A PROCESS EVALUATION OF COCONUT CULTIVATION IN THE KURUNEGALA DISTRICT

(A Sub Study of the Kurunegala Integrated Rural Development Project)

RESEARCH STUDY NO. 62

DECEMBER 1984

AGRARIAN RESEARCH AND TRAINING INSTITUTE,
114, Wijerama Mawatha, Colombo 7.

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G.M. Henegedara

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PRODUCTION ECONOMICS & EXTENSION DIVISION
AGRARIAN RESEARCH AND TRAINING INSTITUTE
114, WIJERAMA MAWATHA
COLOMBO.

FOREWORD

At the request of the World Bank and the Ministry of Plan Implementation, the Agrarian Research & Training Institute undertook the evaluation of the Kurunegala Integrated Rural Development Project (KIRDP). The evaluation plan consists of a baseline survey to analyse the pre project situation and several indepth and management oriented studies. Some of these studies are directed towards major project components with a view to assess their performance from time to time during the project period. The study on Development of Coconut Cultivation is one of them.

Under the Kurunegala Integrated Rural Development Project a total sum of Rs.81.75 million was allocated for coconut development. This component had three major objectives : I) Increasing of productivity of mature plantations through improved husbandry practises, particularly increased fertiliser applications 2) rehabilitation of neglected plantations by stepping up replanting/under planting and removal of senile palms 3) intensification of used coconut lands, through inter-cropping.

The real benefits of results of these development programmes would be seen only after a long period of time. It is estimated that even at the end of the project period the expected benefits will be only about 25% of the full development benefits. However, as the project director felt that the services and facilities offered under the project were not being utilised by the beneficiaries as envisaged, this study was undertaken to find out the reasons for such short falls.

The study highlights some of the difficulties prevalent in the district which hampers coconut development. The performance of the coconut subsidies programme and the coconut fertiliser credit programme are also critically examined. The researchers have made some recommendations to correct the situation in order to put the programme on proper lines.

Mr.G.M.Henegedera, Research & Training Officer was responsible for this study. In the initial stages,Mr.S.M.P.Senanayake, Research & Training Officer functioned as the Co-ordinator of the project. But after his leaving the Institute Mr.Henegedera had to bear the entire burden. My thanks are due to him and the Deputy Director of Production Economic & Extension Division who guided him in the preparation of the report for making this publication possible.

T.B.SUBASINGHE
DIRECTOR

ACKNOWLEDGEMENTS

This report is an outcome of a collective effort and I take this opportunity to thank all of them who made this a reality. First of all I must place in record all the help that was rendered to me by a large number of persons who are engaged in this sector - both farmers and officers.

I also wish to acknowledge the assistance given by several individuals in the completion of this study. The author is personally indebted to Mr. S.M.P. Senanayake who guided to create this report.

The special word of thanks to M/s. A.B. Perera - General Manager (Technical), A Pathiraja - Regional Manager, Kuliyapitiya, S. Ariyapala - Assistant Manager, People's Bank, P.H.K. Rathnasinghe - Assistant Manager (Agriculture), Bank of Ceylon, Coconut Development Officers, Coconut Nursery Superintendents and their staff for providing the necessary data which proved to be a valuable source of information for the study.

I appreciate the valuable comments on the preliminary stage given by Prof. S. Tilakaratne of the University of Sri Jayawardenapura, Mr. Martin Greeley and Dr. Jayantha Perera of the ARTI, and Prof. Norman Uphoff of the Cornell University, USA.

My thanks are also due to M/s. G.S.T. Ranatunga (Statistical Assistant), E.A. Weerasinghe, S. Dunusinghe, J. Wilwarachchi, K.K.S. Silva, Prasad Samarasinghe and Miss R.M. Chandrawathie who were employed as Investigators for the collection and tabulation of data for this study.

I am also thankful to Mr. Fredrick Abeyratne, Deputy Director of the Production Economics & Extension Division, who made valuable suggestions regarding the design of the study and the structure of the report and for his encouragement throughout the study. I am also indebted to Mr. T.B. Subasinghe, Director of ARTI for his encouragement throughout the study.

Mr. Kapila Bandara and Mr. Wilfred Ranasinghe of the ARTI, and Mr. Mervin Silva of the Central Bank edited the first and final scripts for publication.

Finally, Miss Nirupika Perera, Miss Niranjala Wickramaratne, Miss A. Fernando and Mrs. Yasmin Bawa who did the final typing also deserve a word of appreciation.

G. M. H.

Irrigation Water Management & Agrarian Relations Division.

A R T I

September 1984.

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WEIGHTS AND MEASURES

Conversion Factors

British to Metric Units

1 acre	=	0.405 hectares (ha)
1 pound (lb)	=	0.454 kilogrammes (kg)
1 bushel of paddy (46 lb)	=	20.87 kg
1 mile	=	1.609 kilometres (km)

Metric to British Units

1 hectare	=	2.471 acres
1 kilogramme	=	2.205 lb
1 kilometre	=	0.621 mile

CURRENCY UNITS

1 US Dollar	=	around 20.00 Rupees (Rs)
1 Rupee	=	around 0.05 US Dollar (US $)

ABBREVIATIONS

ARTI	=	Agrarian Research & Training Institute
BC	=	Bank of Ceylon
CCB	=	Coconut Cultivation Board
CDO	=	Coconut Development Officer
CO	=	Cultivation Officer
KIRDP	=	Kurunegala Integrated Rural Development Project
KVS	=	Krushikarma Viyapthi Sevaka (village level extension worker)
PB	=	People's Bank

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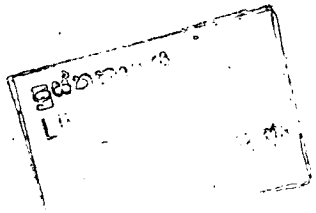
REFERENCES



INTRODUCTION

A. THE PROBLEM

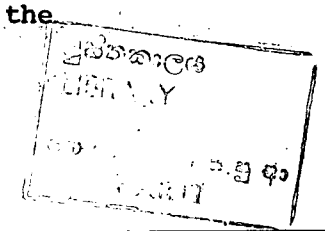
The development of coconut cultivation constitutes a major component of the plan of investment under the Kurunegala Integrated Rural Development Project (KIRDP) which has been in operation since 1979. Of a total investment of Rs.465 million, about 18% is allocated for the coconut development programmes, ie., Rs.81.76 m. Under the programmes of development of coconut cultivation, the project has given special attention to the upliftment of the living conditions of the small holders with holdings of 25 acres or less, by providing for the increase of coconut productivity, as well as for sources of employment, in the Kurunegala district. In addition, its aim is to develop coconut cultivation as a whole in the district, by implementing coconut expansion programmes of rehabilitation, replanting, under planting, new planting and intercropping. Various subsidy schemes, credit programmes, extension services, and other supporting services have been introduced to achieve these targets.

Emphasis on development of coconut cultivation was justified in the context of declining productivity in the district during the recent past (Hussain et al. 1978). This decline is attributed mainly to factors such as the low use of fertilizer (particularly by small holders), ageing of the coconut palms coupled with inadequate levels of replanting, low adoption of soil conservation methods, poor input supply and lack of marketing services for the cultivators.

Therefore, the investment programmes for cocconut development in the district under KIRDP are aimed at increasing productivity by

(a) encouraging farmers to use more fertilizers

(b) rehabilitating the neglected coconut lands through the promotion of new programmes such as replanting, under planting and soil conservation and also through increased subscriptions to the subsidy schemes introduced by the government



(c) strengthening of service support to cultivators, by introducing a coconut fertilizer credit scheme, by providing for quality seedlings, by setting up eight new coconut nurseries, by upgrading the services of the existing two nurseries, by ensuring an efficient supply of fertilizers, by providing storage facilities at appropriate places, and by providing transport facilities to the extension personnel.

These proposals are being implemented through the Coconut Cultivation Board (CCB). The two banks (Bank of Ceylon and Peoples Bank) are responsible for the operation of the special credit scheme. According to official records, the performance of most of these schemes have been more than satisfactory. By the end of 1981 the proposed eight new nurseries had been established and the two old nurseries upgraded. By the end of 1982, 1213 thousand seedlings had been issued to cultivators. Under-planting and/or replanting have been done on some 8056 acres, and 45931 acres of coconut lands have been rehabilitated. By the end of 1982, the two state banks had granted loans to some 2000 coconut cultivators amounting to Rs. 12 million. Out of the 45 village level fertilizer stores proposed, 44 have been completed and work is in progress in the others.

The Agrarian Research & Training Institute (ARTI), is entrusted with the task of monitoring and evaluating the benefits of the project. The present study forms part of this evaluation exercise. This study will examine the impact of coconut development programmes on the productivity of ococonut lands, as well as on employment, and on incomes of the target group beneficiaries, ie., the small holders.

B. THE OBJECTIVES

The specific objectives of the present study are:

(1) to study the effectiveness of the operation and utilization of the various subsidy programmes in the coconut development project

(2) to identify the constraints in the use of fertilizer in the project area

(3) to examine the planting materials distribution programme, the quality of planting materials and the subsequent mortality rates

(4) to analyse the effectiveness of the extension, promotion, publicity and follow-up activities, relating to the coconut development programmes

(5) to assess the impact of the development programmes on coconut productivity, employment and farm incomes; and

(6) to assist the management of the project with suggestions for remedial action for any shortcomings that may come to light as a result of these studies.

C. THE METHODOLOGY

The methodology of this study consisted of two approaches. Firstly, information was gathered from available literature, official records, and also by interviewing officials of government departments and other relevant institutions. Secondly, a questionnaire was addressed to a sample of coconut cultivators in the district. There is a wide variation of the agroclimate in the district, and the report of the study was confined to the most important agroclimatic zones. The characteristics of the agro climate are outlined in Annex 1. However, DL_1 was excluded as the activities there were concentrated mainly on new plantings.

Altogether 12 Coconut Development Office (CDO) areas were selected in proportion to the extents cultivated within the remaining four agro ecological zones. The selection of CDO ranges within an agro-ecological zone was undertaken at random. Twenty one (21) farmers from each CDO range were selected, out of whom 14 had made use of, at least, one of the coconut development programmes introduced under the project, (ie., credit for purchase of coconut fertilizer , subsidies for replanting/underplanting/ rehabilitation). The other seven (7) had not benefitted at all. The selection of the farmers, who belonged to the former group, was done at random from lists obtained from the Coconut Cultivation Board and the two banks. Respondents of the latter group were selected in the field identifying a matching farmer for every second farmer in the list. The distribution of the sample, according to the agro-ecological zones, was as follows:-

	AGRO ECOLOGICAL ZONES				
	IL_1	IL_2	WL_2	WM_3	DL_1
Total number of CDO ranges	25	5	2	1	1
Number of CDO ranges selected	8	2	1	1	-
Total number of beneficiaries selected	112	28	14	14	-
Total number of non-beneficiaries selected	56	14	7	7	-
Total number of respondents in the sample	168	42	21	21	- = 252

Actual number of respondents interviewed, classified according to the CDO ranges, are as follows:-

CDO RANGE	Agro climatic zones	Total coconut acreage	No.of farmers receivers	Interviewed non-receivers
Kurunegala	IL_1	2595	14	7
Ibbagamuwa	IL_1	6100	14	7
Potuhera	IL_1	11022	14	7
Dambadeniya	IL_1	7816	13	8
Dodangaslanda	IL_1	6833	13	8
Bingiriya	IL_1	23283	14	7
Kuliyapitiya	IL_1	5605	14	7
Hettipola	IL_1	14030	15	6
Ganewatta	IL_2	23887	14	7
Wariyapola	IL_2	15525	14	7
Polgahawela	WL_2	10143	14	7
Mawatagama	WM_3	7756	14	7
Total (252)			167	85 = 252

A team of specially trained investigators was employed for distributing the questionnaires to the respondents. The selection of the farmers for the sample was done by the Researchers themselves with the help of Coconut Development Officers, Cultivation Officers, and Krushikarma Viyapthi Sevakas[1] (KVS) of the area. Supervision of the investigators was done by the Researchers themselves.

LIMITATIONS

Since the selection of respondents was not done in proportion to the extent of coconut lands in each CDO range area, no attempt was made to calculate any estimates using the sample parameters. However, the findings can help the management of the project to get an indepth understanding of the variables considered and, therefore, can be used for effecting changes in the existing programmes.

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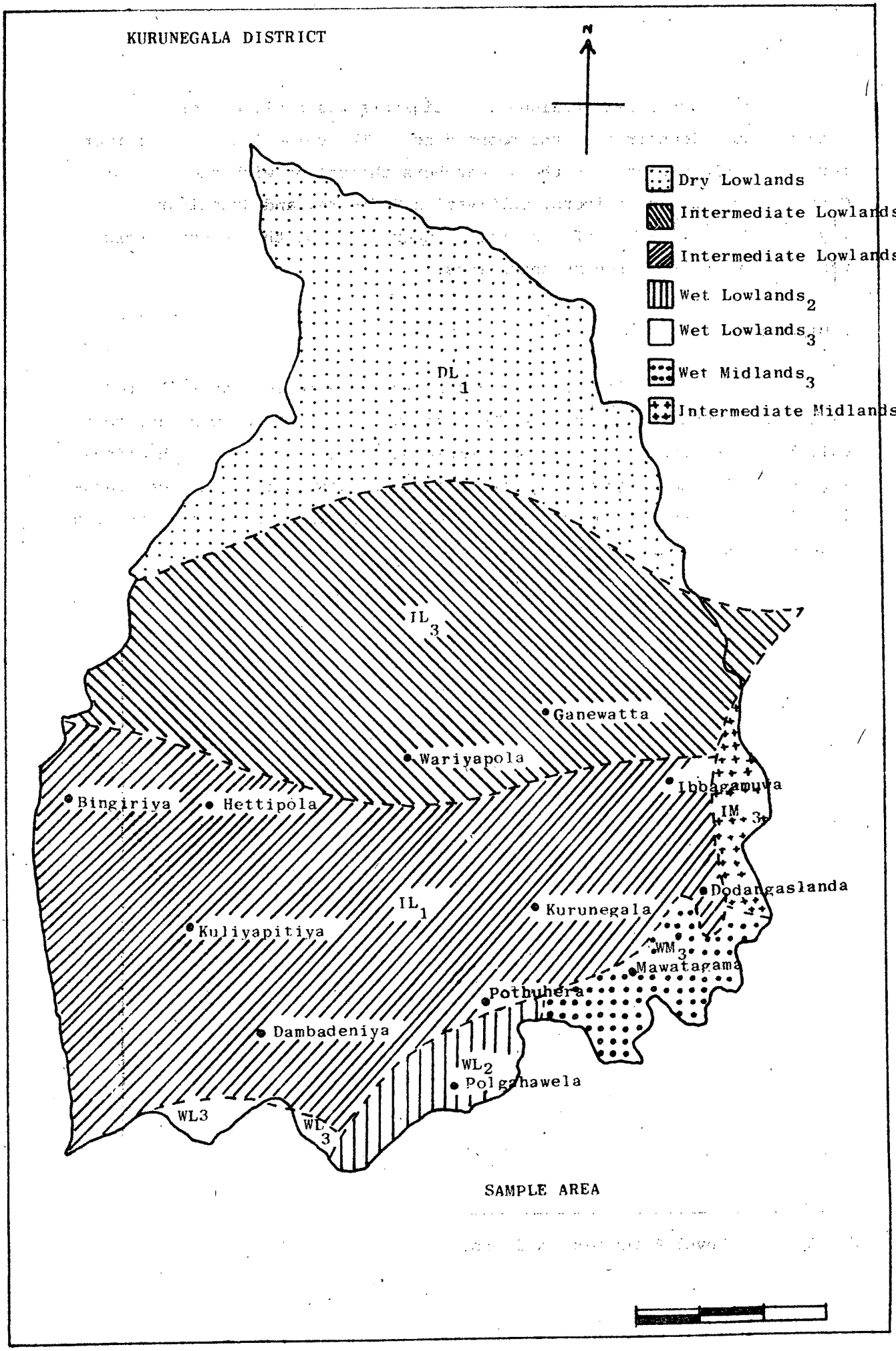
1. Village Level Extension Officers.

FIGURE 1


KURUNEGALA DISTRICT
N
Dry Lowlands
Intermediate Lowlands3
Intermediate Lowlands1
Wet Lowlands2
Wet Lowlands3
Wet Midlands3
Intermediate Midlands3
DL1
IL3
IL1
IM3
WM3
WL2
WL3
WL3
Ganewatta
Wariyapola
Ibbagamuwa
Bingiriya
Hettipola
Dodangaslanda
Kurunegala
Kuliyapitiya
Mawatagama
Pothuhera
Dambadeniya
Polgahawela
SAMPLE AREA

Chapter 2

THE SOCIO-ECONOMIC CHARACTERISTICS OF THE SAMPLE HOUSEHOLDS

In this chapter an attempt is made to compare the socio-economic characteristics of the beneficiaries with those of the non-beneficiaries of the coconut development programmes. Such an analysis was considered necessary for the purpose of identifying the possible associations of these variables with the utilization and non-utilization of the facilities provided by the KIRDP to the coconut cultivators. Demographic characteristics and activity status, employment, sources of income, and land tenure are the main variables considered in this chapter.

The 167 beneficiary households interviewed consisted of 1291 members, of which 699 (54.2%) were males. The average size of a household was 7.7 of which four members were males. Thus, the male-female ratio was almost 1:1. The average size of the non-beneficiary households was 5.0 made up of 2.7 (54.7%) males and 2.3 (45.3%) females. Here the male-female ratio averaged to 1:0.85. There was a total of 435 members in the non-beneficiary households of whom 237 were males.

However, when all the families are considered together, the modal family size becomes 5.6. The CDO range-wise distribution of family size in the sample is given in Table 2.1. It may be observed that Potuhera, Ganewatta, Bingiriya and Mawatagama have larger families than in the other CDO ranges. No reasons for this variation be given because such detailed analysis do not fall within the scope of the present study.

The percentage distribution of the members in households by age groups and by the irrespective dependency rates were worked out and the results presented in Table 2.2. There was no marked difference between the beneficiaries and non-beneficiaries interviewed with regard to the dependency ratio. The dependency ratio of the beneficiaries was 36.8 while that of the non-beneficiaries worked out to 33.2. Here again the small difference may be attributed to the larger size of the households in the beneficiary group.

TABLE 2.1 SIZE OF HOUSEHOLDS ACCORDING TO CDO RANGES

FAMILY MEMBERS	Kurunegala		Ibbagamuwa		Potuhera		Dambadeniya		Bingiriya		Dodangaslanda		Kuliyapitiya	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1 - 2	3	14.2	1	4.7	2	9.5	2	9.5	2	9.5	4	19.0	3	14.2
3 - 4	10	47.6	7	33.3	8	38.1	5	23.8	9	42.8	7	33.3	5	23.8
5 - 6	05	23.8	10	47.6	5	23.6	11	52.3	9	42.8	7	33.3	10	47.6
7 - 8	03	14.2	2	9.5	4	19.0	1	4.7	-	-	2	9.5	3	14.2
9 - 10	-	-	-	-	2	9.0	2	9.5	1	4.7	1	4.7	-	-
Over 10	-	-	1	4.7	-	-	-	-	-	-	-	-	-	-
TOTAL :	21	100.0	21	100.0	21	100.0	21	100.0	21	100.0	21	100.0	21	100.0

Hettipola		Ganewatta		Wariyapola		Polgahawela		Mawatagama		Total	
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
4	19.5	2	9.5	2	9.5	1	4.7	1	4.7	27	10.5
9	42.8	5	23.8	5	23.8	5	23.8	4	19.0	79	30.9
7	33.3	7	33.3	9	42.8	10	47.6	9	42.8	102	40.0
1	4.7	5	23.8	5	23.8	4	19.0	3	14.2	33	12.9
-	-	2	9.5	-	-	-	-	4	19.0	12	4.7
-	-	-	-	-	-	1	4.7	-	-	2	0.7
21	100.0	21	100.0	21	100.0	21	100.0	21	100.0	21	100.0

TABLE 2.2 DISTRIBUTION OF HOUSEHOLD MEMBERS BY AGE GROUPS AND DEPENDENCY RATIO

Age Groups	Beneficiaries (%)	Non-Beneficiaries (%)
0 - 15	19.0 %	18.4 %
15 - 65	75.2 %	73.2 %
66 and over	5.9 %	8.5 %
Dependency ratio	36.8 %	33.2 %

$$\text{Dependency ratio} = \frac{\text{Age Group 0-15 + Age Group 65 \& over}}{\text{Age Group 15-65}} 100$$

Similarly, with regard to the proportion of the economically active population, there was no difference either between the two categories of households, or between males and females in the sample. These results are presented in Table 2.3.

TABLE 2.3 ECONOMICALLY ACTIVE POPULATION

Category	Male		Female		Total	
	No.	%	No.	%	No.	%
Beneficiaries	520	74.3	450	76.0	970	75.2
Non-beneficiaries	168	70.8	150	75.8	318	73.2
All	688	73.5	600	76.0	1288	74.6

Economically Active Population = The total population within the age group 15-65

It may be observed that about 75% of the total sample consisted of the economically active population. The activity status of the members of the sample households is given in Table 2.4. The unemployment rate between the two categories of households did not show a significant difference, the respective rates being 9.2% for beneficiaries and 9.9% for non-beneficiaries (approximately 10% for both groups).

TABLE 2.4 ACTIVITY STATUS OF SAMPLE HOUSEHOLDS

Type of Activity	Beneficiaries		Non-beneficiaries		Total	
	No.	%	No.	%	No.	%
Government employed	109	12.8	41	9.4	150	11.6
Private sector employed	31	3.6	19	4.4	50	3.9
Self-employed (farming)	162	18.9	87	20.0	249	19.3
Family helpers (without employment)	35	4.1	15	3.5	50	3.9
Unemployed (seeking employment)	79	9.2	43	9.9	122	9.5
Students	251	29.3	111	25.5	362	28.0
Household helpers	114	13.3	67	15.4	181	14.0
Others	75	8.8	52	11.9	127	9.9
TOTAL :	856	100.0	435	100.0	1291	100.0

A notable feature in both categories of households is that a fair proportion of the economically active population is employed in the government sector; here too, it was higher in the beneficiary group (13%) than in the non-beneficiary group (9%). Another important point is that about 14% of members in the beneficiary households, as well as in the non-beneficiaries' households, have given their activity status as unpaid household helper. When these figures are added to the group of unpaid family helpers, perhaps in the farms, there is a large number of persons underemployed. It is interesting to note that full-time farmers are only about one-fifth of those employed in both categories of households interviewed. This is evident from Table 2.5.

TABLE 2.5 MEMBERS OF THE HOUSEHOLDS CLASSIFIED BY EMPLOYMENT

Type of Employment	Beneficiaries		Non-beneficiaries	
	No.	%	No.	%
Farmer	129	31.7	49	35.0
Labour	25	6.1	12	8.6
Business	38	9.3	15	10.7
Landlords (planters)	44	10.8	13	9.3
Salaried (white collar)	139	34.2	38	27.1
Salaried (blue collar)	18	4.4	09	6.4
Self employed	14	3.4	4	2.9
Other (not specified)	-	-	-	-
TOTAL :	407	100.0	140	100.0

Thus, we may conclude that the majority of the other respondents are engaged in farming as part-time activity or are only landlords. Here again, since most of the coconut palms in the Kurunegala district fall into the productive age group, ie., between 7-60 years, the involvement of this category of respondents in activities leading to higher productivity in coconut, would be marginal. To them the income from coconuts takes the form of a side business.

Table 2.6 depicts the level of education of members in the households interviewed. The percentage of members who had no schooling in the two samples is almost equal. About 40% had schooling upto Grade 10. There is virtually no difference between the two types in the sample as far as the education level is concerned. However, a higher percentage had schooling in the beneficiary group (29%) than in the non-beneficiary group (25.5%).

TABLE 2.6 MEMBERS OF HOUSEHOLDS CLASSIFIED BY LEVEL OF EDUCATION

Level of Education	Beneficiaries		Non-beneficiaries		Total	
	No.	%	No.	%	No.	%
No schooling	98	11.5	59	3.5	157	12.2
Upto Grade 5	172	20.0	89	20.4	261	20.2
Grade 6 and above not passed GCE (OL)	323	38.0	172	39.5	495	38.3
GCE (OL) or higher	234	27.2	107	24.6	341	26.4
Graduates	29	3.3	08	1.8	37	2.8
TOTAL:	856	100.0	135	100.0	1291	100.0

As for the tenurial status of the cultivated land, about 2/3 of the land is solely owned and operated by the respondents themselves. However, it was found that 1/3 of the land was under joint ownership. This joint ownership could have exerted some influence on the adoption of development programmes for coconut, as the tenancy status does not provide an incentive to the cultivator. The details of the ownership pattern of the cultivated land are given in Table 2.7.

TABLE 2.7 CLASSIFICATION OF OPERATED LAND BY TENURE AND TYPE OF LAND

	Highland			Lowland			Total		
	No. of farms	Ext. (acres)	%	No. of farms	Ext. (acres)	%	No. of farms	Ext. (acres)	%
Solely owned	342	1412.5	61.3	157	279.0	74.0	360	1682.2	62.7
Kattimaru	02	3.0	0.1	1	10.0	2.6	3	13.0	.4
Thattumaru	00	-	-	2	3.0	.7	2	3.0	.1
Other joint ownership	57	837.2	36.3	25	65.3	17.3	63	912.1	34.0
LDO/Government	28	49.7	2.1	6	4.0	1.0	27	53.7	2.0
Encroachment	02	1.5	.0	4	2.5	.6	5	4.0	.1
Leased	00	-	-	8	12.7	3.3	7	12.7	.4
TOTAL :	431	2304.0	100.0	203	276.8	100.0	467	2680.8	100.0

Chapter 3

PERFORMANCE OF THE SUBSIDIES PROGRAMME

Since coconut is the major plantation crop in the Kurunegala district, the IRD project has given high priority for the development of this crop. As Kurunegala is the leading district planted with coconut, the development of this crop will have a significant influence on the country's economy. A survey done by the Ministry of Finance and Planning in 1977 emphasized the immediate need for a coconut development programme. This survey identified the main shortcomings of the coconut cultivation in the Kurunegala district (Hussain, 1977). These included:

(a) About 80% of trees in the district fell within the productive age group of 7-60 years. About 10% of the palms were over 60 years and the balance consisted of immature plants as they were mostly underplanting;

(b) Low diffusion of intercropping technology, ie., only about 50% of the cultivated area had been utilized for interplanting;

(c) The planting material consisted almost exclusively of local tall varieties and the seedling distribution programme was inadequate to meet local demands;

(d) Poor fertilizer application - though some of the larger holdings applied adequate fertilizer doses, smallholders hardly used sufficient fertilizer;

(e) Low level of adoption of improved cultural practices - most cultivators did not follow cultural practices continuously. Even occasional weeding and cutting drains were adopted only by a very few farmers;

(f) Low coconut productivity - the average annual productivity of the district was very low compared with that of other districts such as Kalutara (1532), Galle (1849) and Matara (1672) (Silva et al., 1978). In 1977 the average yield in the Kurunegala district was only 1022 nuts per acre per year. The low yields were mostly due to adverse weather conditions and reduced fertilizer application.

In order to overcome the major constrains to the development of coconut cultivation and to upgrade the coconut industry in the Kurunegala district, the KIRDP[1] introduced a number of subsidy programmes in collaboration with the Coconut Cultivation Board (CCB). Although the CCB had already implemented an island-wide subsidy scheme for the development of coconut cultivation[2], the KIRDP tried to strengthen the then existing subsidy schemes with a view to rehabilitating the coconut industry. The CCB coconut subsidy schemes then in operation comprised the following six programmes.[3]

1. Coconut rehabilitation
2. Replanting/underplanting
3. New planting
4. Interplanting with other crops
5. Pasture development
6. The subsidy for smallholders of less than one acre in extent

According to official records there is a significant achievement in rehabilitation and replanting/underplanting programmes in Kurunegala, under the project, compared with other subsidy programmes launched by the CCB.

The adoption of appropriate policies for the expansion of the coconut rehabilitation programme throughout the Kurunegala district in keeping with project targets and financial allocations,was the main thrust of the KIRDP. On these lines the KIRDP has implemented important programmes such as:

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1. Kurunegala Integrated Rural Development Project.
2. Please refer annex 2 for further details of the coconut subsidies programmes.
3. The kIRFP emphasized the programmes of coconut rehabilitation, intercropping and underplanting/replanting.

1. The setting up of eight nurseries, in addition to the two nurseries at Ibbagamuwa and Hettipola;
2. Introduction of a fertilizer credit scheme;
3. Enhancing of infrastructure facilities;
4. Supplying of vehicles and other equipment;
5. Strengthening of all subsidy programmes already implemented by CCB;
6. Increasing of staff involved in coconut cultivation of the district.

It has been observed that this scheme, has contributed to the development of the coconut industry in the district in two ways:

1) Direct stimulus - The subsidy policies implemented throughout the district since 1979 have directly influenced the existing coconut cultivations by way of rehabilitation programmes, intercropping, strengthening of infrastructure facilities and office services etc. Also under the subsidy scheme for pasture and smallholdings (of less than 1 acre), significant expansion has taken place as compared with other cultivated districts, as an indirect effect of the KIRDP.

2) Indirect stimulus - Most cultivators in the district have benefitted indirectly from the IRDP coconut development programme - for example large extents of land have been brought under new cultivation since 1979 on farmers' own initiative.

Table 3.1 summarises the distribution of the subsidies programme since 1979. The rehabilitation programme included cutting of drains, removal of excess palms, filling of vacancies etc. During the project period the KIRDP aimed at rehabilitating 60,000 acres, and by mid 1982 more than 50,000 acres were successfully rehabilitated. Table 3.1 further outlines the project targets and their achievements during the three years, from 1979 to end of 1982.

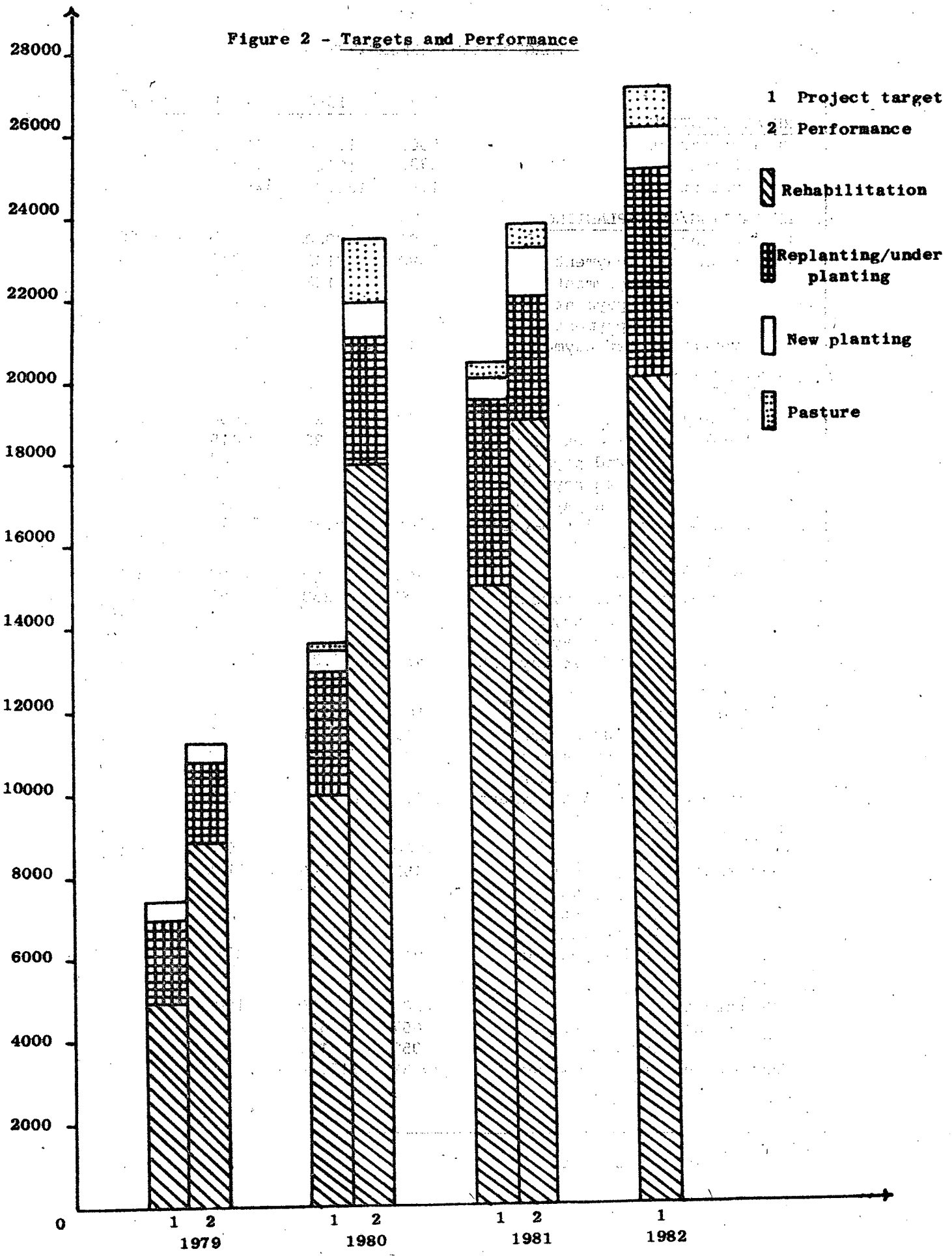
Since the implementation of the project, the targeted acreages for above mentioned subsidies programmes, have been expanded according to the requirements of the district. As far as disbursement of the subsidies are concerned, the available statistics show that the project has achieved its targets. Although the project target for rehabilitation for the first three years was 30,000 acres, performance was 45,991 acres, and the CCB was able to achieve its four year target within three years.

TABLE 3.1 TARGETS AND PERFORMANCE

	1979	1980	1981	1982*	1983
A. REHABILITATION					
Project target	5000	10000	15000	20000	10000
Performance	8933	18029	18969		
Achievement	178%	180.2%	126.4%		
B. REPLANTING/UNDERPLANTING					
Project target	2000	3000	4500	5000	10500
Performance 1st payment	1880	3132	3044		
2nd payment		188	321		
3rd payment		43	141		
4th payment			17		
Achievement of 1st payment	94%	104.4%	67.6%		
C. INTERCROPPING					
1. Coffee					
Project target	250	625	1400	600	
Performance 1st payment	322	622	415		
2nd payment		13	63		
3rd payment			2		
4th payment	-	-	-		
Achievement of 1st payment	128%	99.5%	37.7%		
2. Pepper					
Project target	200	250	300	200	
Performance 1st payment	107	238	88		
2nd payment			5		
3rd payment	-	-	-		
Achievement of 1st payment	53%	95.2%	29.3%		
3. Cocoa					
Project target	100	125	200	100	
Performance 1st payment	49	171	48		
2nd payment					
3rd payment					
Achievement of 1st payment	49%	136.8%	24%		
D. NEW PLANTING					
CCB target	500	500	500	1000	
Performance 1st payment	455	766	1155		
2nd payment		12	46		
3rd payment		4			
4th payment					
Achievement of 1st payment	91%	153.2%	231%		
E. PASTURE					
CCB target	200	400	1000		
Performance 1st payment	657	462			
2nd payment	958	154			
Achievement of 1st payment	328.5%	115.5%			

* At the time of the study.

Figure 2 - Targets and Performance



Though at a glance, it appears that there has been sufficient achievement in the replanting/underplanting programme, yet it has been successful only at the 1st payment stage. The CCB has managed to effect replanting and underplanting of 8056 acres by the end of 1981, out of a total target of 15,000 acres. The progress by the various subsidy schemes during the last few years are given in Figure 2.

Significant achievements can also be seen in the new planting programme. Although special attention has not been given by the KIRDP for the new cultivation programme, the Coordination Committee[1] has decided to include this aspect too in the subsidy programme.

To get a general picture of the distribution of subsidies, the data derived from the sample survey were analysed separately. We interviewed 168 farmers who had obtained various forms of subsidies under this programme. According to Table 3.2, farmers have developed about 715 acres under the subsidy programme, which represents only about 40% of total cultivated coconut area of the sample households, suggesting that the major part of the area has not been developed under this scheme. The utilization of the subsidy programme varied from one ecological zone to another.

For example, in WM_3 about 75% of total cultivated coconut lands has been brought under the scheme, whereas in the IL_1, only about 31% has come under the scheme.

There is wide variation with regard to the implementation of the different programmes within the scheme. A large number of farmers who obtained subsidies under the rehabilitation programme have given priority to the cutting of contour drains. However, removal of excess palms (thinning out) and filling of vacancies have been given very low priority. The farmers in the sample, reported that they have rehabilitated 461.55 acres (65% of the total acreage) and obtained Rs. 102,702.00 as subsidies. All

1. This Committee consists of district heads of government departments involved in the IRDP programme. It is chaired by the Project Director.

TABLE 3.2 DISTRIBUTION OF USE OF SUBSIDIES ACCORDING TO AGRO-ECOLOGICAL ZONES

	IL_1		IL_2		WL_3		WH_3		TOTAL		%	
	Acre-age	Subsidy Rs. Cts.	Acre-age	Subsidy Rs. Cts.	Acre-age	Subsidy Rs. Cts.	Acre-age	Subsidy Rs. Cts.	Acre-age	Subsidy Rs. Cts.	Acre-age	Subsidy Rs, Cts
1. Rehabilitation	318.3	70897.0	70.0	17153.0	49.0	10099.0	24.2	4884.0	461.5	103033.0	64.5	43.6
i. Contour drains	318.3	70565.0	70.0	17153.0	49.0	10099.0	24.2	4884.0	461.5	102701.0	64,5	43.5
ii. Removing of senile trees		332.0	-	-	-	-	-	-	-	332.0	-	0.1
2. Replanting/ underplanting	157.0	93515.0	28.0	9448.0	30.7	8400.0	-	-	215.7	11363.0	30.1	47.1
3. New planting	3.7	3434.0	7.0	9734.0	5.0	3465.0	20.0	4403.0	35.7	21037.0	5.0	8.9
4. Pasture	1.5	600.0	-	-	-	-	-	-	1.5	600.0	0.2	0.2
5. Others	-	-	-	-	-	-	-	-	-	-	-	-
6. Total :	480.5	168446.0	105.0	36335.0	84.7	21964.0	44.2	9288.0	714.5	236033.0	100.0	100.0
7. Total cultivated coconut lands	1322.5		189.0		201.5		58.5		1771.8			
8. % developed acreage	36.3		55.3		42.0		75.6		40.3			

farmers had completely neglected the removal of excess trees except in IL_2 area where it was reported that only 60 senile trees were removed under the rehabilitation programme. There were several reasons for giving high priority to the laying of contour drains under the rehabilitation programme.

1. All farmers were convinced that cutting of contour drains prevented soil erosion
2. The financial subsidy for this purpose was obtainable within a short period and in one instalment
3. It provided employment for family labour which was otherwise unemployed during the off season.

Most of the farmers did not pay much attention to the removal of excess palms because of the possibility of declining family income in the short run and, above all, they were not convinced of the benefits that would result from the removal of excess trees. However, the achievement appears to be better in the replanting and underplanting programme as compared to the other subsidy programmes, such as new planting, the pasture subsidy and the subsidy for extends of less than 1 acre. According to the survey 215.75 acres have been replanted, and this extent was 46.64 percent of the target for replanting/underplanting.

Very few farmers, in the sample, had obtained subsidies for new cultivation[1]. None of the sample farmers had obtained subsidies for extents less than one acre. When we consider the performance of the subsidy programme in the different CDO ranges, a significant achievement in rehabilitation, is evident in the Kurunegala, Ibbagamuwa, Potuhera and Polgahawela CDO ranges. Replanting/underplanting also appeared to be satisfactory in the Kurunegala, Ibbagamuwa, Dodangaslanda, Wariyapola and Polgahawela areas.

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1. Please note that the DL_1 area whose activities were mainly concentrated on new plantings were excluded from the present study, because of the low priority given to this component by the KIRDP.

TABLE 3.3 DISTRIBUTION OF THE USE OF SUBSIDIES ACCORDING TO SIZE OF HOLDINGS

Holding Size	Rehabilitation		Underplanting		New Planting	
	No. of farmers	Acreage	No.of farmers	Acreage	No. of farmers	Acreage
<1	-	-	04	2.0	-	-
1 - 5	49	101.0	47	73.7	06	7.0
5 - 10	30	115.5	12	33.5	05	8.2
10 - 25	19	140.7	13	61.2	02	3.2
25 - 50	04	89.0	01	3.0	01	5.0
Over 50	04	30.0	02	20.0	01	5.0

According to Table 3.3 most of the project benefits have accrued to farmers who owned 1-10 acre size holdings. This shows a realisation of expectations since KIRDP has given priority to smallholders of below 25 acres. Less benefits have gone to large landholders of above 25 acres.

Our survey indicated that most of the cultivators had not continued their work on cultivation to be eligible for the second or third instalments under the replanting subsidy schemes (Refer Table 3.4). According to the information gathered in the field survey, out of 168 farmers interviewed, only 17 farmers had obtained their second instalment and only three farmers had received their third instalment. In an earlier section, it was noted that there was a satisfactory disbursement of subsidy funds; but since the achievements so far as subsequent instalments are concerned, are rather poor, it becomes necessary to examine whether the funds that were disbursed were actually put to productive use.

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<1	-	-	04	2.0	-	-
1 - 5	49	101.0	47	73.7	06	7.0
5 - 10	30	115.5	12	33.5	05	8.2
10 - 25	19	140.7	13	61.2	02	3.2
25 - 50	04	89.0	01	3.0	01	5.0
Over 50	04	30.0	02	20.0	01	5.0

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TABLE 3.4 REASONS FOR NOT OBTAINING SECOND AND THIRD INSTALMENTS

R E A S O N	Those who obtained 1st instalment		Those who obtained 2nd instalment	
Work not completed in time	10	28.5%	04	44.4%
Lack of knowledge	04	11.4%	02	22.2%
Not interested because the payments are inadequate	09	25.7%	-	
Hope to obtain subsidies in the near future	06	17.4%	02	22.2%
Legal problems	04	11.4%	-	
Inefficiency of officers	-		01	11.1 %
Lack of time	02	5.7%	-	
TOTAL :	35		09	

According to Table 3.4 most cultivators could not obtain the second and third instalments mainly due to two reasons:

1. Work not completed in time
2. Not interested

It was quite apparent that most of the farmers have not completed the work prescribed by the CCB in order to obtain their second and third instalments, since eligibility for second and third instalments required the adoption of cultural practices as recommended by the CCB[1]. These practices include fertilizing, maintaining of fences, watering and protecting the palms from cattle.

Cultivators appeared to be unable to adopt these cultural practices in time, due to lack of interest. And farmers also did not appear to be much interested in obtaining the second and third instalments as they were not so attractive as the first instalment. However, the poor attention paid by cultivators to their plantings was the main reason for the low rates of payment of the second and third instalments.

1. See Annexe 2.

Recently the CCB has introduced a new programme to encourage coconut cultivators under the existing subsidies system. Under this programme fertilizers were issued by the CCB, in lieu of financial aid, making up the second and third instalments. This scheme commenced as from June 1982 on an experimental basis, in selected two CDO ranges and significant results have been achieved under this new system. Table 3.5 gives information on quantities of fertilizer issued by the CCB during 1982/83 Maha season, in lieu of financial instalments.

TABLE 3.5 QUANTITIES OF FERTILIZER ISSUED (KG)

Type of fertilizer	Kurunegala	Kuliyapitiya	Total
CU1	-	12200	12200
CU2	161975	197000	358975
CRI (B)	-	7700	7700
YPM	33605	37835	71440
Dolamite	7850	37400	45250
TOTAL :	203430	292135	495565

Source : Coconut Cultivation Board

As outlined in Table 3.6, lack of interest has been the main reason why the non-beneficiaries have not made any attempt to obtain subsidies. Low levels of extension effort could have been the main contributory factor, for the low interest envinced by farmers, in subsidy programmes. While some farmers indicated their willingness to obtain subsidies in the near future, certain others were generally frustrated on account of bureaucratic attitudes and land dispute problems.

TABLE 3.6 REASONS FOR NOT OBTAINING SUBSIDIES, BY THE NON-BENEFICIARIES

Reasons	No. of responses	%
Waste of time	07	7.6
Expect to obtain subsidies	19	20.8
Lack of owner's interest	29	31.8
Land disputes	07	7.6
Lack of finance	12	13.1
Lack of know-how	09	9.8
Smallholdings	06	6.5
Lack of facilities	02	2.1
TOTAL :	91	100.0

TABLE 3.7 PROBLEMS FACED IN OBTAINING SUBSIDIES

Problems	No. of responses	%
Officer's inefficiency	14	24.4
Delay in payments	28	50.9
Problems of obtaining seedlings	06	10.9
Political influence	03	5.4
Lack of know-how	03	5.4
Unavailability of suitable seedlings	01	1.8
TOTAL :	55	100.0

* One respondent was free to indicate more than one reason.

It is interesting to note that those who had obtained subsidies, had to face numerous problems, like not getting the payments in time (Table 3.7). In fact, this may have been a contributory factor as to why some farmers did not participate in the scheme at all. This may also have been a reason why they were not able to attend to the cultural practices, in time in order to get the subsequent instalments (Table 3.4). Awareness of these problems by the officials concerned, will greatly help in the spread of the subsidy schemes, among a larger number of farmers.

Chapter 4

AGE COMPOSITION OF PLANTATIONS, LAND UTILIZATION PATTERN AND PLANTING MATERIAL DISTRIBUTION PROGRAMME

4.1 COCONUT CULTIVATION AND AGE COMPOSITION

Age composition of coconut trees is one of the most important factors which influence coconut productivity. The impact of age on productivity, varies with the variety. The average productive life span of a coconut tree is normally calculated at 60 years. Well grown tall varieties start to bear fruits between 5-7 years. Whereas, short varieties bear as early as in 3 years. The high productivity period of the tall variety is between 15 to 50 years. After about sixty years the palms gradually pass to a state of senility.

TABLE 4.1 COCONUT CULTIVATION AND AGE COMPOSITION

AGE (Years)	With Subsidies			Without Subsidies		
	No.of farmers	No. of trees	%	No.of farmers	No.of trees	%
< 1 -	13	1111	1.1	02	335	1.4
1 - 7	63	22099	22.6	12	1998	8.6
8 - 15	31	7537	7.7	15	621	1.1
16 - 30	47	8421	8.6	32	4838	20.9
31 - 60	124	36927	37.8	72	13530	58.5
Over 60	68	21485	22.0	25	2141	9.2
TOTAL:	346	97580	99.9	158	23463	99.9

According to the present survey a large number of trees (60 percent) helong to the age group 8-60 years (see Table 4.1); of the remaining, 20% is in the age group 1-7 years and another 20% of the palms belong to the age group of above 60 years. However, between the 2 samples, the percentage of plants of more than 60 years of age was higher in the sample which obtained subsidies (22%) when compared with that of non-beneficiaries (9%).

Categorization of coconut farms into bearing and non-bearing groups shows that 92% of the total extent of farms belongs to the bearing group. In this category, about 68 of the farms were productive, while 19 of the farms, as well as of the acreage, was above 60 years; and were showing a decline in productivity. (See Table 4.2). It was further revealed that less than 13% of this extent was replanting and so non-bearing.

TABLE 4.2 CLASSIFICATION OF FARMS ACCORDING TO BEARING AND NON-BEARING

Age of farms (Years)	Number of farms		Total acreage	
	Total	%	Total	%
Non-bearing	07	1.7	23.50	1.3
< 1				
1 - 7	44	10.9	120.50	6.6
Bearing				
8 - 15	28	7.0	166.55	9.1
16 - 30	57	14.2	167.25	9.2
31 - 60	189	47.0	964.75	53.0
Over 60	77	19.2	379.25	20.8

4.2 PATTERN OF LAND UTILIZATION

When considering the extent of lands according to the pattern of cultivation, it was found that while a large proportion was under plantings, only 22% of the total cultivation was under new plantings. Though the project has not emphasized the new planting programme as an important component of the district coconut development programme, yet it has expanded substantially within the last three years. But very few farmers obtained subsidies for this purpose.

Table 4.3 shows the extents of lands in terms of the number of trees under various patterns of cultivation. One salient feature was that while the beneficiaries have concentrated on the underplanting, non-beneficiaries were inclined towards filling of vacancies. This shows that for a planned programme of underplanting, there is the need for a subsidy programme. It appeared that there is a remarkable difference between the two categories of households interviewed in respect of patterns of cultivation.

TABLE 4.3 EXTENT OF COCONUT LANDS, ACCORDING TO PATTERN OF CULTIVATION KURUNEGALA DISTRICT (IL_1, IL_2, WL_2, WM_3)

Age of	With Subsidies			Without Subsidies			Total		
	No.of farmers	No.of of trees	%	No.of farmers	No. of trees	%	No.of farmers	No. of trees	%
Replanting	09	2430	8.33	0	0	0.00	09	2430	8.0
Underplanting	86	14653	50.27	14	678	21.21	100	15331	47.0
New planting	47	6470	22.19	06	795	24.87	53	7265	22.0
Filling of vacancies	107	5595	19.19	58	1723	53.91	165	7318	23.0

TABLE 4.4 AVERAGE NUMBER OF COCONUT PALMS PER ACRE ACCORDING TO THE SIZE OF THE HOLDINGS

Holding Size	Il_1	IL_2	WL_2	WM_3	Overall
< 1	47	-	53	45	48
1 - 5.99	53	51	58	37	52
6 - 10.99	53	39	40	28	49
11 - 25.99	53	76	57	46	52
Over 25	45	-	52	-	47

The average number of coconut palms per acre according to the size of the holding is also an important variable that has to be studied. In this sense, it has been identified that the average palm population per acre is around 52. However, it is very low when compared with the rate of 64 per acre, recommended by the CRI. The average palm population varied according to the size of the holding. Most of these farmers had not adopted adequate management practices for their lands. The removal of senile trees and filling of consequent vacancies had not been properly done. This is one of the reasons why the palm population of the district remained at a low level. Although the picture of the zones IL_1 and WL_2 appeared to be satisfactory, it is evident that the farmers in these areas have hardly practiced the recommended plant density of 64 palms per acre.

4.3 DISTRIBUTION OF PLANTING MATERIALS

Supplying of coconut seedlings is one of the major components of the coconut development activities implemented by the KIRDP project since 1979. Till 1979 lack of high quality seedlings has been one of the biggest problems in upgrading the quality of coconut plantations in the district. In order to increase the supply of high quality seedlings for the whole district, the KIRDP proposed to set up 8 new coconut seedling nurseries, in addition to the two existing nurseries at Hettipola and Ibbagamuwa. The project is expected to achieve the following objectives:

1. To supply adequate seedlings to meet the increasing demand
2. To distribute high quality seedlings
3. To supply seedlings at a reasonable price

By the end of 1981 the project had set up the eight nurseries and had commenced the distribution of planting materials. At the same time KIRDP took over the two existing nurseries for further development. The distribution of the seedlings by the nurseries, during the last three years are given below.

TABLE 4.5 PLANTING MATERIAL DISTRIBUTION

Location	79 Maha	80 Yala	80/81 Maha	81 Yala	81/82	82 Yala
Wariyapola		33712	39385	24951	27255	25237
Nikaweratiya			22409	23085	26441	13948
Dodangaslanda			11364	23732	41433	28092
Polgahawela			16198	28073	34393	16477
Gannoruwa			38450	20765	34393	31025
Kuliyapitiya		40500	41046	20497	41636	34306
Bingiriya			22058	18365	34363	34168
Kandetiya					21246	31329
Hettipola					37351	32326
Ibbagamuwa					159033	68566

Coconut seedlings are being issued from these 10 nurseries to meet the demand of the subsidy permit holders, home garden cultivators and other non-project beneficiaries within the district. If there was an excess production of seedlings, they were made available to other districts. Coconut Development Officers have been entrusted with the responsibility of distributing seedling materials.

It was reported that a high mortality rate of coconut seedlings existed in Kurunegala district (Hussain 1978). One of the aims of the KIRDP was to reduce this high mortality rate of seedlings. Table 4.6 shows the period in which plants start to get damaged.

TABLE 4.6 AGE OF SEEDLINGS AND MORTALITY RATES, ACCORDING TO AGRO-ECOLOGICAL ZONES (NUMBER OF FARMERS REPORTING).

*Period (from the time the farmer receives the planting material).	IL_1		IL_2		WL_3		WM_3		TOTAL	
	No. of farmers	%	No. of farmers	%	No. of farmers	%	No. of farmers	%	No. of farmers	%
Less than 3 months	22	32.3	2	12.5	1	14.3	5	50.0	30	29.7
3 to 6 months	24	35.3	7	43.7	4	57.1	3	30.0	30	37.5
6 to 12 months	15	22.0	7	43.7	2	28.6	2	20.0	28	25.7
12 to 24 months	7	10.3	-	-	-	-	-	-	7	7.1
No. of farmers reported	68		16		7		10		95	

* The plants are distributed to farmers after a nursery period of 8-12 months.

According to Table 4.6 there is some relationship between the age of seedlings and the mortality rates, depending on the agro-ecology of the area. In general, the highest mortality rate was during the period less than six months from transplanting. 37 percent of the farmers reported that the damage was greatest during the period between 6 and 12 months. As shown in Table 4.6, significant differences existed between the agro-ecological zones. WM_3 and IL_1 zones had considerable damage in the period

of less than 3 months, while in IL_1, IL_3 and WM_3 zones the damage was greatest during 3 to 6 months and in IL_3 during 6 to 12 months.

Table 4.7 shows the reasons for the damage of the seedlings. They are mostly damaged on account of insufficient availability of water (61%) and also by pests and diseases (18.8%). Other causes of damage are animals such as cattle (9,5%), and water logging (4.3%). However, of the natural factors, drought was the most important cause of damage in the district. This high incidence of seedling damage could have been reduced, if farmers had paid more attention to irrigation of the plants in the early stages.

TABLE 4.7 REASON FOR SEEDLING DAMAGE

REASON	IL_1		IL_3		WL_2		WL_3		TOTAL	
	No. reporting	%	No. reporting	%	No. reporting	%	No. reporting	%	No. reporting	%
Inadequate availability of water	48	58.5	10	66.7	05	71.4	08	66.6	71	61.2
Pest damage	15	18.3	02	13.3	01	14.2	03	15.0	21	18.1
Incorrect planting method	-	-	-	-	01	14.2	-	-	01	0.8
Destruction by cattle	10	12.2	01	06.6	-	-	-	-	11	09.5
Water logging	04	4.8	01	06.6	-	-	-	-	05	04.3
Others	05	6.1	01	06.6	-	-	01	8.3	07	06.0
TOTAL :	82	100.0	15	100.0	07	100.0	12	100.0	116	100.0
No. of respondents	71		14		07		11		103	

Chapter 5

FERTILIZER CREDIT SCHEME

Fertilizer credit programme for coconut cultivation is one of the major development efforts for upgrading coconut cultivation in the district. Under favourable weather conditions and with regular fertilizer applications, one could expect a yield of 2000-3000 nuts per acre (Gunaratne 1982). The project envisaged the provision of credit facilities, as one of the means of solving the acute financial problems, faced by the coconut small holders. In fact, lack of financial resources was identified as the major reason for inadequate fertilizer usage in the district (Hussain 1979). The KIRDP implemented the credit programme in collaboration with the People's Bank and the Bank of Ceylon.

In order to increase the fertilizer use of coconut small holdings, financial facilities were provided by the Bank of Ceylon and the People's Bank. These two banks provided loans to small holders to obtain their fertilizer requirements for coconut from the government fertilizer stores, or from authorized agents. 640 lbs was recommended as the maximum quantum of fertilizer per acre per year, and it was valued in terms of prevailing market prices. This amount of fertilizer was issued, on the basis that one palm required 10 lbs of fertilizer per year. The credit scheme for small holdings under the coconut development project was implemented to benefit all the coconut lands, ranging from ½ acre to 50 acres. The banks allowed a two year grace period, and loans were to be repayed within 5 years. During this grace period the borrower had to pay interest every two months, at the rate of 9½ per annum. Borrowers had to furnish two guarantors in the form of two government officers who earned a basic salary of at least Rs. 520/- per month, or two income tax payers. They were also borrowed inter-se guaranteeing.

Although the project aimed at promoting the application of fertilizer in 50,000 acres, within the project period, by providing loans upto Rs.40.5 million; the Bank of Ceylon and the People's Bank had lent only about Rs.11 million during the period January 1979 to 30th July 1982.

TABLE 5.1 THE TOTAL DISBURSEMENT OF FERTILIZER CREDIT IN THE KURUNEGALA DISTRICT FOR THE PERIOD 1979 TO 30TH JULY 1982

	Bank of Ceylon			People's Bank		
	No. of loans	Amount (Rs)	%*	No. of loans	Amount (Rs)	%*
IL_1						
Kuliyapitiya	94	370777		201	791510	
Narammala	16	88960		111	432185	
Hettipola	07	17120		73	207902	
Ibbagamuwa				28	196710	
Potuhera				03	49318	
Giriulla	101	189776		63	444015	
Bingiriya	178	493152		142	250871	
Kurunegala Bazaar Branch	44	160905		44	340665	
Maliyadeva Vidiya				21	185283	
Dummalasooriya	219	5004890				
Ridigama	31	77255		10	65439	
Makandure				29	98966	
Welpalla	128	164454				
Kobeigane				04	21750	
TOTAL :	818	6567289	88.37	729	3084614	86.23
IL_2						
Wariyapola	51	175343		15	74770	
Nikaveratiya'	55	123382		20	51578	
Hiripitiya	14	137340				
Melsiripura	05	58795				
TOTAL :	125	494860	6.60	35	126348	3.53
WL_1						
Polgahawela	210	275174		53	57433	
Alawwa	20	58440		41	154860	
TOTAL :	230	333614	4.48	94	212293	5.94
WM_3						
Mawatagama	15	35023		30	144256	
TOTAL :	15	35023	0.48	30	144256	4.04
DL_1						
Maho				04	9435	
TOTAL :				04	9435	0.26
SUB TOTAL :	1188	7430786	100	883	3576946	100
GRAND TOTAL :	11007732					

* As a % of total for region.

1. A.S.C.

Source: Bank of Ceylon and People's Bank.

This covered only 1/3 of the target, which is far from satisfactory. Likewise, the Banks have made various arrangements to diffuse the credit programme throughout the district, by providing incentives as well as banking facilities. Although the scheme has undoubtedly increased the use of fertilizer application in the district, its actual effectiveness could be gauged, only by considering the increase in productivity and the total production of the district. An effort to improve production could be undertaken at a latter stage. It is difficult to examine the position regarding loan recoveries, since repayment of the loans takes effect only after the two year grace period. Only a small amount of money was recovered by the banks, within the last two and a half years.

Table 5.1 summarizes the fertilizer loans granted by the Bank of Ceylon and the People's Bank for the entire district. The Bank of Ceylon has played a more prominent role in the fertilizer credit allocation than the People's Bank. The Bank of Ceylon accounts for 69% of the total amount of loans granted, while the residual 31% was issued by the People's Bank. The Bank of Ceylon has widened its credit programme successfully throughout the district, with the help of the bank branches attached to the Agrarian Services Centres (ASC).

According to agro-ecological zones the area IL_1 has obtained the largest amount of credit granted. There is a very poor dissemination of credit in the area DL_1. Only 0.08% of the total amount of loans granted was issued to the Dry Zone because of low diffusion of coconut cultivation in the Dry Zone areas. It is clear that the use of bank loans is mainly dependent on the development potential of the coconut lands and the income status of the cultivators.

Table 5.2 shows the number of borrowers, the amount borrowed, and the source of credit of our survey sample. According to this Table, the non-institutional credit sector was not an important source for obtaining loans, for purchase of fertilizer for coconut plantations. The banking sector has provided the largest amount of credit for fertilizer, and the amount provided by the Bank of Ceylon and the People's Bank accounts for 96% of the total fertilizer credit borrowed. The co-operatives played only a minor role (4%). Of the sample project beneficiaries, only 40 farmers (16%) utilized loans for fertilizer applications, while 8 others

obtained credit for other purposes such as buying rice mills, trade, land development and paddy cultivation. Of these 48 cultivators only 30 persons made some sort of repayment. These figures indicate that only about 24% of the project beneficiaries obtained fertilizer credit.

In the fertilizer credit programme, banks have given the highest consideration to small holdings of less than 10 acres. Our survey data shows that 72.5% cultivators belong to the group under 10 acres, while 40% of the borrowers belong to the category owning 1-5 acres. There were also 12.5% cultivators in the group above 25 acres, who came under the scheme and obtained loans. The highest category of cultivators, of the group 1-5 acres, obtained only 16.5% of the total amount of money granted as loans (See Table 5.3).

TABLE 5.2 THE INSTITUTIONAL CREDIT SITUATION ACCORDING TO LENDING SOURCE FOR ALL PURPOSES PERIOD 1981/82.

Source Institutional	No. of borro-wers	Amount borro-wed	Purpose	Amount repaid	No. of repay-ers
People's Bank	26	140913	Special fertilizer credit	31646	16
	01	10000	To buy rice mills	7000	01
	01	50000	Trade	3000	01
Bank of Ceylon	14	60147	Special fertilizer credit	8538	07
	02	3000	Land development	550	01
	01	1250	Paddy cultivation	350	01
	01	50000	To buy rice mills	9000	01
Co-operatives	01	4000	Fertilizer (other crops)	2600	01
	01	1000	Land development	550	01
TOTAL :	48	275310		63234	30

Total number of responses : 48

TABLE 5.3 NUMBER OF BORROWERS ACCORDING TO HOLDING SIZE, UNDER THE FERTILIZER CREDIT SCHEME

Holding Size	Number of responses	%	Amount borrowed	%
< 1	01	2.5	750	0.37
1 - 5.99	16	40.0	33794	16.47
6 - 10.99	12	30.0	39711	19.36
11 - 25.99	06	15.0	40985	19.98
Above 26	05	12.5	89900	43.82
TOTAL :	40	100.0	205140	100.0

It was identified that the use of fertilizer and the obtaining of credit facilities gradually declined on account of factors such as the high prices of coconut fertilizer, low publicity, low prices of coconut that prevailed at the time of the survey, and non-availability of fertilizer.

An attempt was also made to identify the reasons for the high number of project beneficiaries who did not obtain bank loans. Nearly 39% of the responses were indicative of the technical difficulties in obtaining loans as the main reason, while 30% felt that loans were not needed, and nearly 20% of the responses indicated the difficulty of finding guarantors. Although the banks had adopted various policies* to popularize the credit scheme among the farmers, the operational guidelines of bank branches and rigid procedures adopted by some bank managers with regard to agricultural credit, may have become constraints to farmers. Finding suitable guarantors was the main problem faced by the farmers.

FERTILIZER APPLICATION

It was reported that fertilizer application in the district was very low before 1979. This was mainly due to lack of finance and non-availability of fertilizer (Hussain et al. 1979). In order to overcome these

* The People's Bank commenced a model village credit programme on an experimental basis in the Kurunegala district in late 1981.

bottlenecks identified in the Hussain report, the KIRDP launched a large programme in providing loans and improving fertilizer availability. Our effort is to evaluate this programme.

Data relevant to fertilizer use on coconut lands, during the period 1980-1982 were collected through the present survey. There are large differences among the holdings of various sizes with regard to fertilizer application. Though the large number of farmers belonged to the category of 1 - 5.99 acres, the largest quantity of fertilizer was consumed by the farmers, in the 6 - 10.99 acres category during the 1980/82 period (33% of the total quantity). On a per tree basis, the application was highest in the 6 - 10.99 acres category (this corresponds with our earlier finding of quantity of credit disbursements) and the lowest was in less than one acre category. However, during 81/82 period fertilizer consumption dropped in the 11 - 25.99 acre category and the highest application was in the 6 - 10.99 category (see Table 5.4). There is also evidence to show that most of the farmers generally decreased their fertilizer application during this period, mainly due to high fertilizer prices.

Of the 252 farmers interviewed, only 56 had used fertilizer regularly. About half of the farmers who were interviewed had not been applying fertilizer at all. Most farmers who had discontinued the practice has done so due to escalating fertilizer prices. In fact, fertilizer prices almost doubled in 1981, compared with 1980 prices.

As was indicated in the survey, most of the farmers mentioned lack of finance as the main reason for not using fertilizer, and it is surprising that even those who were eligible to get subsidized fertilizer loans had also given this same answer. This suggests that most farmers were ignorant of the scheme as well as of the value of fertilizer use in increasing production. In fact, apart from the cost factor some farmers in the Kurunegala district showed a lack of interest in fertilizer and held the view that fertilizer was not necessary. It was to overcome the cost factor, that the government implemented this credit programme for fertilizer. But farmers were not sufficiently responsive to this credit scheme, nor did they try to use organic manure like cowdung. Since, the coconut palm yields a certain amount even without any cultural practices, some farmers have taken this for granted and have not used fertilizer at all, or tended to apply dosages below what was recommended. The majority

TABLE 5.4 FERTILIZER USE UNDER THE SCHEME BY BENEFICIARIES 1980/81 - 1981/82

Holding Size Acres	YEAR 1980/81						YEAR 1981/82					
	No. of farmers	Total acreage	Qty. of fertilizer K/g.	Qty. on a % of total	No. of trees	Average qty. per tree K/g.	No. of farmers	Total acreage	Qty. fertilizer K/g.	Qty. on a % total	No. of trees	Average Qty. per tree K/g.
Less than 1	04	2.6	2.60	.24%	0161	.01	04	2.50	2.10	03%	161	.01
1 - 5.99	40	81.0	277.9	26%	5129	.05	23	79.1	175.1	23%	4703	.03
6 - 10.99	08	77.5	355.1	33%	4529	1.07	05	40.5	156.8	25%	2529	.06
11 - 25.99	02	39.0	208.0	19%	2150	.09	01	5.80	6.1	01%	350	.01
26 - 50.99	02	90.0	235.0	22%	4970	.04	02	90.00	279.0	45%	5000	.05
Over 51	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL :			1078.00						619.71			

of the cultivators gave lack of money as the root cause for the insufficient use of fertilizer. Table 5.5 gives the other reasons.

TABLE 5.5 REASONS FOR INADEQUATE FERTILIZER USE

Reasons	With subsidies	Without subsidies
Lack of money	33	21
Low productivity	02	01
Reliance on manure	05	01
Residual effect of inter cropping and other activities	03	02
Unavailability of fertilizer	01	05
Thought unnecessary	04	03
Lack of interest	02	02
Other	02	-
Total number of responses :	52	35

One respondent was free to indicate more than one reason.

The return on investment from fertilizer application comes rather late in the case of tall variety coconut, since this variety takes 10-15 years to come into full bearing (People's Bank, 1980). As the bulk of the cultivated palms in the Kurunegala district belong to the tall variety, this late maturing character would have been a crucial factor why a substantial number thought that fertilizer application was not necessary. Some of the other macro factors that accounted for the low fertilizer application during the last few years, were as follows:-

1. Drought : Although this was not prevalent throughout the whole district, some of the areas of the Dry Zone were seriously effected by it. Ganewatte, Wariyapola, Galgamuwa, Maho are some of the areas so effected.

2. Low Price : Price of coconuts dropped slightly during the last few years, except in late 1983. This effected total production in the country and was the result of demand/ supply conditions in the foreign market. There was price escalation from 1979-1980 due to low production levels in the country. This resulted in farmers obtaining Rs. 1300 - 1200 per 1000 nuts. But the prices dropped drastically to Rs. 750 - 650 per 1000 nuts in 1982. These prices were totally insufficient to cover the cost of production. Hence, most of the farmers were not interested in applying regular fertilizer dosage under those fluctuating price conditions.

Some attempt would be made in Chapter 8 to evaluate the effect of fertilizer on productivity.

Chapter 6

OTHER CULTURAL PRACTICES & SUPPORTING SERVICES

6.1 CULTURAL PRACTICES

Adoption of certain cultural practices could be considered as an essential factor that determines the productivity of coconut plantations. However, compared with other main plantation crops like tea and rubber, only a very limited number of cultural practices are pursued in coconut cultivation.

Since coconut is a perennial crop with an average productive life-span of around 60 years, planting is a one-time operation. Some of the few routine cultural practices adopted for coconut cultivation are as follows:

1. Activities related to land preparation such as removal of senile trees, and soil and water conservation measures viz: ploughing and harrowing of land, making contour drains, bunds and terraces, and burying husks, etc.,

2. Activities related to, holing, fencing and planting,

3. Crop care activities such as fertilizer application, controlling weeds, pest and disease control, irrigation and replacing the senile palms,

4. Activities related with harvesting.

Hussain (1978) identified that in the district of Kurunegala, adoption of these cultural practices for coconut cultivation was entirely inadequate and that some cultivators had hardly practised any cultural practices.

The variation of productivity is a direct function of the adoption of these cultural practices. Most of the cultivators in the district who had not adopted these cultural practices during the last decade are now seriously faced with low production levels. This has implications on the production in the district. From the point of view of subsidy allocation for cultural practices, it is observed that some of the important cultural practices like cutting drains, removal of senile trees and fertilizer application were subsidized under the project programmes for coconut development (See Annexe II).

The findings of the present survey clearly show that, when compared to non-beneficiaries, the level of adoption of cultural practices was very much higher in the beneficiary group (See Table 6.1). In the non-beneficiers group, only weeding was done to a substantial level (31.7% of the respondents) but these too have not been adequately attended to, and have not been attempted at all in holdings of less than one acre. This clearly shows that the opportunity cost of labour was much higher in this category than using it on weeding. However, larger holdings have the advantage of hiring in labour for these purposes.

Among the cultural practices that are practiced by the beneficiaries cutting of drains, planting and weeding have been very popular. Other practices were done only by few respondents. This situation is further aggravated by the poor publicity and lack of know-how. In fact, lack of know-how has been the main reason for this poor adoption of cultural practices, by the small holders. Apart from planting, the adoption of cultural practices have been rather poor in the holdings of less than 1 acre (See Table 2). Also, owners of small holdings of less than one acre are not in a position to adopt cultural practices because of problems like land fragmentation and land disputes.

The easily practicable cultural practices, like weeding and cutting of drains, have been followed in other size groups with a view to being recipients of KIRDP incentives (See Table 6.2 for details). But here again, practices like planting, harrowing and removing of trees has been very poor in larger estates.

Hence, in conclusion, one could say that KIRDP has had a very good impact in the adoption of certain cultural practices. Although, in general,

TABLE 6.1 ADOPTION OF CULTURAL PRACTICES

	BENEFICIARIES					NON-BENEFICIARIES				
	Ada	Inada	Not done	% respondents done	% respondents not done	Ada	Inada	Not done	% respondents done	% respondents not done
Cutting drains	114	13	37	77.4	22.5	5	5	75	11.7	88.2
Bunding	5	2	157	4.2	95.7	1	4	80	5.8	94.1
Removing trees	17	3	144	12.2	87.8	-	1	84	1.1	98.8
Planting	90	7	67	59.1	40.8	4	4	77	9.4	90.5
Burning husks	22	10	132	19.5	80.4	3	0	82	3.5	96.4
Harrowing	9	1	154	6.1	93.9	1	0	84	1.1	98.8
Weeding	75	27	62	62.2	37.8	19	8	58	31.7	64.2
OTHER	5	-	159	3.0	96.9	-	-	85	-	100.0

No. of respondents :

Beneficiaries 164
Non-beneficiaries 85
Ada Adequate
Inada Inadequate

TABLE 6.2 ADOPTION OF CULTURAL PRACTICES BY SIZE OF HOLDING

	Beneficiaries Size of holding (acres)					Non-beneficiaries Size of holdings (acres)				
Method used	1	1-5.99	6-10.99	11-25.99	> 26	1	1-5.99	6-10.99	11-25.99	26
Cutting drains	2	67	33	17	8	-	9	-	-	-
	50.00	72.0	91.6	85.0	72.7	-	14.5	-	33.3	-
Bunding	-	2	2	-	3	-	3	-	-	1
	-	2.1	5.5	-	27.2	-	6.4	-	-	33.3
Removing trees	-	13	1	2	4	-	-	-	-	1
	-	13.9	2.7	10.0	36.3	-	-	-	-	33.3
Planting	3	54	20	11	9	-	6	1	0	1
	75.0	58.0	55.0	55.0	81.8	-	9.6	10.0	-	35.3
Burying husks	1	12	5	9	5	-	1	2	-	-
	25.0	12.9	13.8	45.0	45.4	-	1.0	20.0	-	-
Harrowing	-	6	-	2	2	-	1			
	-	6.4	-	10.0	18.1	-	1.6			
Weeding	1	54	25	14	8	1	21	4	1	
	25.0	58.0	69.4	70.0	72.7	14.2	33.8	40.0	33.3	
Other	-	-	2	2	1					
			2.5	10.0	9.0					
No.of farmers(responded)	4	93	36	20	11	7	62	10	3	3

In paranthesis as a % of the number of respondents in each land size.
No. of respondents - Bene. 164
Non-Bene, 85.

adoption was poor in small holdings, certain operations are hardly done even in large holdings.

6.2 EXTENSION SERVICES

Many benefits were expected from the extension service that were proposed under this project. Since extension service is one of the shortest ways linking policy makers and project beneficiers, KIRDP made a significant effort in building a strong extension programme. In order to meet the urgent needs of the project, it launched a unified extension service programme in 1979. Although, over 3½ years have elapsed since the implementing of the unified system of extension, yet there are many instances where the extension services have not been added upto the objectives set by KIRDP. This study has identified the benefits obtained from the existing extension system (See Table 6.3).

TABLE 6.3 BENEFITS OBTAINED FROM THE COCONUT EXTENSION SERVICE, ACCORDING TO BENEFICIARIES OF THE SUBSIDY SCHEME

B E N E F I T	No. of responses from beneficiaries	% of total benefitted farmers
Advice on using of new technology	63	37.0
Advice on obtaining high production	43	25.0
Obtaining higher yields from the land	40	24.0
Getting instructions for replanting and underplanting	81	48.0
Studying pasture and inter crops	06	04.0
Advice on obtaining finahcial facilities	88	52.0
No. of responses :	130	

One respondent was free to indicate more than one reason.

Table 6.3 indicates that farmers have benefitted from the coconut extension services of the CCB. Out of 130 responses from beneficiaries, 52% answered that they obtained advice on how to obtain financial facilities to upgrade their cultivation. 48% of the responses were that they

got advice from the extension services on how to obtain high yields from the land, while 25% of the beneficiers answered that they had learnt new technological innovations. Although there were variations in responses area wise, project beneficiaries utilized the services of the CDOO to be greater extent than the non-project beneficiaries.

The study also identified reasons for the slow diffusion of the proposed unified extension programme. They were mainly lack of communication between the responsible departments and institutes, absence of skilled man-power, and poor publicity.

The inadequate performance of the extension services is blamed, to a great extent,on the poor adoption of the proposed coconut development programme at the grass root level. Table 6.4 shows the reasons why any extension services were not availed of for coconut cultivation. The lack of communication between the farmer and officers is one of the major reasons for the poor performance of the extension services. Some cultivators have reported that officers' inefficiency had affected the diffusion process of the extension services.

TABLE 6.4 REASONS FOR NOT SEEKING ASSISTANCE OF THE EXTENSION SERVICES BY THE BENEFICIARIES, FOR COCONUT CULTIVATION

R E A S O N S	No. of farmers responding
Officers' inefficiency	13
Inability to get instructions	01
Difficulties in carrying out in instructions	07
Lack of money	12
Extension officers' failure to meet farmers	45
Farmers not being able to meet any officers	28
No. of responses :	70

Under the unified extension service, the Krushikarma Vyapthi Sevaka (KVS) of the Department of Agriculture is expected to give extension advice to farmers on all crops. The findings of the present survey (given in Table 6.5) however, show that only a few farmers (15%) obtained extension advice on coconut, from these officers. These officers seem to be pre-occupied with extension activities on paddy cultivation. Hence, all the important tasks connected with the coconut development extension services programme had to be carried out by the coconut development officers. The assistance given by Cultivation Officers to the CDOOs in this regard is commendable. It was also observed that some CDOOs lacked technical training, whilst others possessed Diploma Certificates in Agriculture. The latter group was more competent to advice farmers. The training of the former group of officers should be given high priority in the man power development programmes of the CCB.

TABLE 6.5 TYPES OF OFFICERS FROM WHOM EXTENSION ADVICE WAS SOUGHT

Officers instructed	No. of farmers	%
CDO	165	65.4
KVS	38	15.0
Cultivation Officer	79	31.3
Minor Crops Extension Officer	12	4.7

No. of responded farmers - 252

Although KVSS played a prominent role at village level with regard to paddy cultivation, their involvement in the coconut development programme was relatively negligible. It may be necessary to clearly demarcate the specific responsibilities of the several government institutions involved in this task.

6.3 SOURCE OF WATER

The coconut crop depends mainly on rainfall for its moisture requirements. Hence, the pattern of distribution of rain greatly influences the output and the adoptation of management practices. Since a large area of the Kurunegala district is fed by the south-west monsoon, there is no lack

of ground water. But a failure of the south-west monsoon could adversely affect the output, while a delayed monsoon causes immature nut fall. In addition, the variations of the rainfall in the district has caused significant variations in the coconut output in the past.

TABLE 6.6 SOURCE OF WATER FOR COCONUT PLANTS

	IL_1		IL_2		WL_2		WM_3		Whole District	
	1	2	1	2	1	2	1	2	Total No.of res-pon-ding farmers	% of the total sam-ple
Rain	134	78.3	29	82.6	19	82.6	19	82.6	201	79.7
Wells	34	19.8	05	14.2	03	13.0	03	13.0	45	17.8
Tanks	01	0.6	01	2.8					02	0.7
Streams	01	0.6			01	4.3			02	0.7
Pumping	01	0.6					01	4.3	02	0.7
	171	100.0	35	99.9	23	99.9	23		252	99.9

1. No. of responded farmers
2. % of the responded farmers

Table 6.6 shows the available water sources for the cultivation of coconut in the district. The necessary level of water varies from area to area in the same district, because of the diverse ecological zones. DL_1 area is seriously affected by drought. Although the ecological zones IL_1, WL_2 and WM_3 have adequate water levels for cultivation, IL_2 water is available but insufficient. Table 6.6 shows that rain is the main source of water. A small number of farmers have used other sources of water such as wells (for small plants and grass), tanks, and mechanical sources, such as water pumps.

TABLE 6.7 REASONS FOR NOT USING IRRIGATION SYSTEMS AGRO ECOLOGICAL ZONES

	IL_1		IL_2		WL_2		WM_3		District	
REASON	No.	%	No.	%	No.	%	No.	%	No.	%
Thought to be unnecessary	44	69.8	11	52.3	09	50.6	06	66.6	70	63.1
Not available	12	19.0	07	33.3	04	22.2	02	22.2	25	22.5
High cost	06	8.5	03	14.3	05	27.7	01	11.1	15	13.5
Not considered a significant factor	01	1.6	-	-	-	-	-	-	1	0.9
TOTAL :	63	100	21	100	18	100	09	100	111	100

The project has already identified pitcher irrigation system as a good source of irrigation water, in addition to the existing major and minor irrigation projects.

Table 6.7 indicates the reasons why irrigation systems are not made use of coconut cultivation. Some farmers who have not used any irrigation methods have given as the reason that they did not consider irrigation to be necessary, while some others have pointed out that they could not meet the high cost involved.

Chapter 7

MARKETING

Marketing of produce is an important factor which affects the income of smallholders and hence their efforts to increase production. Therefore, it is necessary to analyse the existing marketing structure in the district to evaluate the project benefits of KIRDP.

Marketing channels utilized by the respondents comprised entirely of non-institutional sources such as village traders, out of the village traders and trade agents. Table 7.1 shows the nature of the present sales systems available to the producers. It is clear that Co-operatives and Producers' Societies have not been used by the respondents in the sample, as a marketing outlet. 82.2% cultivators sold their produce to village traders, and 18.6% sold to outside traders.

TABLE 7.1 MARKETING CHANNELS FOR FRESH COCONUTS (NUMBER OF FARMERS)

Sales Systems	No. of responded farmers	%
Co-operatives	-	-
Village traders	189	80.4
Out of the village traders	43	18.3
Trade agents	03	1.3
Total No. of respondent farmers	235	100

There is also evidence to show that farmers with larger holdings did not have to depend on village level traders for selling their coconuts. They, in fact can by-pass those traders, and are able to establish direct links with exporters or large mills. Therefore, it is for the small

producers that institutional (eg., Co-operative) marketing arrangements have to be developed.

It was found that channels of marketing in the district were basically influenced by social parameters like attitude, kinship, friendship, neighbourliness and various other obligations. Since Kurunegala district is composed of many traditional villages, most of the cultivators still prefer to resort to informal transactions. In the context of low income levels and present galloping inflation, the farmers have to borrow from village money lenders. Usually the village trader also acts as the money lender of the village. Hence, the village trader has considerable influence in controlling the coconut market of the village. He manipulates the prices of coconuts to his benefit. Most of the farmers (about 42.5%) stated that village traders usually offered unreasonable prices, compared to the prices they could obtain from other non-institutional marketing sources. But because of loan obligations, the small producer has no alternative but to sell to the village trader.

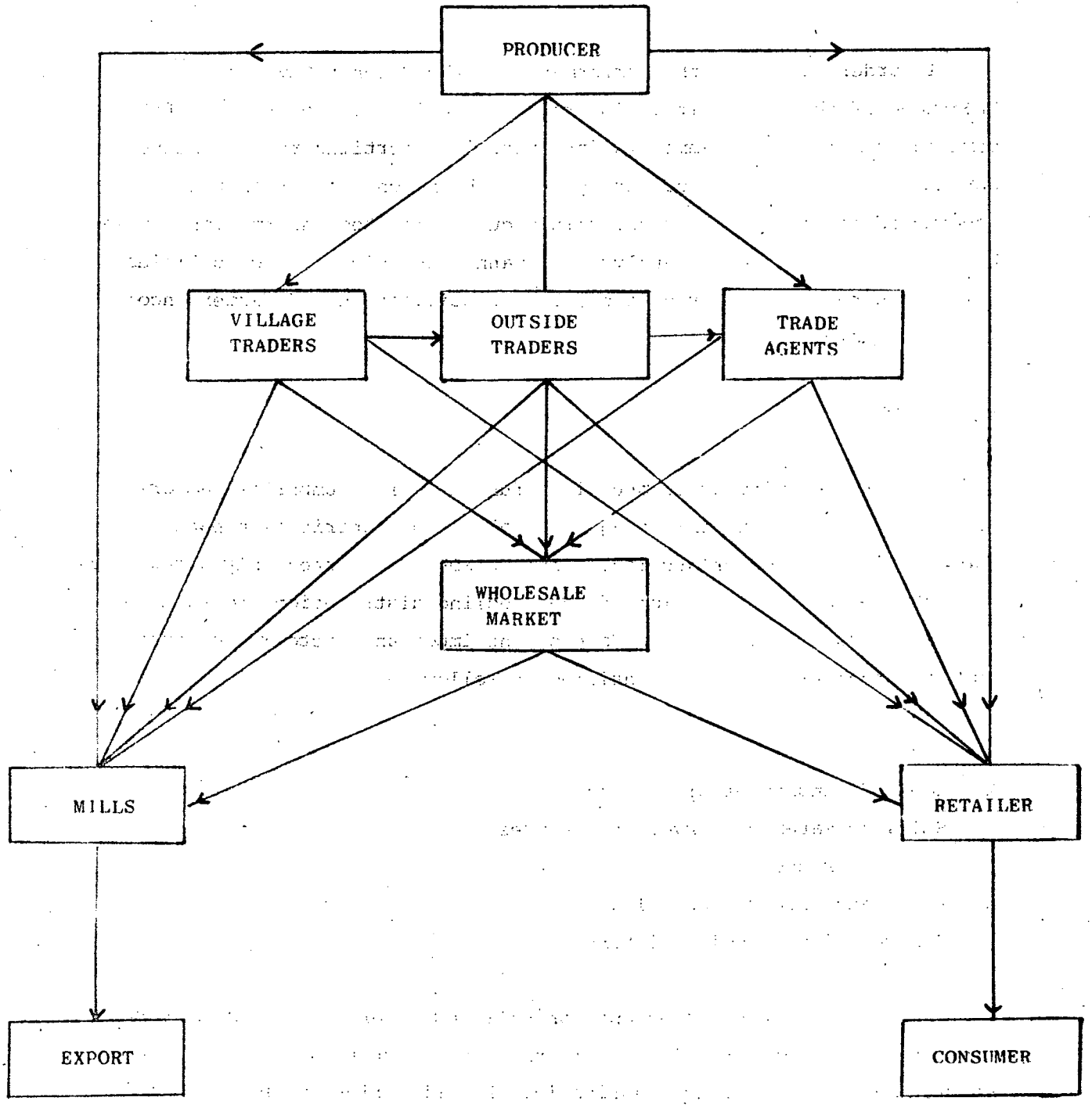
It is very important to identify the existing marketing problems that affect the district's coconut industry. Table 7.2 shows four main reasons which seriously affect the marketing of produce. 77.5% of the farmers who responded, mentioned non-availability of opportunities to obtain a reasonable price, as the main marketing problem. Some of the cultivators also mentioned transport difficulties, non-settlement of the transaction in time and exploitation by traders, as other marketing problems in the district. A new system for marketing of coconuts, to break the existing near monopolistic marketing system at village level is one of the long felt needs of the coconut development programme. Competition in the marketing system, at the village level, is almost absent. This results in a low bargaining power vis-a-vis the traders.

TABLE 7.2 PROBLEMS OF MARKETING

Problems	No.	%
Not getting reasonable prices	62	77.5
Transport difficulties	09	11.2
Not settling the transactions in time	02	2.5
Exploitation by traders	07	8.7

Although KIRDP has launched various intensified programmes for upgrading coconut cultivation in the district, the marketing aspect has not been given due consideration. There are hardly any marketing policies implemented under the KIRDP. It appears that most of the small holders in the district are adversely affected by the lack of appropriate marketing opportunities. Even if a small cultivator increases his production using subsidies available under the KIRDP, there is no assurance that he could market his produce at remunerative prices, because of the deficiencies in the existing markets system. This situation points to an important gap in the KIRDP strategy to develop the coconut industry.

Fig. 3 Market Channels



Chapter 8

PRODUCTION, EMPLOYMENT AND INCOME

In order to assess the performance of the Coconut Development Programme of the KIRDP, it is important to review some of the benefits derived from such programmes as for subsidies, fertilizers and extension services. Though no serious analyses has been done so far on these aspects of coconut cultivation, mainly due to limited information available, we have attempted to analyse the manner in which project policies help to increase total production, labour utilization and farmer incomes in the district.

PRODUCTION

The productivity of coconut is a function of a number of factors, and it is difficult at this stage to isolate the contribution each factor makes towards production. Since KIRDP was started only a few years ago, the impact on production of the seedling distribution programme etc., cannot be assessed just yet. Some of the important factors that contribute to production can be identified as follows:-

1. Variety
2. Age and density of plantations
3. Soil and water conservation measures
4. Fertilizer use
5. Pests and disease control and
6. Availability of soil moisture

Of the above factors except for soil and water conservation measures adopted and use of fertilizers, all the other factors were more or less constant in both sample categories ie., beneficiaries and non-beneficiaries. Between these two, some attempt was made to evaluate the impact of fertilizer use on productivity. It was difficult to ascertain the

TABLE 8.1 COCONUT PRODUCTION OF BENEFICIARIES ACCORDING TO SIZE OF HOLDINGS

Size of holdings	No. of beneficiaries	Yield per acre				% change	
		1979	1980	1981	1982	1979-1982	1979/80-81/82
Less than 1	01	3000	2900	2600	2600	13	11
1 - 5.99	67	1856	2224	2376	2496	34	19
6 - 10.99	25	2145	2126	2165	2154	0.4	1
11 - 25.99	17	1663	1783	1804	1920	15	8
Over 26	04	1980	2153	1847	2110	7	-4
Overall		2128	2237	2158	2256	6	0.9

B. Acreage 904.75

Receivers of subsidies 114

extent of fertilizer use and production, over the years, due to recall problems of the farmers. Hence, the data used were for the years 1981 and 1982.

The data were obtained from farmers who used fertilizers and from beneficiaries who did not use fertilizers, during the year 1981 since the fertilizer takes about 12-15 months to affect production. Of the 24 farmers who used fertilizer on their mature plantations, there was a significant increase in yield (at low level of significance) from 2132 nuts to 2310 nuts per acre, from 1981 to 1982. However, in the non-use fertilizer, sample there was hardly any change in yield (1897 nut/in 1981 and 1860 nut/ in 1982). Hence, we see that although only about 25% of the subsidiary sample used fertilizer, the impact on their production was positive.

Table 8.1 shows that there has been a marginal production increase over the years, from 2128 nuts per acre in 1979 to 2256 nuts per acre in 1982. This could be attributed to the development programme. We have however, to keep in mind, that on the whole, only about 25% of the beneficiary sample practised important cultural practices such as fertilizing. In fact, even at macro level, it was mentioned that only 1/3 of the total credit granted had been disbursed so far.

In an earlier chapter we mentioned that the adoption of many cultural practices were rather poor in the small holdings. However, Table 8.1 shows that there has been a gradual increase in production in the small holdings. This may be some indication that the adoption of certain cultural practices hitherto not adopted, at least by this group under the KIRDP had some positive impact on productivity.

It is premature to draw conclusions regarding the impact of subsidies or other elements of the coconut development programme, on coconut production in the district, although the productivity in the district increased marginally from 1979 to 1982.

This is still more true since the impact of the subsidies or of the other elements of the coconut development programmes, cannot be measured successfully as the young palms (replanted/underplanted/new planted) have not yet come into bearing. The non-adoption of recommended cultural practices also has a bearing on productivity.

TABLE 8.2 NUMBER RESPONDING TO CHANGE OF YIELD

Yield Nuts/Ac.	1500		1500-2500		Over 2500	
Year	1979	1982	1979	1982	1979	1982
Non-beneficiaries	21	20	18	14	15	20
Beneficiaries	43	36	40	39	31	39

An attempt was also made to find the relationship between the change in productivity levels and the number reporting so (see Table 8.2). According to the above Table we see that there is a significant change in the response of the beneficiaries in the category of less than 1500, where the numbers have declined over the years, but in the category of more than22500 the numbers have increased. However, in the case of the non-beneficiaries there has been a significant decline in the 1500-2500 category but there has been no change in the less than 1500 category.

EMPLOYMENT

The level of employment in the coconut industry is remarkably low when compared with employment in other plantation crops like tea and rubber. This relatively low employment level is a result of the low labour requirements for the crop; for example, it requires only about 0.1 person per acre of coconut (ARTI 1977, People's Bank 1981). It is a very low rate compared with 1.25 persons per acre of tea and 0.35 persons per acre of rubber.

Coconuts occupy about 387,000 acres of land in the Kurunegala district (Hussain 1978). On the estimation of one person for 10 acres, the Kurunegala district required a labour force of 38,000.

Increasing of employment opportunities is one of the basic objectives of the KIRDP. The project has implemented several development programmes such as providing infrastructures, setting up nurseries and providing accommodation for the extension staff involved in coconut cultivation etc. The impact of such programmes for coconut cultivation in the Kurunegala district has had both a (1) direct effect and (2) an indirect effect. Consequent to the coconut upgrading programmes in the district, many

employment opportunities have been created as a direct result of the KIRDP such as the setting up of new nurseries, expansion of coconut development ranges and construction of fertilizer stores. In accordance with the project targets, KIRDP has commenced eight new coconut nurseries within the district. A large number of people are engaged in the services relating to the planting material distribution programme; for example, approximately 150 new vacancies were created by the end of 1982. Likewise, soon after implementation of KIRDP, coconut development ranges too increased remarkably (60%). From the 26 in 1979, the number increased to 43 by end of 1982, as the project was expected to extend its services to increase employment opportunities, by adding new CDO ranges. Construction of fertilizer stores and other buildings in respect of the coconut development programme, also helped substantially to increase employment opportunities in the district.

The extension of coconut cultivation programmes launched by the KIRDP has indirectly helped to increase the labour requirements of the industry. Adoption of certain management practices by cultivators has increased significantly after the implementation of the coconut subsidies programme. Table 8.3 shows labour utilization with increase use of cultural practices. Other supporting services such as extension services and fertilizer credit programme have also expanded considerably.

TABLE 8.3 LABOUR USE AND COST OF HIRED* LABOUR IN COCONUT LANDS IN THE KURUNEGALA DISTRICT

Function	Cost per acre (Rs)	Labour units (mandays)
Cutting drains	248	10
Holing	249	10
Planting	51	2
Fertilizing	95	4
Clearing lands	87	3
Plucking	63	3
Collecting nuts	29	1
TOTAL :	822	33

* These costs are calculated in terms of expenditure incurred for a single instance, ie., for one instance of cutting drains for one pluck etc.

In this study it was very difficult to estimate the cost of labour for coconut cultivation, since most cultivators used family labour. Some of them have also used traditional labour transaction systems such as 'attam and 'kaiya'. Therefore, only the cost of hired labour was taken into account. Table 8.3 was computed on the basis of cost of hired labour per acre and mandays per acre. The cost per acre and mandays per acre, vary according to the location of the land and the weather conditions in the area. The labour costs per acre and mandays per acre are rather high in the agro-ecological zone of WM_5, since this area is mountainous.

When the cost of production data for small holdings is compared with that for estate level farms, it is seen that costs in the latter category on substantially higher, due to better management practices and use of different equipment. These data include indexation of inflation. Prices of fertilizer are not included in this Table.

TABLE 8.4 COST OF PRODUCTION PER ACRE ACCORDING TO ESTATE LEVEL FARMS

Function	Cost per acre
Cutting drains	RS. 600.00
Clearing lands	RS. 125.00
Holing	RS. 448.00
Planting	RS. 145.50
Fertilizing (1) Young plants	RS. 30.00
(2) Immature plants	RS. 45.00
(3) Mature plants	RS. 85.00
Plucking	RS. 20.00
Collecting	RS. 10.00
Insect control	RS. 20.00
Fencing	RS. 441.00
Harrowing (Using tractors)	RS. 300.00
TOTAL :	RS. 2304.50

1. Mutual sharing of labour.

INCOME

In order to upgrade the living conditions of the people in the Kurunegala district the KIRDP was expected to increase farmer's income level by implementing various other activities related to coconut development. Under these activities the project has given priority to increasing productivity and total production, whilst creating more employment.

Table 8.5 shows the income structure in the district according to main occupation.

TABLE 8.5 INCOME STRUCTURE OF THE SAMPLE IN THE KURUNEGALA DISTRICT

INCOME GROUP	Agriculture		Non-Agri-cultural services		Government services	
	NO.	%	NO.	%	NO.	%
< 1200 -	19	8.6	06	8.6	-	-
1201 - 2400	30	12.6	05	7.1	01	1.1
2401 - 3600	17	7.2	12	17.1	02	2.2
3601 - 5000	18	7.6	05	7.1	04	4.4
5001 - 10000	49	20.7	14	20.0	32	35.5
10001 - 15000	34	14.3	10	14.3	15	16.6
15001 - 25000	32	13.5	07	10.0	24	26.6
25001 - 50000	18	7.6	05	7.1	12	13.3
50001 - 75000	07	2.9	03	4.3	-	-
> 75000 -	13	5.5	03	4.3	-	-
TOTAL :	237	100.0	70	100.0	90	100.0

From the above Table, it is seen that the majority of the house-holders were occupied in agriculture, as the main source of income and in fact the income from agriculture amounted to about 2/3rds of the total income. From the point of view of income distribution of households, nearly 1/4th households comes below the poverty line of Rs. 3600/- per year, showing that income distribution in the Kurunegala district was not

TABLE 8.6 ANNUAL INCOME DISTRIBUTION ACCORDING TO CDO RANGEWISE AND INCOME GROUP

	1/1 Kurunegala		1/2 Ibbagamuwa		1/3 Potuhera		1/4 Dambadengiya		1/5 Dodangaslanda		1/6 Bingiriya	
	Re	NRe	Re	NRe	Re	NRe	Re	NRe	Re	NRe	Re	NRe
<1200	–	–	–	–	–	–	–	–	–	–	–	–
1201 - 2400	–	–	–	–	01	–	01	01	03	01	01	01
2401 - 3600	–	–	–	–	01	–	01	01	01	–	–	–
3601 - 5000	–	–	01	–	–	–	01	–	01	02	–	01
5001 - 10000	01	01	01	02	03	02		02	01	02	01	01
10001 - 15000	01	01	01	–	02	02	03	01	02	–	02	–
15001 - 25000	02		02	01	02	02	06	02	03	01	04	01
25001 - 50000	03	02	04	02	03	01	02	–	02	02	05	03
50001 - 75000	02		02	01	01	–	–	–	–	–	–	–
75000 -	05	03	03	01	01	–	01	01	–	–	01	–
	14	07	14	07	14	07	13	08	13	08	14	07

* Re - Receiving subsidies
* NRe - Not receiving subsidies

TABLE 8.6 (Continued)

1/7 Kuliyapitiya		1/8 Hettipola		2/1 Ganewatta		2/2 Wariyapola		3/1 Polgahawela		4/1 Mawatagama		Kurunegala District			
Re	NRe	Re	NRe	Re	NRe	Re	NRe	Re	NRe	Re	NRe	Re	%	NRe	%
-	-	-	-	-	-	-	-	01	-	01	-	02	1.19	-	-
-	-	-	-	01	-	01	-	01	01	-	-	09	5.38	004	4.70
03	02	02	02	02	-	-	02	-	01	03	04	10	5.98	111	12.94
-	-	01	-	01	01	02	02	-	01	01	01	08	4.79	07	8.23
03	02	03	01	03	02	02	-	01	-	03	01	22	13.17	16	18.82
01	01	02	01	04	02	04	03	-	01	02	-	24	14.37	12	14.11
02	-	02	01	02	02	03	01	03	01	03	01	34	20.35	13	15.29
03	02	03	-	02	-	-	01	05	01	-	-	32	19.16	14	16.47
02	-	02	-	-	-	01	-	-	-	-	-	10	5.98	01	1.17
-	-	01	01	-	-	01	-	03	01	-	-	16	9.58	07	8.23
14	07	15	06	14	07	14	07	14	07	14	07	167	100.0	85	100.00

quite satisfactory. The Table also shows that there were about 20 households (8.4%) in the agriculture sector whose incomes were above Rs.50,000/- per year.

The annual income distribution according to CDO ranges and income groups is indicated in Table 8.6 for project beneficiaries and non-beneficiaries. There is no clear evidence to show that there is a significant different in income distribution between the two groups. A comparison of income levels is difficult at this stage, since it is still premature to consider the impact of the subsidy scheme.

TABLE 8.7 SAVINGS ACCORDING TO INCOME GROUPS

Income Group	No. of respondents	%
< 1200 -	06	9
1201 - 2400	-	-
2401 - 3500	24	16
3501 - 5000	11	16
5001 - 10000	08	12
10001 - 15000	06	9
15001 - 25000	07	11
25001 - 50000	04	6
50001 - 75000	-	-
75000	01	1
No. of responses:	67	100

The picture in regard to the savings of households appears to be very satisfactory, although the majority of households did not want to report their savings. It was also observed that most cultivators had deposited some money in the banks. According to Table 8.7 a number of farmers who were at subsistence level (below Rs. 3600/- per year) had however, deposited some money in the banks.

The KIRDP has given much attention to improve the living conditions of the people in the district. Though there is some improvement in productivity, yet it does not appear to have helped increase people's income level for the following reasons:

(a) Instability of reasonable prices for farmers' output.

(b) Increasing of input prices. Prices of inputs during the last few years had increased considerably for various reasons

In order to ensure a reasonable flow of project benefits to the farmers, as was expected by the KIRDP, it is necessary to introduce a guaranteed price scheme and an organized marketing system in the district.

Chapter 9

SUMMARY OF FINDINGS AND RECOMMENDATIONS

This chapter attempts to summarize some of the main findings of the study. Based on these findings, certain recommendations are made which should prove be useful in framing policy implementation programmes for the development of coconut cultivation in Sri Lanka.

1. Out of the total cultivated coconut acreage in the district, 60% is productive land while 20% constitutes new plantings. The balance 20% falls into the over 60 year old category, now undergoing rehabilitation.

   From the point of view of the age composition of palms, about 71% of the total palm population belongs to the age group of 7-60 years which are in bearing. While 8% of palms are in the stage of new cultivation below 7 years, the balance 20% belongs to age group of over 60 years.

2. There is a significant achievement in the distribution of coconut subsidies when compared with the project targets. Considering the project targets and performance on an item-wise basis, it is observed that apart from the rehabilitation programme, the popularisation of other subsidies programmes such as replanting, underplanting and intercropping have been relatively low, mainly as a result of farmers having to follow long procedures before obtaining the first, second and third instalments. It was observed that although the disbursement of the first payment was satisfactory, the subsequent disbursements were far from satisfactory.

Other subsidy programmes which show relatively low levels of acceptance can also be expanded successfully in terms of the target fulfilment, by adopting the following measures:-

1. Procedural requirements should be relaxed, specially with regard to programmes which are moving slowly;

2 Financial assistance should be increased in keeping with inflation;

3. Farmers should be motivated by suitable propaganda schemes, in order to get them to upgrade their coconut lands.

Although the majority of smallholdings below 25 acres have benefitted to a greater extent, as expected under the KIRDP, the participation of owners of large holdings has been negligible. Therefore, large landowners of over 25 acres must be encouraged to join the subsidy scheme. In the course of the study it was observed that most of the large landowners have not adopted any cultural or management practices regularly, for want of funds and other facilities. This is so even in the case of cultivators who own above 50 acres. It is felt that the subsidies programmes can be extended more easily to the large holdings than to smallholdings, by providing more opportunities.

Most of the small cultivators in the district do not appear to have taken steps to remove old senile trees because of a possible drop in their incomes. It therefore appears that the removal of senile trees has acted as a serious obstacle to the extension of the coconut rehabilitation programme. The removal of senile trees can be encouraged by enhancing the quantum of financial assistance proportionately to the number of trees removed.

Poor incentives appear to be the main cause for the limited success of all the subsidy programmes which form part of the Coconut Development Project.

Although, most of the farmers in the district appear to be interested in the subsidies programmes, the undue delay in the disbursement of the second and third instalments seems to have discouraged them.

Considering the performance of the whole district, the response for continuation of subsidies is negligible.

The survey has identified some reasons for the failure of the subsidy programmes on a continuing basis, such as the lack of know-how to maintain lands properly, the poor extension service and the inefficiency of some officers.

If KIRDP would make arrangements to provide fertilizer in lieu of financial aid for second and third instalments, then every farmer who has obtained the first instalment would continue to obtain the second and third instalments. Relaxing of procedural requirements will also help increase the demand for the second and third instalments. The participation of farmers in subsidy programmes can be encouraged by providing more incentives and by expanding the existing extension service. The majority of cultivators in the district have never heard of either the KIRDP or the Coconut Subsidies Programme. Therefore, every attempt should be made to get non-project beneficiaries to join the Coconut Development Programme by making the extension services more effective.

3. By the end of 1982 the setting up of eight nurseries in addition to the two existing ones had been completed. Although the project was expected to solve the problem of planting material in the district, yet most of the farmers suffered from lack of good seedlings, due to lack of money. Especially the poor cultivators in the district are not in a position to bear the high costs of transport and of seedlings. This may be the reason why most of the farmers have not bought seedlings from the nurseries. According to the findings of the survey a large number of cultivators have reported to the effect that the cost of seedlings was high. However, considering the actual cost of production of seedlings, farmers do not have to pay more than Rs. 2.25 per seedling, but with the cost of transport it could go upto Rs. 2.50 per seedling. If there is a subsidized delivering system, farmers would be able to reduce their expenditure on this count.

Coconut seedlings, generally in the age group of below 12 months after transplanting, have been subject to damage due to the severe drought, poor maintenance and cattle attack. The rate of mortality can be reduced by adopting proper management and irrigation practices within the district. This applies to plants over 12 months as well.

4. Although the KIRDP was expected to increase the consumption of fertilizer by another 50,000 acres, involving Rs. 40.5 million during the project period, the actual performance of the fertilizer credit programme was far from satisfactory. Although the Bank of Ceylon and the People's Bank played prominent roles in the distribution of credit for the coconut fertilizer scheme, yet both banks have granted only Rs. 11 million by mid 1982 which amounted to only a third of the total project estimate. The sample survey also showed the same trend. When compared with other programmes for coconut development, the achievements of the fertilizer credit scheme are far from satisfactory. This study has identified some reasons that have contributed to the poor performance of the coconut fertilizer credit programme. The main reason is that the majority of cultivators have not been aware of the coconut fertilizer credit programme, due to the insufficient extension service. This programme can be made more effective by making the extension service more efficient.

The credit programme does not appear to have reached down to the grassroot level. There are hardly any government officers who are directly engaged in the diffusion of the coconut extension service at the village level. The appointment of extension officers at the grassroot level will go a long way to make the Fertilizer Credit Programme popular at village level.

Although the People's Bank and the Bank of Ceylon have issued a large proportion of credit for the smallholdings of below 25 acres, yet most of them have not benefitted much, unlike large holders who owned over 25 acres.

The complicated nature of paper work involved in the granting of loans by banks has adversely affected or discouraged farmers from making loan applications. So most farmers depend on private informal credit sources. Coconuts normally take approximately 12-15 months

to respond to fertilizer applications as far as yield is concerned. Therefore, the majority of farmers do not appear to be interested in regular fertilizer applications. These conventional ideas and attitudes can only be changed through motivational programmes. A suitable motivational programme should be started with the necessary training and promotional aspects built into it.

There is a clear relationship between the prices of fertilizer and their application. Many farmers have abandoned fertilizer application because of the escalation of prices since 1981. Therefore, any increase of the price of fertilizer should be effected on a reasonable basis with due consideration to the income of farmers. If fertilizer prices continue on an upward trend, it is likely that the small farmers will not be in a position to make fertilizer application in future. The study revealed that when fertilizer was used on mature plantations it resulted in a significant yield increase.

Hardly any cultivators in the district used natural fertilizer such as cowdung and compost. In fact, cowdung should be abundantly available due to large number of livestock that is found in this district (Farrington & Abeyratne 1982). The KIRDP should introduce a scheme for the use of natural fertilizer which would help to reduce fertilizer costs significantly.

5.1 Compared with other plantation crops, adoption of cultural practices in the coconut sector is very low. Hardly any of the cultivators have practiced regularly all cultural practices related to coconut. This was mainly due to lack of proper information which could be attributed to the poor extension services which lacked co-ordination, being administered by different departments. Cutting of drains, planting and weeding have been carried out in large measure, because of the subsidy scheme.

6. The existing marketing system in the district is mainly in the hands of private traders. Their transactions are rather conventional being based on kinship, friendship and neighbourly relations. Moreover, because of credit links the small producer is compelled to dispose of his produce to village traders at relatively low prices. A well organized marketing system is thus a long felt need in the district.

The membership in the existing Coconut Producers' Cooperative Societies is limited to a small proportion of the total number of cultivators in the district.

7. The yield per acre has marginally increased after the commencement of the coconut development activities. Although under favourable weather conditions the yield per acre in the regularly fertilized coconut lands is about 4000 - 5000 nuts in Sri Lanka (Peopleps Bank, 1981) the average yield per acre in the Kurunegala District remains at the range of 2200 nuts per acre.

In order to develop coconut cultivation in the district, the project has envisaged various programmes aimed at increasing total production and upgrading farmers income levels as well as employment opportunities. But in effect, the increased production has not helped to change either the farmers' income levels or employment opportunities substantially, mainly due to price uncertainty.

The price increase in coconuts was a very recent phenomenon (late 1983). However, the price increase was not a boom to the farmer since it was mainly due to a severe drop in production. In fact, this could have resulted in a drop in the farmer's income itself. Therefore, to buffer the farmer from fluctuating prices and to stabilize or even increase incomes, a guaranteed producer price can go a long way to stimulate the producers to raise productivity. This again (like the fertilizer price) is a matter for national policy and goes beyond KIRDP strategy.

ANNEXE 1

2. THE AGRO-ECOLOGY

The climate of the project area is tropical with a minimum variation in temperature ranging from 29.3°C in December to 33.9°C in March, January, February and upto mid March which are dry months. The relative humidity is lowest, during the dry months (55-60%), and builds up again with the onset of rains. The district receives rain in well defined seasons. Maha season rains are received from October to December from the North East monsoon, while the Yala season receives rains from March to June from the South West monsoon. The rainfall occurence and drought expectancy is given in Table 1.

TABLE 1 75% RAINFALL AND DROUGHT EXPECTANCY AGRO-ECOLOGICAL FEATURES - KURUNEGALA DISTRICT

Agro-Ecological Zone	75% expectancy value of annual rainfall (inches).	75% expectancy of dryness for particular months.
DL_1	30	Jan. Feb. Mar. May. June. Aug. Sept.
DL_3	35	p
DL_1	40	
IM_3	35	
WL_3	60	
WL_2	75	
WM_3		

On the basis of the rainfall expectancy three agro-climatic zones, namely: dry, intermediate and wet zones demarcated as WM_3, WL_2, WL_3, IM_3, IL_1, IL_3, DL_1, WM_3, WL_2 and IM_3 are located in the south and south east parts of the district.

The characteristics agri-climatic features, soil types and terrain in the project area are given below:

WM_3 - Reddish brown latosolic soils, immature brown loams and red yellow podzolic soils - steeply dissected hilly, rolling and undulating terrain.

WL_2 - Red yellow podzolic soils, red yellow podzolic soils with strongly mottled subsoils and low humic clay soils - rolling and undulating terrain.

WL_3 - Red yellow podzolic soils with soft and hard laterite, rolling and undulating terrain.

IM_3 - Immature brown loams, reddish brown latosolic soils and reddish brown earths - steeply dissected hilly and rolling terrain.

IL_1 - Red yellow podzolic soils with strongly mottled sub soil, low humic clay soils, red yellow podzolic soils with soft and hard laterite and regasols on old red and yellow sands rolling undulating and flat terrain.

IL_3 - Reddish brown earths, non-calcic brown soils and low humic clay soils - undulating terrain.

DL_1 - Reddish brown earth and low humic gley soils - undulating terrain.

The dominant soil group in the project area is red yellow podsolic soils. A part of the Kurunegala district contains reddish brown earths while Katugampola and Kuliyapitiya contains latosolic soils and regasols.

All these soils are deep good textured and are suitable for growing plantation crops, semi perennial crops, forest tree species and pastures. The soils and climatic environment is favourable for the intercropping of coconut with minor export crops and pastures, as identified in the project proposal.

ANNEXE 11

COCONUT CULTIVATION BOARD SUBSIDIES FOR PRODUCTION

SCHEMES

1. Coconut rehabilitation subsidy was introduced in 1974. Coconut grown on farms from 0.5 acres to 50 acres in extent with a minimum density of 15 palms over the age of one year in each half acre, are eligible for assistance, on the following scale:

	Operation	Subsidy
i.	Establishment of contour drains	Rs. 0.95 - 1.50 per meter depending on soil type
ii.	Drainage drains	Rs. 0.66 per metre
iii.	Filling vacancies	Rs. 3.25 per vacancy filled
iv.	Removal of palms in excess of 64 per acre	Rs. 20.0 per palm removed

2. Underplanting/replanting subsidy was started in 1976. Coconut grown on farms between 0.5 - 50 acres in extent, with a minimum density of 15 palms in each half acre with palms of over 60 years of age and an annual yield of less than 1,000 nuts, are eligible for a subsidy of Rs. 3000/- per acre disbursed, payable in instalments.

		Years:	1	2	3	Total
Underplanting	Rs.		1200	900	900	3000/-
Replanting	Rs.		1200	900	900	3000/-

3. Subsidy for new planting

Potentially cultivable but barren land (0.5 acres or above) situated in the area suitable for coconut cultivation can be developed under this subsidy. The subsidy of Rs. 3500/- per acre is payable as follows:

Years:	1	2	3	Total
Rupees:	1600/-	900/-	1000/-	3500/-

4. The subsidy for planting on holding of less than 1 acre (introduced in 1977) is available to growers of either private land or Crown land allotments for a minimum of 10 palms. The subsidy of Rs. 28 per seedling is payable as follows:

Years:	1	2	3	4
Rupees:	10	6	6	6

Details of disbursement are not available. Returns are shown as new plantings.

5. Coconut seedlings: Permit subsidy holders can obtain seedlings at Rs. 2/- from specified nurseries.

6. The pasture fodder subsidy scheme started in 1973 is available to growers in certain districts, with evenly distributed rainfall to establish Brachia milliformia. The subsidy of Rs. 3000 per acre is payable in two annual instalments of Rs. 125/- and Rs. 175/-. Total payments made upto 31st December 1979 amounted to Rs. 1.8 million, of which Rs. 0.5 million (28%) for 3,700 acres was paid in 1979.

7. Subsidies for perennial crops were introduced to help meet establishment costs of cocoa, pepper and coffee and are available to growers with more than 0.5 acres of coconut, with a minimum of 30 palms per acre, in specified districts:

(i) Cocoa: A subsidy of Rs. 1,500 is payable in four equal annual instalments to growers who establish 290 trees per acre. A total of Rs. 62,700 has been disbursed, all of which was in 1979, in respect of 117 acres.

(ii) Pepper: The rate of subsidy is Rs. 1,875 per acre, payable in three equal annual instalments. Rs.290,000 has been paid out, of which Rs. 245,000 was in 1979 for 248 acres.

(iii) Coffee: The rate is Rs. 1,375 per acre, payable in three annual instalments. Rs. 486,000 have been disbursed upto 31st December 1979, of which Rs. 277,000 (57%) for 436 acres was paid in 1979.

8. OPERATING THE SUBSIDIES

The methods of operation are as follows:

(i) The grower fills an application form which has been framed to cover all schemes;

(ii) The grower submits the application form to either the CDO, or to the CCB at one of its Regional Offices (RO) at its Head Office;

(iii) A CDO inspects the applicant's land and makes an inspection report on the back of the application form. The CDO makes his recommendations on the form, on what further measures should be taken, and also indicates the applicant's agreement to such proposals;

(iv) The application is sent to the Regional Office which is authorised to issue permits. If necessary the CDO may issue a temporary permit in advance of the formal permit issued by the RO;

(v) When the various farm operations have been completed the grower submits an application for payment, to the CDO;

(vi) The CDO inspects the holding and if the work has been satisfactorily completed issues his recommendation for payment of the subsidy

(vii) The RO prepares a payment voucher which is sent to the applicant for his signature

(viii) The applicant presents voucher at the RO for payment. An imprest account is kept at each RO for this purpose, which is replinished by the Head Office of the CCB, on request from the RO.

(ix) Grants to meet the costs of the schemes are released to the CCB in tranches by the GOSL

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