assit.Director

Mrs.D.Senanayake

(9).Coast Conservation

1 Director

Mr.B.S.Kahawita

2 Chief engineer (R&D)

Mr.H.N.R.Perera

(10).Central Environmental Authority

1 Chairman

Mr.G.K.Amaratunga

2 Director

Mrs.S.E.Yasaratne

(11).Southern Provincial Council

1 Deputy Chief Secretary

Mr.Suvanthatne

添付資料 - 3

Minutes of the Meeting
on
The Interim Report for the Feasibility Study on the
Rehabilitation of Irrigation and Drainage Systems in the
River Basin of Southern Sri Lanka.

Date : June 23, 1995
Place : Conference Room of Irrigation Department,
Ministry of Irrigation, Power and Energy.

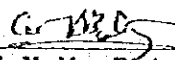
1. The Government of Sri Lanka (Irrigation Department) received 20 copies of the Interim Report on the captioned project which was prepared by JICA Study Team in accordance with the S/W agreed upon on September 21, 1994 between the Government of Sri Lanka and Japan International Cooperation Agency (hereinafter referred to as "JICA").

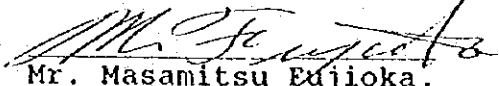
2. Mr. Masamitsu Fujioka, Team Leader of JICA Study Team, explained the contents of the Interim Report and the contents of the Report were in principle accepted by the Government of Sri Lanka.

3. Both parties agreed that the Feasibility Study should be carried out for the following three (3) schemes based on the study results given in the Interim Report.

<u>Name of Scheme</u>	<u>Command Area (ha)</u>
Badagiriya Scheme	703
Liyangastota Scheme	6,121
Muruthawela	6,149
<hr/>	
Total Command Area	12,973

4. Also, both parties confirmed that the topographic survey for the said selected schemes should be carried out during June to October 1995 and JICA Study Team should commence the Feasibility Study for the same at the beginning of November 1995 as scheduled.


Mr. W.N.M. Botejue,
Director, Irrigation Department


Mr. Masamitsu Fujioka,
Team Leader, JICA Study Team

Witnessed by


Mr. Hideshirou Kikuchi,
Leader of JICA Advisory Committee.

Attachment - 1: List of Participants.
Study advisory committee meeting 20-06-95.

<u>Name</u>	<u>Government Organizations</u>
1. <u>Mr. L.U. Weerakoon</u>	<u>Ministry of IP & E/Chairman</u>
2. <u>Mr. H. Kikuchchi</u>	<u>JICA (H.O)</u>
3. <u>Mr. J. Iida</u>	<u>JICA (Sri Lanka)</u>
4. <u>Mr. M. Fujioka</u>	<u>JICA Study Team</u>
5. <u>Mr. T. Tanabe</u>	<u>JICA Study Team</u>
6. <u>Mr. N. Abeywickrama</u>	<u>JICA Study Team</u>
7. <u>Mr. N. Toyooka</u>	<u>JICA Study Team</u>
8. <u>Mr. Sarath Jayatilaka</u>	<u>Survey Department</u>
9. <u>Mr. T.S.D. Peiris</u>	<u>Ministry of IP & E</u>
10. <u>Mr. Ranjith Ratnayaka</u>	<u>Ministry of IP & E</u>
11. <u>Mr. W.A.D.D. Wijesooriya</u>	<u>C E A</u>
12. <u>Mr. W.N.M. Botejue</u>	<u>Irrigation Department</u>
13. <u>Mr. K. Thurairajaretnam</u>	<u>Irrigation Department</u>
14. <u>Mr. M. Sinnappoo</u>	<u>Irrigation Department</u>
15. <u>Mrs. J. Amarakoon</u>	<u>Irrigation Department</u>
16. <u>Mr. S.P.P. Gamage</u>	<u>Irrigation Department</u>

添付資料 - 4

Minutes of the Meeting

on

The Draft Final Report on the Feasibility Study on The Rehabilitation of Irrigation and Drainage Systems in The River Basins of Southern Sri Lanka

Date: July 19, 1996.

Place: Conference Room of the Department of Irrigation, Ministry of Irrigation, Power and Energy.

Attendance: Listed in Table-A attached to this document.

JICA Study Team submitted the Draft Final Report on the Feasibility Study on the Rehabilitation of Irrigation and Drainage Systems in the River Basins of Southern Sri Lanka in twenty (20) copies on July 16, 1996 to the Department of Irrigation, Ministry of Irrigation, Power and Energy.

On July 17, 1996, Mr. Masamitsu Fujioka, Team Leader of JICA Study Team explained to the concerned officials of the Irrigation Department of the contents of the draft final report in the conference room of the Department. As a result, both parties confirmed the following.

Agenda

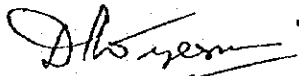
1. The contents of the draft final report on the above prepared by JICA Study Team were in general accepted by the Irrigation Department with the following comments by the officials of the Department on the report.

Comments on the following subjects will be sent to the head office of JICA through JICA Colombo office within one month from July 17, 1996.

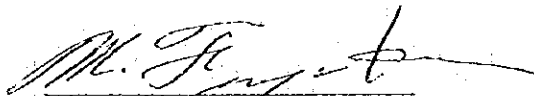
- (1) Reduction of paddy area in the proposed cropping pattern.
- (2) Lining of canals.
- (3) Rehabilitation of field canals.
- (4) Improvements to drainage canals.
- (5) Possibility of increasing the capacity of Ridiyagama tank.

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2. JICA Study Team agreed to submit the final report on the above in fifty (50) copies to the Irrigation Department within two months after receiving the comments by the Department on the draft final report.
3. Both parties reached agreement that the final report on the above may not be opened to any party without approval of the Irrigation Department.



L. T. Wijesuriya
Director General,
Department of Irrigation



Masamitsu Fujioka
Team Leader of JICA
Study Team

Witnessed by



Noriaki Nagatomo
Agricultural Development
Study Division,
Agriculture, Forestry and
Fisheries Development Study
Department,
Japan International Cooperation
Agency (JICA)



JICA