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PROJECT PROPOSALS FOR THE DEVELOPMENT OF THE AGRICULTURAL SECTOR

MATARA DISTRICT INTEGRATED RURAL DEVELOPMENT PROGRAMME

- PREPARED BY -

ARTI/WAGENINGEN JOINT PROJECT ON AGRICULTURAL PLANNING

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Matara district Integrated Rural Development Programme

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P R E F A C E

This edition of the Project Proposals for Matara District Integrated Rural Development Programme supercedes the earlier draft of 9th June, 1980. The present document too is intended for limited circulation and the final version would be published along with the main report which is expected to be finalized by the end of 1980.

In this document, six key projects have been proposed for investment through the Integrated Rural Development Programme. The volume of investment for these projects during the period 1981 - 1984 is estimated to be approximately Rs.32 million. This volume of investment is based on current prices (1980 prices). *Although for an investment programme which is spread over a period of time it is essential to take into account future price increases,* this was not attempted in the Project Proposals suggested here. This was because we were made to understand that it is customary here to formulate projects at current prices. *Therefore, it is important to bear in mind that finances required for the projects would be much higher depending on the prices at the time of implementation.*

The scope for investment estimated for 1981 - 1984 at Rs. 32 million is considered to be rather limited for Agricultural Development of a predominatly agricultural district such as Matara. The major reason behind this is the weak implementation capacity in the district and the slow implementation of programmes already undertaken. Hence, it was decided to suggest projects which were modest and not very optimistic and which are geared towards optimal use of implementation capacity rather than capital.[1] Another aspect which is evident from the suggested investment programme is the imbalance in the allocation of finances between the different sub-sectors. For instance, the investment for the Tea sub-sector accounts for over 60% of the total investment. This is because, bulk of the investment in this sub-sector goes for factory development where the major component is the

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[1] Although, in most Development Programmes it is usual to consider capital as a constraint, in the case of the Matara IRD Programme, it is given that capital would not be a constraint.

investment in factory machinery and equipment to replace existing machinery and equipment which have far exceeded their economic life span. In addition to reasons of this nature, the objectives of optimal use of implementation capacity also accounts for the imbalance in the suggested investment programme.

In preparing the various project proposals no attempt has been made, in most cases to present a formal Cost-Benefit analysis due to the following reasons:

a# Some projects are innovative or experimental in nature for which there are many unknown factors.

b# The gap between present and potential yields are high, hence, following the investment programme when the project come into full development it can be reasonably assumed to be profitable.

c# As stated earlier, implementation capacity is the main constraint, which is difficult to quantify, whereas in Cost-Benefit analysis capital is taken to be the main constraint.

d# In the case of tea sub-sector as stated earlier the bulk of the investment is on machinery and equipment to replace old machinery. This investment should have taken place some years back in the normal capital replacement programme for tea factories in the district, but did not occur due to lack of capital prior to the IRD Programme. Thus, a detailed Cost-Benefit analysis becomes unnecessary as the benefits maintaining the tea sector in Matara district are very clear.

An exception in this regard is paddy cultivation. In this case the potential yield of paddy is low. Consequently a Cost-Benefit analysis is presented to show the profitability.

INTRODUCTION

1. THE STATE OF THIS PRELIMINARY REPORT

In November 1979 the Secretary of the Ministry of Plan Implementation requested the ARTI-Agricultural University of Wageningen Joint Research Project on Agricultural Planning to make an Agricultural Development Plan for Matara district in the context of the Matara Integrated Rural Development Plan (MIRDP).

This Agricultural Development Plan is to be published by December 1980 in which we would attempt to outline policies and projects in respect of the long term development of the district. So far, Matara IRDP has mainly aimed at getting something off the ground through annual action programmes. The day-to-day work done by all Departments involved is undoubtedly the backbone of the development efforts. However, in the planning process we should ask ourselves from time to time where are we going? What are we doing and does it really reduce the problems we face?.

Our agricultural development plan would start from the generally accepted development aims for Matara district as identified in earlier documents to increase incomes, to reduce unemployment, to raise nutrition standards, etc.. Thereafter, on the basis of an assessment of potentials and constraints for agricultural development, the plan would estimate the carrying capacity of agriculture under certain assumptions with regard to minimum living standards and distribution of income and land. If this is combined with estimates of population growth the analysis would indicate the need for non-agricultural development, for further out-migration or for outright social assistance.

The assessment of agriculture potentials will be based on the agronomic research results presently available and achievements of progressive farmers. This information will be highly substantiated by a land suitability study of Matara district (Mapping 1 inch to the Mile) made this year and financed from the research project's funds.

SUMMARY OF INVESTMENTS

Year	Funding Source	NAME OF PROJECT												Grand Total
		C.P. Project		B.C.R.U.Project		D.R.E.L.Project		D.T.S.H.Project		H.D.Project		R.M.M.I.Project		
		Investment cost	Operation cost	Invest. cost	Operat. cost	Invest. cost	Operat. cost	Invest. cost	Operat. cost	Invest. cost	Operat. cost	Invest. cost	Operat. cost	
1981	Under I.R.D.P.	539	387	1249	275	756	151	10328	2285		700	750		17,420.00
	Other Govt. Sources	-	200	-	-	300	30	1750	-	-	-	-		2,280.00
	Total	539	587	1249	275	1056	181	12078	2285		700	750		19,700.00
1982	Under I.R.D.P.	-	387	579	400	186	177	4956	-	-	270	750		7,705.00
	Other Govt. Sources	-	200	-	-	300	30	1750	-	-	-	-		2,280.00
	Total	-	587	579	400	486	207	6706	-	-	270	750		9,985.00
1983	Under I.R.D.P.	-	-	923	350	250	177	-	-	-	270	-		1,970.00
	Other Govt.Sources	-	-	-	-	-	30	-	-	-	-	-		30.00
	Total	-	-	923	350	250	207	-	-	-	270	-		2,000.00
1984	Under I.R.D.P.	-	-	162	230	-	-	-	-	-	270	-		662.00
	Other Govt. Sources	-	-	-	-	-	-	-	-	-	-	-		-
	Total	-	-	162	230	-	-	-	-	-	270	-		662.00
1981-1984	Total Under IRDP	539	774	2913	1255	1192	505	5284	2285	1510	1500			
	Total from other Govt. Sources	-	400	-	-	600	90	3500	-	-				
	Total	539	1174	2913	1255	1792	595	8784	2285	1510	1500			
	Grand Total	1,713.00		4,168.00		2,387.00		21,069.00		1,510.00		1,500.00		32,347.00

* Estimates given here are in respect of the one large Buffalo Calf Heifer Raising Unit. Estimates for smaller units see text p. 32.

Other methodological features of our agricultural development plan for Matara district would be to make the analysis of problems and possible solutions, (i.e. policies and projects) location specific and target group specific.

A division of the district into 4 agro-ecological zones will be the basis of our analysis of agricultural potentials and constraints. In each zone, we will classify the rural population in target groups according to criteria relevant for agricultural decision making both at farm level and at government level, such as size of the farm operated, cropping system, land tenure and importance of off farm activities. Of course, landless rural people cannot be bypast in a socio-economic analysis.

Obviously, the agricultural development plan as described above is of a long term nature clarifying basic options to be taken. It is not a plan for immediate implementation, but it might help to set priorities and to re-orient on-going development programmes if required. However, the long term strategy has to be adjusted also from time to time. One cannot pretend to establish a once and for all blueprint for development. In the complex field of socio-economic development solutions are not clear cut. They have to be learnt from practice in a trial and error process. Therefore, the need for continuous but flexible action is high. It is in this light that we will develop in this preliminary report a set of project proposals of a short term nature for consideration under the 1981 - 1982 IRDP budget and under the decentralized budget. Although many of our projects require a long gestation period they are of a short term nature in the sense that, implementation could readily start and that they do not aim at structural but at incremental change. Only in a single case we have brought a new element in Matara IRDP (development of rainfed agriculture on regularised encroached lands). Most proposals are either improvements of existing projects or combinations of existing projects into integrated units of action.

We are fully aware of the fact that implementation of IRDP in

Matara has been very slow so far. The large amounts of carry-overs in the budget is a clear sign. In 1981 many departments might still be executing their 1979 programme. We are under the impression that project management at district level has learnt a great deal and that all implementing agencies at that level now clearly see their tasks and responsibilities.

However, bottlenecks in implementation persistently remain in the fields of external relations to head offices and constraints affecting the whole country. These types of difficulties cannot easily be solved. We should not omit warning that implementation, if it continues to be slow, casts doubt on any new project proposal.

Limited implementation capacity is one reason why we gave our projects a very modest scope as one may see from our proposals. Another reason is that most of them have an innovative character which calls for prudent implementation.

1.2. NATURE AND LOCATION OF THE DEVELOPMENT PROBLEMS IN MATARA DISTRICT

Several documents prepared earlier for Matara IRDP suggest the following features of the district.

a/ Of all districts in Sri Lanka, Matara ranks among those with the highest density of population. Present population can be estimated at 680,000, corresponding to about 100,000 households. Total district area is around 300,000 acres. Population growth since independence has shown a certain decline but is progressing at a considerable rate of 1.6%. Natural population increase has been outweighed by a strong net out-migration, a clear sign of population pressure and lack of income opportunities within the district, but also of the endeavouring mind of the Matara People.

b/ Of the economically active population (age group between 15

to 65 years) 35% is regularly employed, 10% is openly unemployed, 22% does domestic work and the remaining 33% is involved in irregular or non-remunerated activities (students, etc.). The dependency ratio is very high as children and old aged people together count for more than 40% of the population.

c/ Agriculture (together with hunting and fishing) is still the main source of employment within the district counting for about 60% of the employed labour force followed by manufacturing (15%) and trade (8%).

If one looks at the spatial distribution of population over the district, it is obvious that the bulk of the population (76%) is concentrated in the Southern zones A and B. The following table shows the spatial distribution of the population (in percentage)

Zones	A	B	C	D
Population	38	38	14	10
Acreage	23	40	20	17

The Northern tea areas offer relatively regular employment and steady although low income to estate labourers and small holders. We are also under the impression that the situation in the Northern part of the district is one of shared poverty as many small holders have come into these regions under colonization schemes with uniform land allocations (2 acre holdings).

Government support in the form of guaranteed price schemes for tea and the relative abundance of land permitting small holders to encroach in forest areas have so far enabled them to just obtain a livelihood. One should be very keen to maintain at least these standards of living as a large part of the tea areas is endangered by erosion. If soils would not be properly protected, small holders would fall into pauperization.

In the Southern part of the district however, population pressure on land will be increasingly high. Here also, land ownership is much more fragmented and unevenly distributed. Evidently, where land scarcity prevails all possibilities to intensify production per unit of land should be exploited. Fortunately, there is still scope for intensification as much of the coconut lands and homesteads are underutilized. It is quite obvious that agriculture in the Southern part of the district only provides a minor part of the income of the population. This fact together with extremely complicated land tenure relationships might explain to a certain extent the prevailing lack of interest in developing agriculture. Evidence suggests that a considerable part of the income in this part of the district is earned outside the district (Hambantota, Galle, Colombo), thanks to which the population is still capable of maintaining relatively high living standards. Here also, the long standing and wide spread welfare programmes of the government help to support a large mass of openly and hiddenly unemployed. If one looks closely however pockets of miserable poverty would come in sight mostly concentrated in particular villages. In the light of the above mentioned facts the main problem for development of the Southern part of the district is to create as much as possible suitable employment opportunities. We stress suitability as for this labour force quality of employment might play a decisive role in accepting work (social prestige of work, level and security of remuneration, employer-employee relationship). We strongly feel that the potential role of agriculture in reducing or containing the unemployment problem can only be limited.

Therefore, the utmost should be done to develop industries and services related to agriculture. As a matter of fact, Matara district shows the typical features of a region in the periphery of the urban centres of Colombo and Galle exporting its raw materials and skilled labour and importing finished products. Reversing this trend would favour self-sustained development of the district.

1.3. SOME DATA ON THE STRUCTURE OF AGRICULTURE

The figures presented below are subject to adjustments. The proportion and trends suggested by the data are right.

LAND USE PER AGRO-ECOLOGICAL ZONE 1977/1978 (x 1000 ACRES)

Land use	A	B	C	D	TOTAL
Total rural area	57	119.6	58.3	38.4	273.3
Forest	3.1	10.0	8.4	8.2	29.7
Area not cultivated	4.6	5.5	7.6	3.6	21.3
Total cultivated area	49.3	104.1	42.3	26.6	222.3
Tea	1.6	8.8	20.6	17.7	48.7
Rubber	2.8	12.5	4.0	0.7	20.0
Coconut	26.5	18.6	1.9	0.9	47.9
Paddy	9.2	27.1	6.1	2.9	45.3
Cinnamon	2.9	13.0	2.9	0.6	19.4
Others	6.3	24.1	6.8	3.8	41.0

LIVESTOCK PER AGRO-ECOLOGICAL ZONE 1977/1978(x 1000 HEADS)

Livestock	A	B	C	D	TOTAL
Cattle	4.4	8.9	0.3	0.8	16.4
Buffaloes	0.7	2.4	0.8	0.2	4.1
Goats	0.6	0.7	0.5	1.2	3.0
Poultry	12.5	11.0	3.9	2.9	30.3

SIZE DISTRIBUTION OF FARMS PER AGRO-ECOLOGICAL ZONES (%)

Size class (Acres)	A	B	C	D
0.5	66	43	17	29
0.5 - 3.0	28	47	68	61
3.0 - 5.0	3	6	9	7
5.0	3	4	6	3
	100	100	100	100

The distribution of land is very uneven in the district. Yet this statement is somewhat relative as private holdings in the district do rarely exceed 3 acres. Two third of the tea area comes under large estates, many of them state owned. Two third of the rubber area also belongs to estates of over 10 acres. Fragmentation of holdings is strongly prevailing in paddy and coconut.

The number of livestock in the district is very much small. The livestock herd even shows a tendancy to decrease Systematic rearing of (milk) cattle hardly exists. Livestock is not integrated into any farming system.

The only crop under irrigation is paddy. Of the total paddy acreage of about 50,000 acres, 20,000 acres come under minor and medium irrigation schemes. About half of the paddy acreage is subject to light or heavy flooding reducing the yields considerably. The Nilwala Ganga flood protection scheme now under study aims at protecting 14,000 acres downstream against heavy flooding of 10 year recurrence. Physical yields are very low in general. The figures below compare typical actual yields with conservative estimates of potential yields.

	Actual Yield	Potential Yield
Tea (Made tea)	2000 lbs/acre/annum	3500 lbs/acre/annum
Rubber (Dry)	750 lbs/acre/annum	1200 lbs/acre/annum
Coconut	1600 nuts/acre/annum	4000 nuts/acre
Paddy - Rainfed	30 bushels/acre	50 bushels/acre
- Irrigated	40 bushels/acre	60 bushels/acre
(per season)		(after flood protection)

1.4 OPTIONS FOR AGRICULTURAL DEVELOPMENT

a) Flood protection and good drainage are the most important factors in improving paddy yields. However, the potential margin of increase of paddy yields is small even with costly flood protection measures. This is due to ecologic conditions of the wet zone (boggy soils and cloudiness). Fragmentation of holdings and complicated land tenure relationships are other structural factors hampering full development of the small potential for production increase. There is no ready alternative to paddy cultivation in the existing paddy areas. Matara is a rice deficit region and there should be no problem to accept this leaving the task to achieve national self-sufficiency in rice to the Mahaweli area in the dry zone. However, necessary it may be that the Department of Agriculture continues research and extension efforts to upgrade paddy cultivation we prefer to direct additional resources made available by IRDP, to other more promising crops.

b) Intercropping coconut lands with grass for livestock and with minor export crops is probably the most promising form of intensification. Intercropping with minor export crops is suited to all sizes of holdings provided they meet soil and rainfall requirements. Intercropping with grass would apply to coconut holdings of over 1.5 acres as this is the minimum acreage required to keep one unit of cattle. Lack of cattle is the most urgent problem to be solved. Preference should

be given to improved buffalo breeds, such as Murrah and Surti. Reconversion of marginal tea lands into grazing lands is also possible, but little experience has been gained so far in Sri Lanka, on small holdings. We consider this more difficult to implement than introduction of livestock under coconut in view of the strong attachment of tea growers to tea and the risks involved in the transition from tea cultivation to cattle raising.

There is a strong demand for milk products (curd) and livestock breeding would greatly increase employment on coconut lands. Coconut processing should get priority as this activity is under-developed in Matara compared to its neighbouring districts.

c) Home gardens can be used more intensively for small scale poultry, vegetables and minor export crops. These can be interesting income generating activities.

d) In view of the inelastic demand for tea and the large share of Sri Lanka on the World Market the general policy in tea is not to extend the acreage. Introduction of VP clones would increase the production and should in principle aim at releasing tea land for other crops or re-afforestation. The guaranteed prices induce small holders to pluck weight rather than quality. On the other hand their badly managed holdings simply do not yield quality tea. Introduction of strict price differentiation and grading would ruin them. Therefore, the first priority is to improve the quality of small holders tea for which adequate fertilizer supply is the crucial condition.

Foremost tea factory capacity should be increased and facilities for field-factory transport improved. Without these measures any effort to improve tea husbandry will be frustrated.

e) Rainfed agriculture on encroached lands in forest areas is an area hitherto neglected by IRDP. Both the number of people involved and the acreage are considerable. Encroached lands need particular

attention from the soil conservation point of view. Also one may find here pockets of very poor people. It is both in the national and in the individual interest to establish an integrated forest-agriculture management system comprising tea, highland field crops, strip grazing, minor export crops and forest conservation and exploitation.

f) To contain the unemployment problem one should consider to expand the use of unskilled manual labour in rural works (irrigation, roads, reafforestation). There is no tradition in Sri Lanka in large scale rural works, but there is in small scale self-help programmes. The project should be concentrated on the latter type of activities and be channelled through Rural Development Societies who from a ready implementation agency.

g) Matara district has a large area under Cinnamon. This is a long established subsector with strong traditions in harvesting, processing and marketing. Cinnamon cultivation is also associated with erosion.

This sub sector suffers from strongly fluctuating prices on a monopolistic market and degrading standards of quality. Lack of peelers is also increasingly felt. Instead of exporting raw materials the district could envisage more refined processing.

h) Rubber occupies a relatively large part of the cultivated area in the district. Rubber is an interesting crop as it fetches good prices. Improvement of tapping practices and soil conservation measures could considerably increase production. These technical improvements are relatively easy to implement on estates who constitute two third of the rubber area. So far, we have seen rubber as an independent sector and we have not included it in our project proposals. There is no rubber programme going on in IRDP. We will deal with it in our final report.

1.5 SCOPE OF OUR PROJECT PROPOSALS

Matara IRDP is a programme of modest dimensions. The 1979 budget allocation was 13.7 million rupees and the 1980 budget amounted to 16.9 million rupees, whereas the yearly allocation in other districts coming under IRDP may well exceed 60 million rupees. The Matara budget for 1981 and 1982 together would not exceed 50 million rupees including carry overs. One has ofcourse, to take into account the small size of the district, but this is counter balanced by the high density of population. The investment allocation per inhabitant from IRDP in Matara is 25 rupees per year, which is about 2% of annual income per inhabitant. If one adds the decentralized budget (17.5 million rupees per year) the two main government investment programmes in the district would together provide for a 4% rate of investment which is extremely low. One might suspect that whatever growth takes place in the district is due to private investment and infact the capacity to absorb public investment is lower than the budget allocation suggests as spending lags for behind planned expenditure.

Hence, there is a strong case in Matara for strengthening the implementation capacity of government agencies. In this light the 1979 and 1980 budget largely consist of equipment and construction items (vehicles, office equipment, machinery, staff quarters, etc..) and direct support to organisations (salaries, operation costs).Heavy emphasis was also laid on infrastructure (roads, irrigation works and tea factories). Very little attention was given to directly productive investments, which is perfectly justifiable in the initial stage of IRDP in which implementation capacity has to be built up.

We feel that the time has come now to shift the emphasis to directly productive investments. In view of the small IRDP budget and the severely limited implementation capacity, we gave a modest start to our projects. This was also done because of the innovative character of some of our proposals (coconut-livestock integration, livestock development) or their integrated character requiring the

concurrence of many Department and a new organisational set-up, (development of encroached lands, rural works, homestead development). Therefore, the total costs involved in our proposals 19 million (approx.) rupees for 1981 and 13 million rupees for 1982 (approx.) are still very low compared to the volume of investment the district needs for substantial growth.

The potential exists to amplify the scope of our project proposals, but we feel that this would not be realistic in the short run. Instead we would advocate a strategy of walking on two legs, gradual expansion of directly productive investments should run parallel to further strengthening of implementation capacity.

In this sense our project proposals are complementary to most of the proposals put forward by the Departments.

We stressed the long gestation period of most of our proposals by including rough estimates for 1983, 1984 and 1985 as well. One has to accept the fact that long gestation time is characteristic for agricultural development.

Our basic assumption is that financing can be found beyond 1982. If not, one should better not start the projects.

PROJECT PROPOSALS

I COCONUT-PROCESSING PROJECT (C.P. PROJECT)

1. INTRODUCTION

The proposals indicated here are based on the findings of a survey on coconut processing in the district. The survey has made an attempt to identify the constraints to further development in this sector and to estimate the raw material potential of the district. The object of these proposala are to help in removing some of these constraints, and to utilise some of the raw material potential in the district. They deal with both white fibre and the brown fibre industries, which are the main processing industries in Matara, in which potential exist for further development.

2. IDENTIFICATIONS OF THE CONSTRAINTS FOR FURTHER DEVELOPMENT

White Fibre Industry

1. High prices of retted husks and the consequent high prices of white fibre to those yarn spinners who do not own retting pits.
2. Low productivity of yarn spinning, and the lack of remunerative level or earning due to low productivity.
3. Insufficient premiums in case of high quality yarn.
4. Financial inability of yarn spinners to invest in equipment such as spinning machines and cleaning machines and to establish own retting pits.
5. Difficulties in maintaining a consistent colour in the fibre and the yarn produced.
6. Excessive retting time involved which varies from 5 months to one year, with an average of about 6 months.
7. Scarcity of labour in certain cases.

3. HUSK POTENTIAL & UTILISATION

The total husk production in the Matara district is estimated at 60 million husks for an average year of production. The white and brown husk utilisation area is restricted to the coast line areas of Weligam Korale, Wellabada Pattu and the Gangabada Pattu. The green husk collection extends to about 4 miles inland from the coast and the brown husk area, extends to about 8 miles further into the interior. The total husk supply in this area is estimated at about 30 million husks, (taking into consideration that a part of the husks are buried and that a part cannot be collected due to high transport costs), out of which brown fibre production absorbs about 10 million husks and the white fibre production about 8.5 million husks, which would increase to about 10 million husks, with the establishment of the Denipitiya white fibre project. This represent 67% utilisation in the present husk collection area. However, the area from which husks are not collected at present, covering the interior region such as Morawak Korale, Kandabada Pattu and the interior of Weligam Korale, yields about 30 million husks. The collection of husk from such interior regions such as Morawak Korale west is not economic. However, there is the possibility of utilising the husk supply of Kandabada Pattu and the Morawak Korale east, in brown fibre production. A brown fibre mill located in Haknana area, will be in a position to obtain husks from these areas as well as from the Beliatta area in the Hambantota district.

4. EXPORT SUBSTITUTIONS

At the moment, a part of the yarn produced from white fibre is used in local consumption in some end-uses such as wrapping, rope making and in agriculture. White yarn is not essential for these purposes. It should be utilised for export or for specialized local uses such as fishing net making and fibre goods manufacture. Thus, the establishment of a brown fibre

mill and a brown yarn spinning unit will mean export substitution in addition to the utilisation of husks.

5. PROJECT PROPOSALS

5.1. Extension

Appointment of two extension officers to cover the white and brown fibre industry in Matara - one for Weligam Korale and one for Wellabada Pattu.

Envisaged duties of the extension officers

- Visit fibre and yarn producers, discuss their problems and organising them into societies where such societies are not available.
- Listing all the fibre producers, processors, yarn spinners and societies and identifying locations with different grades of fibre and yarn and collecting samples.
- Liaison work with other Departments, Divisions and Institutions and Boards, such as Small Industries Department, Coconut Development Authority, Coconut Cultivation Board, Coconut Research Board, Industrial Development Board, Rural Development Departments and Societies and other societies and projects working in this sphere.
- Bringing current research knowledge into the field and identifying problems and locations where additional research work is essential, and liaison work with respect to research and maintaining close connections with white fibre research projects such as Ratgama Research Station and Denipitiya white fibre project.
- Identification of possible new projects in the area.
- Recommendations and identifications of societies, to which cleaning machines, spinning machines, etc. should be given.
- Recommendations and identifications of societies and persons to whom loan facilities for equipment and the establishment of retting pits, should be given.

5.2. RESEARCH ON THE DEVELOPMENT OF MACHINES & PROCESSES

The benefits derived from research, if successful, will be applicable to the entire white fibre industry. Further research activity is essential to help the fibre producers to maintain colour consistency. The colour varies with retting time, age of husks, type of soil and type of water, type of retting pits, etc., Improved colour consistency will command better prices. Reduction in retting time though beneficial in case of retting small quantities of husks, a severe reduction of retting time may lead to a scarcity of husks, and the consequent escalation of husk prices.

This will further lead to the concentration of retting pits to few individuals who have the means of purchasing green husks. Since, retting times have varied from 5 months to one year, it would be useful to study why such excessive periods are involved.

The present spinning machine, which requires two skilled workers and one boy to turn the wheel, has the capacity of producing about 28 pounds of yarn if worked for 8 hours, by skilled spinners. At a commission of 33% to 40% which is the normal rate for yarn spinning in the district, the maximum earnings per day by $2\frac{1}{2}$ units of man power is 11 pounds of yarn. The average price of yarn is about Rs.1.60 per pound, whereas, the exceptional quality yarn is even purchased at about Rs.2.80 per pound. At the favourable price of Rs.2/- per pound of yarn, the earnings per person works out to about Rs.7.35 per day, a very low remunerate when compared to the present daily wages in other trades. The output in hand spinning does not exceed 3 pounds of yarn per day. However, if the spinners have their own fibre from their own retting pits, allowing for beating and cleaning as well, the earnings per person would increase to about Rs.17/- per day. Hence, the importance of having ones own sources of fibre and the improvements in the productivity of the machine, and improvement in the quality of the yarn produced.

The introduction of the cleaning machine for fibre will improve the quality of the fibre and the yarn. The machines used at present could further be improved. Opinions vary with respect to the introduction of mechanical beating. In places such as Tallala, the husk beating women are against this innovation, as they fear that such an invention would deprive them of employment opportunities. At Devundara, the fibre processors are in favour of mechanical beating as beating women are scarce in this area. The young generation is reluctant to take up this profession. The earnings of a beater is equivalent to 25% of husk beaters. A women can beat about 500 segmented husks (or 100 full husks) per day, for which she gets 100 segments. The price of 100 segments varies from Rs.8/- to Rs.12/- in the district.

Another approach is to conduct experiments to extract white fibre from green husks without the time consuming retting process. There are private people who have successfully conducted experiments in this field, and who have experience in practical problems in the coir industry.

They also could engage on consultation basis, and by payment of royalties, etc., where patents are involved.

It is difficult to estimate the costs involved in this research programme. Costs indicated here are nominal expenses, and would represent only a portion of costs our of the total costs, since other districts are also benefitted from this research findings.

5.3. FINANCIAL SUPPORT TO THE INDIVIDUAL PRODUCERS AND SOCIETIES

Most of the small producers are not in a position to invest in hand spinning machines or cleaning machines. However, the project may not be in a position to give individual financial support. It is suggested that the, recognised societies or the societies organised under the extension service, be granted 50% financial support as subsidy once they purchase such equipment. If the Research Project is successful in improving the cleaning machine and the spinning machine, then these improved vensions could be introduced. We

are suggesting the introduction of 50 cleaning machines and 500 spinning machines.

We have seen that if the yarn spinners have their own retting pits, their daily remuneration could be doubled. The average price of green husks is about Rs.125/- per thousand, whereas the equivalent amount of retted husks costs about Rs.300/- to Rs.600/-. The analysis of the capacity distribution of retting pits as given in the survey reveals that about 87% of the husk supply comes from retting pits of over 5000 full husk capacity and about 40% of the retting pits belong to this category. In other words, only 13% of the husk supply comes from small pits, which consitutte about 60% of the retting pits.

Some yarn spinners own small retting pits. But they have to depend on large retting pit owners, for the major portion of their husk supply. If small producers could be given support to establish retting pits, if they have the land, then it would increase their remuneration for retting pits, below 500 husk capacity, no financial support is necessary. It is suggested that a loan scheme be devised, to give loans to those yarn spinners, who are members of a society and who are in a position to maintain such retting pits. This should only be given to yarn spinners or husk beaters and not to the retting pit owners who sell fibre or retted husks. The capacity of retting pits should be between 500 to 5000 full husks. The cost of establishing a retting pit of 5000 husks would cost about Rs.800/-inclusive of the initial husk supply. It is possible for the project to refinance societies that extend loan facilities to members. It is even possible for the society to supply the initial green husks. We are suggesting 200 retting pits of 500 to 5000 husk capacity initially.

Considering the fibre processing in the district, it is proposed to construct a brown fibre mill in the Hakmana electorate.

to this mill a brown yarn making project is proposed which aims at

6. ORGANISATION FRAMEWORK

The project components with respect to extension, research and the administration of the subsidy and refinancing could be undertaken by the Cocobut Development Authority. The extension service proposed to be started could be the base through which the subsidy schemes and the loan schemes be operated. The research work will be co-ordinated by the Coconut Development Authority by allocating the proposed research items among Coconut Research Board, other institutions engaged on research on kindred fields and private individuals who have experience in handling such research.

The Department of Small Industries is the suitable agent to operate coir fibre mill and the yarn spinning project (they are handling projects such as Denipitiya retting centre, etc.,) It is desirable if a local organisation, such as a co-operative could be organised under the supervision of the Department of Small Industries, to run the project, since the Department has direct connections with the co-operative societies producing yarn and coir goods in Matara district.

7. COSTS AND BENEFITS

For costs and benefits See Appendix I.1.

II. BUFFALO CALF HEIFER RAISING UNIT (B.C.R.U.Project)[1]

THE PROBLEM

Livestock Development in Matara district is in its infancy. The Government Animal Husbandry Farm, the DDC Farm and other dairy farms and Co-operatives hardly contribute to any livestock development in the district. The lack of management abilities and the complex decision making are the main causing factors. The number of livestock still seems on decrease (disincentives to production). The production level is very low. Dairy farming and coconut cultivation integrated in a mixed farming system in the Southern part of Matara district seems very viable (better use of underutilized coconut lands, diversification, employment creating, production increase, income generation). Incentives to preserve the cattle and buffalo herd are key elements in any livestock development effort in the district.

Livestock development in Matara district should be concentrated on Buffalo farming; crosses with exotic breeds like Murrah and Surti (the district has some tradition in buffalo farming, is famous for curd and has ready market for it, production of fresh buffalo milk seems profitable as compared to neat cattle milk production).

OBJECTIVES

To increase production level of surplus buffalo heifer calves by improving calf management, cow nutrition and cowmanship and to distribute the heifers among farmers of various livestock development projects.

a/ To purchase surplus heifer calves from Southern province, to raise them to in-calf stage for distribution.

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[1] For background information and input - output analysis buffalo and temperate cross breeds see Appendix IV. The B.C.R.U. Project is closely related to the C.L.Programme.

To encourage farmers with improved breeds of buffalo cattle to save their calves by good management and feeding practices by offering incentive prices, and to generate calves from improved breeds of buffalo cattle.

b/ To provide the services of stud bulls to upgrade the buffalo herd (at farm level)

c/ To give training classes for cattle farmers and to serve as a model farm unit.

d/ If necessary, to grow different varieties of pastures to distribute to farmers (nursery functions. At a later stages, preferably done outside Buffalo Calf Heifer Raising Unit).

The identification and formulation of the B.C.R.U.Project faces four main problems.

- Availability of land (100 to 150 acres of coconut land)
- Availability of animals (initial stock of Murrah and Surti buffaloes)
- Management abilities and the organisational framework.
- Costs

In the light of the constraints mentioned above, we formulate two alternative B.C.R.U. Project proposals:

I. One large B.C.R. Unit in the Southern part of the district.
II. Two or three smaller B.C.R. Units in the Southern part of the district.

Though one large unit should be preferred (good management by N.L.D.B., lower costing) the availability of 150 acres of coconut land in the Southern part of the district seems the main constraint. For this reason a second proposal for two or three smaller units will be presented as well. The last proposal is considered to be final proposal, unless 150 acres (in one plot) of coconut land still become available.

I. ONE LARGE B.C.R.UNIT

1. LOCATION

The B.C.R. Unit has to be located on coconut lands in the Southern part of Matara district (agro-ecological zones A or B). The choice of the specific location has to be made, based upon the following factors

- About 150 acres of coconut land should be available to start a 400 heads raising unit with a production of 260 heifers (in-calf stage) per year.
- Availability of water
- Fodder and pasture development must be possible
- The unit should be located as close as possible to existing training and extension facilities (agricultural training centre or agriculture faculty).

2. FINANCE REQUIREMENTS

The project will require financing for ;

a/ Investments and

b/ Operating costs for the period the project is not yet self supporting

The investment period is assumed to be five years, i.e. 1981 through 1985. Sales will start in 1982 and will be on full stream from 1985 onwards.

The cash flow will, under the assumptions used, be negative from 1981 through 1984, and thereafter positive. Financing of the deficits will therefore have to be on a grant basis.

For an estimate of finance requirements it is essential to take future price increases into account. If not, budget provisions made now will turn out to be inadequate by the time outlays are to be made.

The ARTI - Wageningen team elaborated a detailed report on the financial requirements of the B.C.R.U. Project based upon the principles as mentioned above. This report was made available in June 1980 and might serve as an example of how a detailed and realistic report on financial requirements could be made.

Still we find it useful to give a first indication of the costs atainst 1980 prices.

This is in line with the type of cost estimates as made by our team for the projects proposed in this report and with the cost estimates as made by the Ministry of Plan Implementation. We emphasise that the estimates presented are preliminary estimates, based upon 1980 prices. The cost estimates and the cash flow as presented in our detailed financial report differ considerably from the preliminary estimates as indicated in Appendix I.2.

ORGANISATIONAL FRAMEWORK

The National Livestock Development Board is proposed to be the implementing agency. This Board has been directed to concentrate on the breeding, multiplication and upgrading of livestock.

Though most of the N.L.D.B. propertise are engaged in breeding cattle for the IDA Dairy Development Programme, three are executing an Indian Aid Project for the introduction of Surti buffaloes, Gir cattle and sheep.

The following activities of the N.L.D.B. are important for the B.C.R.U. Project.

- Experience with the management of livestock and coconut farms
- Purchase of good quality cows and salvaging of breedable females for the production of dairy heifers.
- Production of pasture legume seeds.

However, the decision making should as far as possible be decentralised to the district level (i.e. a Steering Committee at district level, the Government Agent, the Manager of the B.C.R. Unit, representatives of the N.L.D.B., Department of Animal Production and Health, Coconut Cultivation Board, etc.,) The tasks of such a committee have yet to be defined.

II. SMALL B.C.R.UNITS

1. DESCRIPTION

As stated earlier the unavailability of 150 acres of coconut lands in the Southern part of Matara district is the main constraint to start one large B.C.R.Unit. However, the importance of the B.C.R.U. Project within the context of a realistic and viable coconut - livestock programme makes it necesaary to find a ' sub-optimal ' solution by proposing the creating of three smaller (50 acres) B.C.R.Units. One of these smaller B.C.R. Units should be financed from IRDP funds, the second and third one to be realized in the mid-eighties have to be financed from other sources.

The smaller B.C.R.Units in our opinion are sub-optimal as compared to one large B.C.R.Unit, for the following reasons:

- The organisational framework as proposed for one large B.C.R.Unit has to be reoriented. The N.L.D.B. is not interested in managing small 50 acre units.
- The management capabilities to run such a complicated (multi-functional) B.C.R.Unit are scarce. There will be a great danger of giving the management aspects of smaller units less attention. The management abilities and know-how has to be spread over two and in a later phase even over three units.
- The cost of smaller units will relatively be high.

The objectives of the B.C.R.U.Project as stated in the introductory paragraph, will remain the same. However, objective 6 (the provision of stud bulls to upgrade the herd, at farm level) will relatively be more emphasised in the smaller units.

2. LOCATION

The B.C.R.Units have to be located on coconut lands in the Southern part of Matara district (agro-ecological zone A and B). The first one preferably in the Hakmana region. The choice of the specific locations has to be made based upon the following factors:

- About 50 acres of coconut lands should be available (per location) to start a 100 heads raising unit with provisions for at least 10 stud bulls and 25 to 50 buffalo cows to be served yearly. The unit should produce 60 to 80 heifers yearly (in-calf stage).
- Availability of water.
- The area should have high potentials for intercropping with fodder/highly productive grasses.
- The units should preferably be located in the proximity of existing training and extension facilities.

3. ORGANISATIONAL FRAMEWORK

The State Plantation Corporation (S.P.C.) has been proposed as the implementing agency. Though, a number of S.P.C. plantations do have a livestock component, the experience gathered seems insufficient. The complixity of livestock projects very often is underestimated. Livestock development demands highly skilled specialised and motivated Managers. A livestock component on a plantation cannot be considered as a 'sideline' to be managed by the plantation Manager. This will definitely lead to project failures. For reasons mentioned above, we consider the following factors a prerequisite for good management of the B.C.R.Unit by S.P.C.

- The plantation selected for the location of a B.C.R.Unit should from the very begining be considered as 'Livestock Farms'. New highly qualified Managers with experience in livestock farming have to be appointed. Because of the scarcity of this type of management abilities, the salary and conditions offered should be attractive (so, the appointment of livestock specialists as Asst. Managers is excluded).
- The new Managers appointed for the plantations selected for the location of a B.C.R.Unit should be given full responsibility for the management of the plantation. The decision making should be highly decentralised at plantation level.
- The selection and training of the staff and labourers is the responsibility of the manager.
- The contacts with other departments involved are the responsibility of the Manager (C.C.B., Veterinarian Services Division, Agriculture Department).
- The B.C.R.U.Project should eb supervised by a Steering Committee at district level (members: G.A., the Managers of the B.C.R.Units, a representative of the S.P.C., N.L.D.B., Dept. of Animal Production & Health & Coconut Cultivation Board.)

4. FINANCE REQUIREMENTS

The project will require financing for :

a/ Investment and

b/ Operating costs for the period the project is not yet self-supporting.

The investment period is assumed to be two years. Sales will start in 1982 and will be on full stream from 1983 onwards.

The cash flow will, under the assumptions used be negative. Financing of the deficits will have to be on a grant basis till 1983.

The deficits of a small unit in full operation are estimated to be Rs.100,000/year. In reality deficits from 1983 onwards will be lower. Payment for the services fo the stud bulls (to serve

local buffaloes and eventually sales and / or renting out stud bulls to villages/farmers) are not yet taken into account. Payments for the services as mentioned above should be taken into consideration. Deficits from 1983 onwards have to be covered from the yearly budgets of the different departments involved.

The cost are presented in Appendix I.2.

III. DEVELOPMENT OF REGULARISED ENCROACHED LANDS(D.R.E.L.PROJECT)

1. THE PROBLEM

The extent of encroached lands in the Matara district covers approximately 18,000 acres and consist of 24,000 encroachments (lots). One can estimate that 15,000 families are involved, of which about 8,000 reside on their encroached lands. The dominant crop is tea, about 9,000 acres. In accordance with recent legislation, encroachments except those in forest reservations, stream reservations and other protected areas will be regularised. In Matara, 6,000 acres presently encroached are located in this latter category of reservations. However, it is not clear what the ultimate regularised acreage will be . Occupants of encroached lands on reservations can apply for regularisation on different grounds.

The recently regularized lands face many problems. In the first place, being encroachments until now, no state assistance was given to the cultivators of these lands. This particularly affected those encroachers who have no land outside their encroachments.

Secondly, part of the encroachments are situated on marginal lands which are increasingly being degraded and of which a part should be withdrawn from regular cultivation for soil-conservation reasons. On the other hand, lands that have been cultivated for sometime had to be abandoned due to decreasing fertility and weed problems. With appropriate cultivation methods, a part of these lands could be taken in production.

Lastly, the the dominant crop cultivated at present is tea. An important part of this acreage is not suited for tea and cultivation of this crop should not be stimulated.

2. OBJECTIVES

The objective of this project is to start an assistance programme on behalf of the recently regularised encroachments. This programme is oriented towards improvement of incomes and consist of different

elements.

a/ On lands suitable for tea cultivation, the existing assistance programmes of the Tea Small Holders Authority should be induced. However, the district's tea processing capacity does not meet the demand and until adequate processing can be guaranteed to the cultivators no action to increase production should be undertaken. A part of the lands where tea is presently cultivated is not suitable for this crop. In such lands, there is a need to promote crop diversification.

b/ A part of the lands face serious soil degradation problems. On these lands soil conservation measures have to be introduced for which cultivators would be rewarded. (in cash or food rations) Lands which are severely degraded should ultimately be withdrawn from regular cultivation and these encroachers should be provided with alternative sources of income.

c/ A considerable extent of encroached lands which were cultivated formerly had to be abandoned because of weed problems and decreasing soil fertility and now exist as scrub land. A part of these abandoned scrub lands could be cultivated if appropriate cultivation methods could be introduced.

3. LOCATION, CROPS

About 10,000 acres out of the 18,000 acres encroached lands are situated in the A.G.A.Division, Morawak Korale East and West, corresponding with the agro-ecological zones WM_1(D) and WL_1(C).

Problems of land degradation are to a large extent concentrated in these regions. For these reasons, the project should start its activities there.

The present land use of the encroached lands in that area is indicated in the table below:

Land Use	Acreage
Perennial crops	5,000
Paddy	700
Other cultivated crops (annual crops)	1,300
Uncultivated lands (scrub lands)	2,700
Non-agricultural lands	100
Total	9,800

Out of the 9,800 acres, 2,300 acres (23%) are located in reservations. The dominant perennial crop is tea.

The annexed map 1 shows clearly that about 50% of the region consist of lands not suitable for regular cultivation or is suitable only after soil conservation measures. Only a limited part of the land is suited for tea. Although a more detailed survey should be conducted in this field, it is probable that a part of the encroachments are located on lands of the latter categories.

This implies that the project has to emphasise soil conservation measures, crop diversification and reconversion of lands not suitable for cultivation to forest or permanent pastures.

Out of the 9,800 acres, 2,700 acres (27%) are not cultivated. A part of these lands could be reconverted to arable lands. The project would also gear its activities to this reconversion aspect.

It is not clear yet which crops are most suited for this diversification and reconversion programme. Trials to be conducted should include Coffee, Pepper, Manioc, Sweet Potatoes, Maize, Fodder grasses, Fuel wood.

As far as tea is concerned promotion of this crop has to be decided only after due consideration. Most of the encroached lands under tea need appropriate soil conservation measures. A part of the lands

under tea are not suitable for tea and need reconversion to other crops. Lastly, processing capacity can be a major constraint for the development of this crop.

4. TARGET GROUP

The target groups are about 7,000 - 8,000 encroacher families in the A.G.A.Division, Morawak Korale East and West whose lands will be regularised in the framework of the legislation on encroachments.

This corresponds with 30%-40% of the population in the region. About 4,000 of these families reside in their villages where they generally have land as well. 3,000 to 4,000 families reside on their encroachments and have generally no lands outside their encroached lands. Project activities should in the first place be concentrated on this latter group.

5. PROJECT ACTIVITIES

A first question to be answered is what acreage of encroached lands will ultimately be regularised in the district.

Indeed, there is an urgent need for a well defined physical land use plan which clearly indicates what areas can be regularised and what areas should definitely be excluded from regularisation. However, this surpasses the district context and a policy on national level should be defined in this field.

In the absence of clear national guide lines the Matara District Land Utilisation Committee could for its current activities use the annexed Land Suitability Map (Map 1) which indicates:

- Land not suitable for regular cultivation
- Land suitable for cultivation only after adequate soil conservation measures.
- Land suitable for cultivation only after adequate soil

- conservation measures, but not suitable for tea.

In the decisions about regularisation of encroached lands, the above mentioned land suitability criteria should be taken into consideration.

5.1. BASIC DATA, SURVEYS & EXPERIMENTS

This project faces specific problems for which the solutions are not clear cut. Actually, more information has to be obtained by experiment and surveys on the agronomic as well as on the socio-economic aspects. Therefore, project activities in the coming years will partly be confined to gathering the required information and experience.

a/ Pedologic Data

A detailed soil conservation survey should be conducted in the A.G.A.Division, Morawak Korale East and West in order to come up with an assessment of the location, magnitude and kind of soil conservation works that have to be undertaken. The executing agency could be the Soil Conservation Division of the Agricultural Department or a private Consultant.

b/ Sylvo-pastoral Data

A detailed afforestation survey in the same division has to be conducted in order to come up with an assessment of the location, magnitude and kind of afforestation work and/or pasture establishment that have to be undertaken on severely degraded lands which have to be withdrawn from regular cultivation. Executing Agency - Forestry Department.

c/ Agronomic Data

The data required can only be obtained by experiment.

Experiments should be conducted under different circumstances:

- On currently cultivated lands, suitable for regular cultivation, but not suitable for tea(5 acres)
- On abandoned, formerly cultivated lands which are suitable for regular cultivation (10 acres)

These experiments should provide information on erosion preventing cultivation methods, and the possibilities of a remunerative cropping pattern appropriate for the specific ecological circumstances.

- On currently cultivated lands not suitable for regular cultivation (5 acres)

This experiment should give indications about the possibilities of rational sylvo-pastoral practices on those lands that ultimately should be withdrawn from regular agricultural cultivation.

Information should also be obtained in which way a gradual reconversion could take place.

Executing Agency - Forestry Department and Department of Minor Export Crops.

d/ Socio-economic Data

A socio-economic survey among encroachers has to be conducted in order to get an insight in their socio-economic conditions and their willingness to participate in this project. Specific information should be obtained about the cultivation practices, cropping pattern and crop preference, input-output data on crops and non-farm incomes.

Executing Agency - Agrarian Research & Training Institute.

5.2. PILOT SCHEMES

Considering the lack of data mentioned in the previous paragraph, it is not feasible to start this project on a large scale; experience has to be obtained on the different agronomic and socio-economic aspects. Therefore, it is proposed to start 4 pilot projects the coming two years geared to the main elements of the D.R.E.L. Project. These pilot projects should be executed with due consideration to the results of the surveys mentioned earlier and in keeping with the findings of the proposed agronomic experiments.

These Pilot Schemes concern:

1. Execution of soil conservation works on cultivated lands, suitable for regular cultivation (200 acres)
2. Crop diversification on tea lands which are not suitable for tea or where processing capacity is in shortage. According to the land suitability map, minor export crops are to be recommended (200 acres).
3. Reconversion of land not suitable for regular cultivation to forest or permanent pastures (200 acres).
4. Reconversion of scrub lands to lands suitable for regular cultivation (200 acres).

These different elements are indicated on Map 2 of the D.R.E.L. Project - ' Land Suitability of Small Holdings and Scrub Land in the Matara District.

ELEMENT 1 - Execution of soil conservation works on cultivated lands in the green and red lined violet zones.
- Total acreage in the district - 5,300 acres

ELEMENT 2 - Crop diversification in the red lined, violet zones.
- Total acreage in the district - 2,300 acres

ELEMENT 3 - Reconversion to forest or pastures of cultivated lands in the black lined, violet zones.
- Total acreage in the district - 2,900 acres

ELEMENT 4 - Reconversion of scrub lands in the blue zones.

The scrub lands are classified in 4 classes:

Class I - Blue, fairly to good suiable for a number of crops.
Total acreage - 20,700 acres

Class II - Blue, green lined, moderately to fairly suitable for a number of crops.
Total acreage - 3,200 acres

Class III - Blue, red lined, marginal to fairly suitable for a restricted number of crops.
Total acreage - 2,300 acres

Class IV - Not suitable for cultivation, Forest or permanent pastures are the only suitable land utilisation types.
Total acreage - 3,200 acres

Project Element I. Execution of soil conservation works on cultivated lands suitable for regular cultivation (200 acres)

This pilot scheme should be started on 200 acres of land which are endangered by degradation. The encroachers themselves should execute the works under the supervision of the Forestry Department.

Remuneration of the works can take place in cash wages and/or food aid, in accordance with the presently utilised norms of the World Food Programme.

The selected sites are:

G.S.Divisions : Kiriweldola (241A)

Total acreage of encroachments - 447 acres

Mediripitiya (240)

Total acreage of encroachments - 264 acres

Rotumba (250)

Total acreage of encroachments - 421 acres

Pasgoda (254)

Total acreage of encroachments - 281 acres

Mapalagdeniya (250)

Total acreage of encroachments - 381 acres

Project Element 2 : Introduction of Minor Export Crops (200 acres)

The project element consist of:

Establishment of 3 demonstration plots with annexed nurseries in G.S.Divisions: Morawatta (252)

Total acreage of encroachments - 236 acres

Maliduwa (368)

Total acreage of encroachments - 568 acres

Kalubowitiyana (259)

Total acreage of encroachments - 250 acres

These G.S.Divisions have been selected on the basis of the Land Suitability for minor export crops.

- Introduction of the intensive schemes on minor export crops by the encroachers interested in the above mentioned G.S.Divisions.

The executing agency is the Department of Minor Export Crops.

Crops to be promoted depend to a large extent on the interest of the cultivators. Coffee and Pepper are presently highly appreciated minor export crops.

It can be estimated that 200 acres in the coming two years could be implemented. Depending on the results of this first phase, the programme can be expanded to a larger area.

Project Element 3: Reconversion of lands not suitable for regular cultivation to forests or permanent pastures (200 acres)

The main problem of this category of encroachments is that reconversion means generally reduction of income.

On the other hand, it is not clear until now what can be obtained, by rational sylvo-pastoral practices and what the production potentialities are of abandoned scrub lands.

It is proposed to execute this project element in close connection with project element 4, concerning the reconversion of scrub lands. Encroachers presently cultivating lands that have to be reconverted to forest or pastures should participate in the reconversion of scrub lands (Project element 4)

In other parts of the country, i.e. the Mahaweli area, the Government intends to carry out plantation programmes in which landless people are allowed to cultivate food crops between trees with the obligation of maintenance. These people will also be employed for establishing of nurseries, contour ridging, holing and planting. In addition to that food assistance will be given.

A pilot project of the Forestry Department with the assistance of the World Food Programme in which fodder grasses will be planted between the trees will start this year in Kandy, Matale, Nuwara Eliya and Badulla.

It is proposed to start a pilot plantation scheme based on the same principles in the Matara district. This pilot plantation scheme should start on 200 acres regularised encroached lands to be reconversed to forest and/or permanent pastures. The scheme activities consist of:

- Clearing and preparing the grounds for forest tree planting
- Planting trees and establishment of grasses
- Maintenance of the trees.

Encroachers will be paid for these activities in cash and/or food rations.

In the first phase (2 years) of this pilot scheme, cultivation of food crops between the trees would still be allowed. After this period gradually increasing cultivation of fodder grasses will be imposed. In the second phase, assistance should be provided for the livestock development.

The selection of the sites are:

G.S.Divisions: Ehalpe (367)

Total acreage of encroachments - 209 acres

Kotapola (242)

Total acreage of encroachments - 672 acres

Derangala(261B)

Total acreage of encroachments - 252 acres

Rambukana(262B)

Total acreage of encroachments - 236 acres

The entire programme should be organised by the Forestry Department with the assistance as far as food aid is concerned of SIDA. Technical advices can be obtained from I.I.T.A.

Project Element 4: Reconversion of scrub lands to lands suitable for regular cultivation (200 acres)

This project consist of the reconversion of scrub lands to production lands where regular cultivation will be possible. It is proposed to execute the pilot project on the basis of the technical advices that can be provided by I.I.T.A. I.I.T.A. has gained considerable experience on this type of land.

However, experiments are required in order to determine the type of crops and the most appropriate erosion preventing cultivation methods. So, it is proposed to start this pilot scheme in the

course of 1983 when the first results of the experiments in this aspect mentioned sub 5.1 are available.

The works should be executed by the encroachers mentioned sub project element 3. They can be paid in cash and or food rations accoridng to the norms of W.F.P. The Programme should be organised by the Forestry Department in collaboration with I.I.T.A.

The selected sites are:

G.S.Divisions: Waralla (256)
Kehawela (246A)
Siyabalagoda East (263A)
Siyabalagoda West (263)

6 DISTRICT FORESTRY OFFICE

The Project Element 1, 3 & 4 come under the Forestry Department. The described project activities require a permanent presence of this Department in the district. Therefore, it is proposed to establish a sub-office of the Divisional Office in Galle, in Deniyaya.

As far as the Minor Export Crops Department in concerned, (responsible for Project Element 2) proposals to establish an Officer on district level have been put forward in the IRDP action plan of 1980.

7. COSTS

The project costs are presented in Appendix I.3.

IV. DEVELOPMENT OF TEA SMALL HOLDINGS (D.T.S.H. PROJECT)

1. THE PROBLEM

Tea cultivation forms an important component of the Agricultural Economy of the Matara district. The significant feature of the tea industry in Matara is that a substantial acreage is under small holdings, which in 1976 accounted for 35.7% of the total tea acreage and expected to increase with the present attempt to regularise a part of the encroachments of state lands and the trend to convert lands presently occupied by other crops (e.g. Cinnamon lands) in certain areas to Tea.

The problem and the plight of tea small holders have been given much publicity in recent months via various new media and need not be reiterated here. Many of the problem cited are common to Matara district. However, in the district the lack of adequate processing facilities, difficulties in obtaining inputs (particularly fertilizer) and good planting material remain by far, the most crucial problems and should be given priority.

2. OBJECTIVES

The main objectives of the D.T.S.H.Project is to provide a better 'deal' to the tea small holders. More specifically it would mean:

1) Provision of better processing and transport facilities for green leaf.
2) Improving input supplies
3) Easy access to good planting material
4) Increasing per acre productivity on their holdings and increased incomes.

In order to realize these objectives to some extent, 4 Project Proposals are submitted for discussion.

PROJECT A

PROVISION OF ADDITIONAL PROCESSING FACILITIES

The provision of additional processing facilities remains the most critical factor in the development of tea small holdings in the district. Whatever measures are adopted to improve the standards of husbandry or promote replanting, these would be of no avail if the cultivators are unable to get their produce processed. Evidence from the Tea Factory Survey - Matara District reveal that there are 48 tea factories (both private, state owned and those of the co-operative society) in the district. The declared total capacity of these factories at present is estimated to be 787,016 lbs., whereas daily green leaf production at current average yield of 2,500 lbs of made tea per acre is estimated to be in the order of 1,003, 562 indicating a deficit in the factory capacity of about 216,546 lbs. or 22%. Given the policy of the IRD Programme which excludes investment in private sector factories and also the general reluctance of the private sector to undertake factory development on its own due to the heavy capital involvements, the course of action left open through the IRDP is to improve factories of the state sector.

SUMMARY OF EXISTING PROGRAMMES FOR FACTORY DEVELOPMENT

The T.S.H.D.A. has already initiated improvements to its factories at Kalubowitiyana and Derangala and plans have been made to construct a new factory at Urubokka in 1979/80 Investment Programme. The tea producers co-operative society has also initiated a programme for improvements to its Allen Valley tea factory. Following the improvements to these factories, the daily intake of green leaf is to be increased as follows:

1. Derangala and Kalubowitiyana by - 30,000 lbs.
2. Allen Valley by - 30,000 lbs.
3. Urubokka (new factory) by - 30,000 lbs.

   Total - 90,000 lbs.

Thus, even with these improvements to the above factories, there is still a deficit in factory capacity by 125,000 lbs. (approx.) or 13% of green leaf harvested per day.

The Sri Lanka State Plantation Corporation has planned substantial investment to factory development in the Matara district, under the proposed World Bank Tea Rehabilitation Project in Galle and Matara. The plan aims at improving 19 existing S.P.C. factories in the Matara district and the construction of a new factory at Kobomella. The development programme will be spread over a period of 5 years (1980 - 85) and it is hoped that on the completion of the programme, the daily intake of green leaf would be increased from the present intake of 167,701 kilos (362,942 lbs) per day to 275,023 kilos (605,050 lbs)per day - an increase in daily intake by 107,322 kilos (236,108 lbs.)

This increase includes the envisaged intake of both estate leaf and bought leaf from small holders. Assuming that 60% of the intake would come from small holders (the S.P.C. claims that at present 60% of the tea processed in its factories come from small holders) an additional 142,000 lbs of small holder green leaf could be processed at S.P.C. factories by 1985. However, as shown earlier the present deficit is around 216,000 lbs per day at current levels of production and even after the improvement to T.S.H.D.A. and Co-operative Society factories, the deficit in capacity is estimated to be approximately 125,000 lbs per day.

It is important to bear in mind that the deficits in processing capacity is estimated at current production levels. The fact that replanting small holdings is highest in the Southern region (it is claimed that 75% of the acreage replanted under small holdings are in Galle and Matara districts) and new plantings together with future rehabilitation programmes would result in a greater demand for factories inspite of the development programmes. Therefore, there will still be a need for more factories in the Matara district, particularly to cater to small holders. Thus, it is recommended that a new factory should be constructed under the IRD Programme and

and furthermore, since the World Bank Programme is still in the stage of negotiations and may take considerable time before it is implemented, it is suggested that money should be allocated to improve certain S.P.C. factories in critical areas under the IRD Programme.

Further details on this are given below:

PROJECT A1

CONSTRUCTION OF NEW FACTORY

LOCATION

It is suggested that the new factory be located in the Alapaladeniya G.S.Division of the Morawak Korale West A.G.A.Division. This area was cited as a critical deficit area in the Survey of Tea Small Holdings conducted by the Project team. The same observation was made by the Chairman, A.D.A. in his report on the visit to Matara district and was also opinion of the Hon. District Minister for Matara.

APPROXIMATE COSTS INVOLVED

The approximate cost could be estimated to be of the order of Rs.7,000,000 for a factory with a capacity of 30,000 lbs of green leaf per day. This is based on the costs estimated for the construction of a new factory of 30,000 lbs capacity given by the State Plantation Factory.

PROPOSED FINANCING

As in the case of the new factory at Urubokka, 50% of costs could be through IRDP budget while the balance 50% could be requested from Sri Lanka Tea Board under the Factory Development Subsidy Scheme.

BENEFITS

The Project's primary benefit would be towards increasing factory capacity in the district and consequently resulting in higher incomes

for tea small holders.

As stated earlier, even after the proposed improvements to three factories and the construction of a new factory there will still be a deficit of approximately 125,000 lbs (or 13%) per day in factory capacity in the district. Given the average green leaf produced in tea small holdings, in the district as 600 lbs per acre per month or 20 lbs per acre per day, it implies that green leaf produced from approximately 6,300 acres is wasted. It is assumed that a factory with a capacity of 30,000 lbs would serve approximately 1,000 acres of tea small holdings.

At present average yields (7,200 lbs/acre/p.a.) the annual production of harvested green leaf from the 1,000 acres is 7,200,000 lbs. It was shown earlier that there is a 22% deficit in factory capacity in the district. It is therefore, reasonable to assume that only 80% of the harvested green leaf is sold to factories either via intermediaries or direct to factories. Therefore, the amount of harvested green leaf actually from 1,000 acres is in the order of 5,760,000 lbs per annum. Taking the price paid to the cultivators at the guaranteed price of Rs.1/- per pound of green leaf, the annual value of the produce is Rs.5,760,000.

After the construction of the factory it is taken that the entire harvested yield of 7,200,000 lbs. per annum is sold. Moreover, it is assumed that the final product, i.e. made tea will be of superior quality and consequently it will be possible to pay farmers a price higher than the guaranteed price. If this price is taken as Rs.1.50 per pound (the average price paid to small holders by T.S.H.D.A. factories for the first 3 months of the year), the annual value of the produce will be Rs.8,280,000. Thus, an incremental benefit of Rs.2,520,000 per annum. The analysis presented above is preliminary and based on rough estimates. A detailed analysis would be included in the main report to be published in September 1980.

ORGANISATIONS RESPONSIBLE

The organisations responsible will be the Sri Lanka State Plantation Corpation.

PROJECT A2

IMPROVEMENTS TO STATE PLANTATION CORPORATION FACTORIES

1. Criteria for selection of S.P.C. factories under IRDP

The following criteria was used in the selection of S.P.C. factories which would be developed under the IRDP budget.

- The factories should be located in an area where there is a substantial acreage under tea small holdings.
- The factory at present having a high percentage of intake of small holder tea.
- A substantial increase in intake of green leaf on the completion of the development programme.

Based upon the criteria cited above the factories given below are suggested for full development under the IRDP. This has been agreed at a meeting with the District Minister, G.A. and the Director, Regional Planning held at Matara Kachcheri on 30-07-80.

Name of factory	% intake of small holder tea (1977) estimates)	Present intake	Estimated intake after development	Estimated increase in intake
Sathmale Ella	74%	8,360 lbs	27,500	19,140
Kiruwana-ganga	N.A.	3,577	27,500	23,923
Indola	80%	13,167	27,500	14,333

In addition to the full development of the factories listed above, it was suggested at the meeting held with the District Minister that limited investments should be made for development of the following S.P.C. factories in the Matara district.

The factories are listed in order of priority.

Name of the factory	Location
1. Handford S.P.C.	Deniyaya G.S.Division
2. Hulandawa S.P.C.	Maramba North
3. Belmont S.P.C.	" "

The investment programme would be concentrated on financing the purchase and installation of factory machinery which are in urgent need as identified as priority I by the S.P.C. (See annex II). The benefits accruing through this limited envestment programme has to be worked out in detail.

FINANCE REQUIREMENTS

1. Development of Sathmale Ella, Kiruwanaganga and Indola S.P.C. factories.

The total financial requirement for the full development of the above factories is given below. The capital requirement is mainly for the purchase and installation of machinery and equipment. Details of the cost estimates for the three factories are given in Appendix I.4. (This does not include the amount suggested for the extension of factory building).

Capital requirement Name of factory	Estimated Capital requirements (Rs.)
Sathmale Ella *	2,641,555.00
Kiruwanaganga	3,320,095.00
Indola	2,555,290.00
Total	8,516,940.00

* In the case of Sathmale Ella, it was suggested to construct an extension to the existing factory building. The cost and benefits of this has to be worked out in greater detail.

2. Limited Development of S.P.C. Factories

The details of items required urgently and their costs are listed in annex II in respect of each factory. The total costs are summarised below:

Name of factory	Estimated Capital requirements (Rs.)
1. Handferd S.P.C.	1,222,400.00
2. Hulandawa	1,113,666.00
3. Helmont	870,060.00
Total	3,206,126.00

Grand total cost estimate for factory development = 11,723,066.

Organisation responsible - Sri Lanka State Plantation Corporation.

For details see appendix I,4.

PROJECT B

FERTILIZER CREDIT SCHEME FOR THE SMALL HOLDERS

Fertilizer is the major material input, required for tea cultivation both for higher yields and to obtain good quality leaf. However, many small holders particularly those operating holdings of less than 2 acres do not apply fertilizer. The main reason cited for this is the non-availability of funds for the purchase of fertilizer. At present there are no institutional credit facilities except for a subsidy on fertilizer. The T.S.H.D.A. made plans to supply fertilizer on credit to the green leaf suppliers of its factories at Derangala and Kalubowitiyana who are mainly colonists operating holdings of 2 acres each. This programme however has been abandoned as the T.S.H.D.A. lacked the necessary funds for its implementation. It is suggested that this scheme be taken up again under the IRD Programme.

LOCATION

To start with, this programme should be restricted to Derangala and Kalubowitiyana colonies and the Morawak Korale Tea Producers Co-operative Society.

PROPOSED FINANCING

The funds for this purpose could be in the form of a loan, (either in full or 50% of the total sum) from the IRDP budget to the Tea Small Holdings Authority which will be the organisation responsible for the implementation of the programme. Teh T.S.H.D.A. could recover the fertilizer cost in three instalments from the cultivators who are given fertilizer and reimburse the loan to the Kachcheri. The details of the scheme will have to be elaborated if approved with T.S.H.D.A.

APPROXIMATE COSTS INVOLVED

1.	Total acreage of Derangala & Kalubowitiyana	1,200 acres
2.	Total acreage - Morawak Korale Tea Producers Co-operative Society Membership	1,800 acres
3.	Fertilizer requirement per acre - 10 cwt/annum	
4.	Total acreage involved in Project	3,000 acres
5.	Total requirement for 3000 acres - 3000x10	30,000 cwts.
6.	Total capital required at the rate of Rs.72 per cwt of fertilizer	2,160,000

For details see appendix I,4.

BENEFITS

About 600 colonists from Derangala and Kalubowitiyana colonisation scheme and 945 members of the Morawak Korale Tea Producers Co-operative Society will benefit from this project. The cost of fertilizer even at the subsidized price was reported to be a major constraint particularly the colonists who operate holdings of not more than 2

acres each and where average yields are below the district average for small holders. The fact that there is no institutional credit scheme for tea small holders is another consideration which justifies this project.

The use of fertilizer could also improve the standard of plucking, as there would be a higher 'shoot outbreak' in response to fertilizer application.

ORGANIZATION RESPONSIBLE

1. Tea Small Holdings Development Authority in respect of Derangala and Kalubowitiyana.
2. The General Manager, Morawak Korale Tea Producers Co-operative Society.

PROJECT C

PILOT PROJECT FOR THE INTEGRATED DEVELOPMENT OF TEA SMALL HOLDINGS

At present, each small holding functions as an isolated unit which has certain distinct disadvantages. Therefore, it will be beneficial if the small holdings could be integrated into large units so as to function as a large estate with the factory as the Nucleus. It is suggested here that plantation system of management be introduced to small holders who will continue to own the land.

In this project the emphasis is on evolving a suitable institutional framework for the efficient management of tea small holdings. It is proposed to appoint 'supervisors' to units of appropriate size who would organise and supervise plucking rounds, collection and transport of green leaf and all other management and cultural practices necessary as in a division of a larger plantation. The project also envisages the provision of certain welfare facilities such as Health facilities, etc., and introduce a tea cultivators' provident fund scheme paid by deduction from payments for green leaf.

This system can be carried out as a pilot project at Kalubowitiyana colony, where the T.S.H.D.A. factory could be used as the Nucleus. The advantage in introducing this system at Kalubowitiyana is that, being a colonisation scheme, the extent land holdings of each small holder is the same.

The details of the management structure, the organisation framework and the cost involved have to be worked out in detail.

ORGANISATION RESPONSIBLE

The suggested organisation to be responsible for this pilot project is the T.S.H.D.A.

PROJECT D

ESTABLISHMENT OF TEA NURSERIES

This would be a continuation of the project already initiated by the T.S.H.D.A. However, measures could be taken to expand nurseries on estates belonging to the State Plantation Corporation, so that the cultivators could obtain their planting material at a source closest to their holding.

This programme has to be elaborated in consultation with the S.P.C.

LOCATIONS

Suggested locations for new nurseries are:

1. Dankoluwa S.P.C. Nursery
2. Nursery at Indola S.P.C., Kamburupitiya
   (This nursery has already been established by S.P.C.)

APPROXIMATE COSTS

A Commercial nursery for 250,000 V.P. plants at Dankoluwa State Plantation

Costs

The investment quoted below is based on the estimates given for the construction of a commercial nursery for 250,000 V.P. plants at Urubokka and is subject to variation depending on actual costs at time of implementation.

1.	Capital for establishment 1 acre multiplication nursery	- Rs. 10,000
2.	Capital for establishment of commercial nursery	- Rs. 38,000
3.	Commercial nursery operational cost	- Rs.125,000
4.	Staff	- Rs. 13,000
		Rs.186,000

For details see appendix I,4.

ORGANISATION RESPONSIBLE

Sri Lanka State Plantation Corporation.

BENEFITS

The establishment of nurseries would enable the small holders to readily obtain high yielding planting material which is reported to be in short supply. Plants could be supplied for filling vacancies in gappy holdings.

The cost of production is estimated 0.41 cts, per plant.
Selling price 0.55 cts, per plant.
With profit margin of 0.14 cts., the profit expected from above nursery - Rs.35,000.

V. HOMESTEAD DEVELOPMENT PROJECTS (H.D.PROJECT)

1. CHARACTERISTICS OF HOMESTEADS (IN MATARA DISTRICT)

- The Homestead is the plot of land on which the household lives. The area available for productive activities is the total area minus dwellings, sheds, barns and minus the space needed for walking, household work and playing.
- Wide variety of size, levelling and slope. Size range from a few perches to one acre and more.
- Existing crops : fruit trees (in the Northern part of the district: Mango, Erricanuts, Kitul, Jak trees, in the Southern part: Coconut, Bananas). Hardly any vegetables. No Pineapple, Little minor export crops.
- Homesteads are generally owned by the household living on it, even in urban areas. If they are rented contracts are of a long duration.

2. OBJECTIVES OF A HOMESTEAD DEVELOPMENT PROJECT

- To provide employment to both male and female members of the household.
- To provide an additional cash income or to reduce expenditure on daily basic needs of the family.
- To improve nutrition.
- To create enthusiasm and a sense of self-development and unity in families and in villages.

3. POTENTIALS

Due to the large variety of homesteads estimating the overall potential for homestead development is practically impossible. Only one thing is sure: the number of homesteads equals the number of households and on all homesteads something can be done. A big advantage of homestead development is the quasi-absence of land tenure problems.

Homesteads in Matara district are largely underutilized especially the homesteads in the Southern coconut area. The total extent of homestead gardens according to our land use map is 25,770 hectares of which 19,000 hectares are located in the Southern half of the district.

Possibilities for homestead development are:

a. Low country vegetables
b. Poultry
c. Fruit trees
d. Minor export crops(pepper and Coffee)
e. Floriculture (cut flowers, pot plants, foliage, orchids)
f. Pineapple
g. Bee keeping

4. CONSTRAINTS

Size - Some homesteads are too small to do any significant crop growing. The only possibilities then are small scale poultry or some spice plants.

Shade - Most homegardens need removing excess trees, if one would like to grow vegetables or flowers and plants. People are very reluctant to cut trees particularly when coconut trees are concerned. The risk of virus diseases and fungicides is high under shade. Only shade loving or shade resistant crops can be grown like, yams, manioc, coffee, pineapple and orchids.

Water - Where a household lives is water, but there is not always enough water for irrigation when crops can be grown on a sizable area. In this case crops can be grown in the rainy season only. Quality of well water is generally good even in the coastal areas. Water has to be carried with a watering can. In some instances, a foot driven pedal pump can be used. In certain cases wells are commonly used by neighbours. Good neighbourship is then a prerequisit.

Clearing & Levelling - In most cases, much groundwork has to be done : clearing of undergrowth, levelling, preparation of beds. Lay out of pilots may require expertise.

Input Supply - Is a big problem in most cases. One-day old chicken, chicken feed, seedplants, sprayers are not readily available.

Marketing - The programme should aim at home consumption in the first place. In the cases of flowers and plants, marketing is necessary and requires a suitable organisation.

Family Labour - Is not constraint as far as quantity is concerned. In many cases however, thorough practical training is required.

5. LOCATIONS & BENEFICIARIES

Due to the detailed requirements of every household and the variety of conditions of homesteads, it is impossible to base a homestead development programme rigidly on a number of alternative models. A homestead development project can never be a crash programme, but should be extended gradually. Clustering the development efforts in well selected locations is to be preferred as the demonstration effect is important. The programme should be geared to low income households. Selection should be done by local level organisations capable of stimulating households to express their needs and to develop their creativity. Rural Development Societies and Women's Organisations are suited to that task.

6. COSTS & BENEFITS OF VEGETABLE GROWING AND POULTRY

Homestead development should include one or more of the different activities in an integrated way as far as the technical possibilities permit. These have to be examined in each case separately. At the project identification level, we can only go into the details of activities separately. Of all the activities mentioned under 3, vegetable growing and poultry would be the most common

and widerspread.

Details on costs and benefits are presented in Appendix I,5.

7. OTHER ACTIVITIES

Fruit Trees do generally grow in homesteads. In many cases they are competetive with vegetables. Planting more fruit trees depends on the resources of each particular household. If there are opportunities preference should be given to bananas.

Flowers - Flowers require intensive care and a good market organisation. Anthuriums are not suited for the low land areas. They are of bad quality and make only 10 cts. per flower, whereas the highland Anthuriums may fetch Rs.1/25 to 2/-.

Orchids are risky and require very much skill (even the easily propagated orchids) and can thus only be grown by a few very dedicated people. Initial outlays for plant material are very high. Foliage is less demanding.

Pineapple is not grown in Matara district, but imported from Kandy area. Yet, Pineapple can be grown under coconut trees and fetches good prices (Rs.5/= - 7/=) in Matara. There is a ready market for Pineapple in the district. This crop is most suited for those homesteads who have surplus area above 300 sq. ft. for vegetables.

Among Minor Export Crops, Pepper and Coffee are most suited. Coffee can be grown for home-processing and consumption or for sale.

Bee Keeping is a feasible proposition in view of the rich vegetation in the district. Simple low cost bee boxes can be provided or locally made. Good instruction is required if there is no former experience in bee keeping.

8. ORGANISATIONAL FRAMEWORK

The idea of a homestead development programme is supported by the Department of Agriculture (DA) and the Agricultural Development Authority (ADA). The Women's Bureau of Sri Lanka, which comes training cum action programme geared especially to women with a finahcial contribution from SIDA.

As a homestead development programme comprises a large number of very small units of action, it is necessary to discharge responsibility for implementation to village level organisations. Rural Development Societies (RDS) are suited to this task. In this way the project would be clustered in selected villages which makes implementation easy and strengthens the demonstration effect.

About 300 RDS in Matara district have already come up with proposals for homestead development which is of great help in selection and localisation of beneficiaries.(See Appendix III,1) This also ensures that the project responds to felt needs. We have selected all those RDS who have showed a firm intention to undertake homestead development. We judged upon this on the basis of the degree of elaboration of their proposals. A list of these RDS and the activities proposed by them is annexed. In the course of the project, steps should be taken to activate the RDS who have so far not formulated plans as we have evidence that they represent poor villages not having the capabilities to express their needs.

Implementation of the project would require co-ordination at three levels:

1. At village level by RDS. Their tasks would be:
   a/ To inform the villagers about the project and motivate them.
   b/ To call for applications and to recommend on the selection of beneficiaries.

c/ To give and get assistance in extension, input supply and marketing;

d/ To organise home gardening competitions;

e/ To induce households to keep record of costs and benefits of their activities.

2. At Divisional level a small executing committee has to be established comprising the Assistant Government Agent (Chairman), the Development Officer (Ministry of Plan Implementation) and the Rural Development Officer (Ministry of Rural Development). Their tasks would be:

a/ To approach and to activate the RDS;

b/ To provide the link between the RDS and the Steering Committee at Kachcheri level (mentioned hereafter) in all technical and financial matters;

c/ To evaluate the progress of the project and to report on it to the Steering Committee.

3. At district level a 7 or 8 member Steering Committee has to be established comprising:

- the Asst. Director Planning (Chairman)
- the Additional Government Agent (Vice-Chairman)
- a Planning Officer (Secretary)

The following members will be added only in an advisory and executing capacity;

- the District Managers of People's Bank and/or Bank of Ceylon.
- the District Agricultural Extension Officer
- a representative of ADA
- a representative of the Women's Bureau of Sri Lanka.

The tasks of this Committee would be:

a/ To manage the project funds;

b/ To approve of applications of RDS based on the advice of the divisional executing committee;

c/ To decide on exclusion of RDS from the project in case of

apparent abuse or bad management of funds;

d/ To provide facilities for training, extension, demonstration, input supply and marketing if necessary.

The procedure for implementation would run as follows:

- The Steering Committee selects each year 25 RDS from the list attached to this project. To each RDS it will be recommended to propose about 20 households for the project. Hence, the total bumber of households reached by the project will be 500 per year.

  It is assumed that households continue their homestead activities on their own after one year as the project aims at self-sustained development. Ofcourse, whenever necessary follow-up should be given.

- The divisional executing committee approaches the selected RDS and informs them about objectives, facilities and procedures.

- The RDS makes publicity for the project, calls for applications, and recommends about 20 households who are most in need of additional income and who are most motivated.

- The executing committee calls the KVS and/or Co to inspect the homesteads and to advice on technical feasibility.

- The executing committee proposes the selected households pertaining to a RDS as a group to the Steering Committee.

- The Steering Committee formally approves of the applications and makes the corresponding funds available at the Bank directly to the RDS.

- The executing committee notifies the RDS of the disbursement of the funds, who makes the money available to the household.

Financial Assistance will be given partly as a subsidy, partly as a loan at a low interest rate of say 4%. The subsidy would cover mainly the capital outlays where as running costs are given on credit. Assistance should be given in nature whenever practical in order to avoid inappropriate use of cash subsidies and loans. The credits

would constitute a revolving credit fund deposited with the Banks.

The RDS has to accept group responsibility for repayment of loans. The role of the Bank is limited to administration of the subsidies and the revolving credit fund. The Bank has no say in screening and approving the RDS proposals.

Training, Extension and Demonstration will be given through the 150 modelgardens actually being set up by the DA throughout the district, i.e. one per KVS. The RDO and AO would call on the CO to arrange training classes here. The District Agricultural Training Centre now under construction will also be instrumental in providing practical training. For specialized activities like orchids or cut flower growing, practical training can be arranged in private enterprises on a voluntary basis.

9. COSTS & BENEFITS

Subsidies and loans would differ for each activity. Moreover the mix of activities will depend on the preferences of the households. Therefore, the exact amounts required can only be estimated roughly. The homestead development project requires a great deal of flexibility in financing. From the feasibility point of view the most widespread activities would be vegetable growing and poultry for which we suggest the following rates:

	Subsidy	Loan	
Vegetables	100	100	(per year)
Poultry	600	2,670	(per 18 months)
	400	1,800	(per year)

For the activities these rates have to be elaborated taking into account the risks involved. All homestead activities would require a weighed average of Rs.200/- subsidy and Rs.1,000/- loan per activity per year . Modelgardens will be financed from the DA budget. No additional staff will be required for this project as it makes use of existing staff and local level organisations. For practical training courses (including

travelling, meals and housing if required) we provisionally budget 200 participants per year at Rs.500/- each.

It is assumed that the project will be extended by 500 new homesteads per year. Costs will only be ideally incurred on the additional homesteads, but we budget follow-up costs at a rate of 10% of overall costs.

The project would develop as follows (in constant prices):

	1981	1982	1983	1984	1985
Number of households reached by the Project	500	1,000	1,500	2,000	7,500
Costs(x 1000 Rs.)					
Model gardens	From DA	Budget			
Subsidies	100	100	100	100	100
Revolving credit fund	500				
Training	100	100	100	100	100
Follow-up		70	70	70	70
Total cost from IRDP	700	270	270	270	270
Benefits (x 1000 Rs.)					
(Rs.500/household/year)	250	500	750	1,000	1,250
Net benefits (x 1000 Rs.)	-450	+230	+480	+730	+980

For details see Appendix I,5.

VI. REHABILITATION MINOR AND MEDIUM IRRIGATION SCHEMES PROJECT (R.M.N.I.PROJECT)

1.INTRODUCTION

In the Matara District 20,000 acres are under minor and medium irrigation schemes. The medium irrigation schemes, about 4,500 acres, are indicated on Map 1. Irrigation in the WL_2(B) and WL_4(A) zones reduces the chances of a crop failure during Yala season, due to drought. In WM_1(D) and WL_1(C) rainfall is more abundant and there is actually no need for irrigation.

However, in Matara irrigation has an even more important advantage. It enables the farmer to plant the Yala crop early and to harvest it before the May - June floods might seriously damage the crop. Irrigation is in this way closely related to flood prevention.Flooding indeed is the main problem in the district 22,000 acres in the Nilwala Ganga flood plain area below the flood level experienced usually once in every ten years. The Nilwala Ganga flood protection scheme of which a feasibility study is going on is designed for a down stream flood protection of 14,000 acres (10 year recurrence).

Medium and minor irrigation schemes in the district face problems of repair and maintenance.

Most Rural Development Societies indeed insist upon rehabilitation and improvement of the irrigation schemes in their village development plans.

In the framework of the Matara IRDP attention will be focussed on the rehabilitation of these village irrigation works.

2.OBJECTIVES

The objective of the RMMI Project is the rehabilitation of 60 village irrigation schemes, for which elaborated proposals have been put forward by the Rural Development Societies concerned.

Under supervision of the District Irrigation Department, the work will be executed by members of the R.D.S.

3.LOCATION & TARGET GROUPS

Considering the rainfall patterns, effects of improvement of irrigation facilities are most promising in the agro-ecological zones WL_4(A) and WL_2(B). Within these zones, but outside the big scheme such as the Nilwala Ganga, areas have been selected where soil conditions are the most favourable.

In this way, the programme for the coming two years has been confined to the A.G.A.Divisions, Weligama and Hakmana. Within these A.G.A.Divisions, 60 R.D.S.s have come up with proposals for improvement of irrigation facilities. A list of RDS Proposals on irrigation improvements and their main characteristics are annexed to this report and indicated on Map 1.

4.ORGANIZATIONS

The District Irrigation Department should visit the sites indicated in the annex and judge upon the viability of the projects. The department should come up with a priority ranking of projects with employment generation as a main criterium. An elaborated programme of work and a cost estimate should be provided. The R.D.S.concerned will be paid by the Irrigation Department on a basis of Rs.16/-per manday after completion of the works.

5.COSTS

A detailed cost estimate can only be produced after visiting and priority ranking of the works.

Assuming that on the average 1500 mandays per village are involved, the labour costs at a rate of Rs.16/day can be estimated at Rs.1.5 million for 60 villages in the coming 2 years.

6.BENEFITS

The main benefits of irrigation projects consist of the increase in paddy yields. There is however, only limited scope for yield improvement due to the unfavourable climatic and soil conditions of the wet zone. The present average paddy yield in the district under rainfed conditions is 35 bushels/acre. In the coastal belt rainfed paddy yields even less. Irrigated paddy in Matara district yields an average of 45 bushels/acre. (See Appendix IV,1 :input-output analysis of paddy cultivation).

With improved irrigation facilities and better management irrigated paddy yields could be increased by about 25 bushels per acre per year (two harvests) representing a gross production value of Rs.1,000. At the present low level of production we assume that the proportion of gross value added to gross value of production would not significant change. This proportion being 60% at present (see Appendix IV,1.) the net incremental benefit of improvement of irrigation would be 0.60 x 1000 = Rs.600/- per year per acre.

7. RURAL DEVELOPMENT SOCIETIES

In appendix III,2., a list of R.D.S. is presented that formulated irrigation project proposals.

REORIENTATION EXISTING PROGRAMMES

I. INTERCROPPING COCONUT LANDS & LIVESTOCK DEVELOPMENT

1. The Problem

Systematic intercropping of coconut lands in the district is negligible (see FAO - Working paper SRL 75/076: Conditions and Management on Coconut lands in Kalutara, Galle & Matara, 1978).

Coconut holdings of more than 0.5 acres occupy 40,000 acres in Matara district. A large part of this acreage in fact consist of 'mixed tree stands'. It is unwise to introduce systematic intercropping on these mixed stands in the first instance (as a major rehabilitation programme is necessary).

In the Land Use Map of the Matara district prepared by the Project which is based upon aerial photography interpretation, we distinguished pure coconut stands from mixed stands (see Map 1) in respect of each agro-ecological zone as quoted below:

Type of Coconut Stands[1]	Acreage per agro-ecological zone				
	A (WL_4)	B (WL_2)	C (WL_1)	D (WM_1)	Total
Well managed coconut stands	5,000	3,600	-	50	8,650
Poorly managed coconut stands	8,350	3,700	50	50	12,120
Total	13,350	7,300	50	50	20,750

Source: A report on the present land use of the Matara District; L.D.Jinadasa, June 1980 and 'Land Suitability Evaluation of the Matara District', ARTI/Wageningen Project on Agricultural Planning, ARTI Publication, S.Dimantha, June 1980.

[1] For definitions see map 1 and Appendix II.

The total acreage suitable for pasture development is 29,000 acres in the agro-ecological zones A and B (see Land Suitability Evaluation, Matara District). A major part of these lands at present are coconut lands. Systematic intercropping with improved grasses should be concentrated on the 20,650 acres of pure coconut stands as indicated in the land use map.

On most of these lands rehabilitation of the coconut stand is a prerequisite for systematic intercropping. The acreage of coconut land in Matara district suitable for systematic intercropping without major rehabilitation of the coconut stands (64 palms/acre, mature stands) is about 8,600 acres in the zones A & B.

Coconut cultivation requires no more than 1/10 labour man year/acre. Therefore, coconut cultivation heavily underutilizes land in a situation where land is a very limited resource factor and unemployment a major development constraint like in the Southern part of the district. Intercropping could at least contribute to solve to some extent the problems of unemployment in the Southern part of the district.

The main constraints on intercropping are social constraints. In respect of small farmers' short term security, which means never cut a yielding tree, fear for damaging other trees, shared ownership, interest in other sources of income, lack of management abilities and know-how. In plantations: the reluctance to change an extensive agriculture system into a very intensive more complicated mixed agricultural system, lack of management abilities, know-how.

Intercropping demands a different, more complex management system and is relatively labour intensive.

WHY PASTURE

The choice for highly productive pasture as intercrop in certain areas of the agro-ecological zones A & B is partly based upon the Land Suitability Map prepared within the framework of the Matara

study. Pasture development has to be concentrated in those areas that have an (sub) optimal suitability for intercropping.

The potentialities for systematic intercropping on existing coconut lands (20,750 acres of pure stands) can be classified into the following groups.[1]

- Group I -Optimal suitability (level I) for intercropping with minor export crops (spec. coffee) and pastures. Of which slope classes V and over are most suitable for pastures.

  Not suitable for intercropping with annual crops.

- Group II -Sub optimal suitability (level II) for intercropping with minor export crops(spec. coffee) and pastures. The production potential of this group of lands is roughly 30% lower than the production optimal(Group I). Not suitable for intercropping with annual crops.

- Group III -Optimal suitability (level I) for intercropping with minor export crops (spec. coffee) and sub optimal suitability for intercropping with pastures (level II). Not suitable for intercropping with annual crops.

- Group IV -Sub optimal suitability for intercropping with pastures (level II). Not suitable for intercropping with minor export crops and annual crops.

Intercropping with pastures has its highest potential in Group I but should be discouraged in Group III. Map 3 gives the exact locations of the four groups as mentioned above.

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1 For details see Map 3 (Potentialities for systematic intercropping), explanatory note in Appendix 3 and the land suitability evaluation report of Matara district.

WHY BUFFALOES

As compared to neat cattle, Murrah and Surti buffaloes have a number of advantages. Though the choice for buffaloes cannot be elaborated in detail in this note, annex 1 gives an indication of the input - output analysis of Murrah buffaloes as compared to neat cattle. The net margins per cow equivalent for buffaloes are much higher than for neat cattle. Some of the main advantages and disadvantages can be summarised as follows:

Advantages : No collection and marketing problems, high prices of curd, some tradition in buffalo farming, buffalo milk fetches good prices, less expensive veterinarian care.

Disadvantages: Less favourable reconversion rate, longer gestation period, less reproductive efficiency.

Intercropping with high quality improved (fodder) grasses should play an important role in a well balanced intercropping programme in Matara district. Though the arguments cannot be elaborated into detail in this note, the main arguments are indicated briefly.

- Intercropping with improved grasses under good management conditions has no negative effect on growth and yield of palm trees.
- The coconut - livestock (buffaloes) integrated farming system (under zero-grazing system) seems very viable for the farmer. The net margin per C.E.(coe equivalent), excluded labour is Rs.4,275/- (for details see annex 4 input - output analysis livestock).
- No milking problems for curd production (other milk products also promising).
- Tradition in coconut - livestock farming and some promising coconut - livestock farming system experiments at farm level in the district.
- The coconut - livestock farming system is very labour intensive and will contribute to the crucial objective of employment generation.

- The rainfall in the coconut area of Matara district is very well spread over the year, as compared to other coconut areas.

- Improved grasses prevent erosion (permanent soil cover).

2. REORIENTATION OF THE EXISITNT (PASTURE) INTERCROPPING PROGRAMME

The main aim of the existing intercropping programme should be to intensify and diversify agricultural activities on coconut lands to contribute to the general objectives of income generation, production increase and specially employment creation.

A report on Coconut in the Matara district prepared for the Matara district IRD Programme (Investment proposals for the coconut sector, N.T.M.H. De Silva, 29-11-1979) gives a clear analysis of the present situation. However, the action plan as proposed in this report (partly) is too vague. The actions indicated on intercropping has to be changed and/or elaborated along the following lines.

a) The action plan did not rank priorities (in target-setting) for the different intercrops (In this proposal, we gave arguments to pay much attention) to (improved) pasture development.

b) The intercropping action plan has to be directly linked to other existing programmes and projects.

c) The intercropping action plan (programme) is not location specific. Instead of a programme which covers the whole district, the actions should be concentrated in a few "pocket areas", most suitable for (pasture) intercropping. The target set in the action plan of the C.C.B. for 1979 and 1980 are not met at all. This is partly due to the scattering of the activities all over the district. This with a very limited number of CDO's. A location specific programme will facilitate the realization of specific and realistic targets.

d) The action plan should be made more target group specific.

d) The organisational structure (including interrelations with other organisations) has to be elaborated.

ELABORATION ad a).

See paragraph 1.

ELABORATION ad b).

The reorientation of the existing coconut (pasture) intercropping programme includes the following fields:

- Pasture development directly linked to the buffalo calf/heifer project (B.C.R.U.). This part of the programme could start on a small scale in 1981 and 1982 (availability of a limited number of animals) and becomes the most important activity of the programme when the B.C.R.U.Project comes into full operation.
- Pasture development related to the existing heifer distribution programme. The distribution of (neat) cattle has to be limited to those areas where milk collecting centres are (or will be) located (see also note on the reorientation of the heifer distribution programme). The function of this distribution programme might (partly) be taken over by the B.C.R.U.Project in 1982 or 1983.
- Pasture development on existing 'dairy farms' (no direct link to the projects mentioned under a and b).

ELABORATION ad c).

The project should not be implemented on a district-wide scale, but has to be concentrated in a few regions ('pocket areas'). The following factors influenced the choice of the 'pocket areas':

i) The existence of pure stands of coconut palms suitable for intercropping, specially pastures (Land Suitability Mapping & Map 1)

ii) The existence of different farm size groups within this region.

iii) The willingness of the farmers.

iv) The suitability for pasture intercropping as compared to other intercrops.

v) The location of the milk collecting centres (for pasture dev. related to the existing heifer distribution programme).

The preparation of the land use maps and the land classification (suitability) map was the first step to formulate a location specific intercropping programme. After discussions with C.C.B. officials and farmers in the district and a number of field visits the other factors mentioned above were taken into account. After matching of the land use maps and the land classification (suitability) map, our team prepared three maps to make the coconut and intercropping programme more location specific (for details see maps in annex report and explanatory notes to the maps).

The main conclusion derived from our mapping and matching methods described above is that the Hakmana area is most suitable for (pasture) intercropping programmes. This, for the following reasons:

- Optimal suitability for coconut production.
- A large acreage of pure stands of coconuts.
- Partly no necessity for major rehabilitation works.
- Optimal suitability for intercropping with minor export crops and improved pastures. Pastures specially on slopy lands.

Within the IRDP programme for 1981 and 1982 special attention should be given to this Hakmana area.

The main intervention areas for intercropping and the suitability for the different type of intercrops are indicated on Map 3. This map should be the basis for any location specific intercropping programmes.

Next to the Hakmana area - as the main area, the following 'pocket areas' can be (pre)selected for the coming two years.

- Nidahangala/Kotavila in Weligama CDC - division

- Kekanadura in Matara CDO - division
- Areas around milk collecting centres.

ELABORATION ad d).

The programme has to be focussed on medium sized farms (about 4 to 5 acres) without excluding smaller and larger holdings. However, the minimum farm size for this project is about 2 acres, unless a number of farmers (less than 2 acres) in a specific area could be organised in Dairy Producers Societies.

ELABORATION ad e).

The Coconut Cultivation Board and the Department of Animal Production & Health, Veterinarian Services Division will be the implementing agencies. The division of tasks is proposed to be as follows:

Coconut Cultivation Board		Veterinarian Services Division
1. Selection of locations	joint	1. Selection of locations
2. Selection of farmers	joint	2. Selection of farmers
3. Implementation rehabilitation plan -Application for/approval of subsidies -Extension -Supervision/subsidy payments		3. Selection and distribution of animals (1981 and 1982 partly through heifer distribution programme, later responsibility of N.L.D.B., buffalo calf/heifer raising unit).
4. Introduction improved pastures -Application for/approval of subsidies -Supply of improved grasses -Extension/Training -Supervision/subsidy payments		4. Extension/Training
		5. Veterinarian Services

The tasks of the Veterinarian Services Division have to be reviewed in 1982 or 1983, when the B.C.R.U. Project comes into operation. The future division of tasks will largely depend on the elaboration and execution of the B.C.R.U.Project by the National Livestock Development Board (N.L.D.B.). At that time the links between the different organisations involved have to be revised.

II. REORIENTATION HEIFER DISTRIBUTION PROGRAMME

1. THE PROBLEM

Livestock development in the Matara district is in its infancy. The main problem of the existing heifer distribution programme remains how to realize the annual distribution targets. The number of animals in Sri Lanka available (and suitable)for distribution is limited. The government farms, DDC farm and the Government Buffalo farm in Matara district only play a minor role in this programme. The distribution programme though concentrated in a number of A.G.A.divisions, is not integrated in an overall livestock development programme. In fact, an overall development programme is lacking.

2. CRITERIA

Next to the criteria already formulated in the existing Application Form, the following elements should be included:

- The distribution programme should be limited to those regions where livestock development projects are (or will be) implemented. (aerial concentration of the programme)
- The distribution programme should be focussed on small and medium farmers for whom livestock development substantially contributes (or will contribute) to his family income (concentration on target groups)
- A distribution has to be made in the Application Form between neat cattle and (Murrah) buffaloes.

3. INTEGRATION WITH OTHER PROJECTS

The distribution programme has to be integrated into the following projects proposed.

- Buffalo Calf - Heifer Raising Unit (B.C.R.U. Project)
- Coconut - Livestock Project (C.L.Project)
- Development of Regularised Encroached Lands (D.R.E.L.Project)

4. REORIENTATION

The programme has to be concentrated on Murrah and Surti buffaloes more than on distribution of neat cattle. The distribution of neat cattle will be limited to those areas where milk collecting centres are (or will be) on farms less than 7 till 10 miles from milk collecting centres.

The distribution of (Murrah) buffaloes should be concentrated within the agro-ecological zones A or B. Buffaloes should be distributed to the type of farmers as described in the Coconut Livestock Project (C.L.Project). This in close collaboration with the Coconut Cultivation Board.

The outline for a distribution programme within the framework of future livestock development project has to be elaborated. Partly based upon a technical and socio-economic evaluation of the present distribution programme (lessons to be drawn)

All necessary facilities should be made available to the farmers (e.g. credit facilities should be taken into consideration).

The zero grazing system (with all its consequences) should become a principle (might be added as one of the additional criteria).

NOTE

FORESTRY AND SOIL CONSERVATION

1. INTRODUCTION

Reafforestation and soil conservation works in reservations and crownlands are the main current activities of the Forestry Department. In the on-going IRDP activities in Matara 800 acres of barren land to be afforested will be implemented. Another 2000 acres have been identified in the District by the Department to be reafforested the coming years. These activities will be executed in the framework of the exisitng implementation programme of the Forestry Department.

However, the problem of soil conservation extends far beyond the boundaries of crownlands and reservations. Actually, a part of presently cultivated lands has to be withdrawn from cultivation and reconversed to forest; in other parts continuation of cultivation is only possible if appropriate soil conservation measures will be taken.

In the subsidy schemes of the crop-specific institutions like the Coconut Development Board, the Tea Small Holdings Development Authority, etc. incentives are included to promote soil conservation works by the individual farmers. However, a systematic soil conservation programme is lacking.

It is proposed to start a discussion on national level, in order to come to the formulation of an integrated afforestation and soil conservation programme.

2. SOIL CONSERVATION CLASSIFICATION IN THE MATARA DISTRICT

On Map 1 "Soil conservation classification in the Matara District" a first attempt has been made to classify soil conservation problems.

(See also Appendix II).

Class I (Yellow) : Marginal to moderate productive lands where soil conservation measures are a condition for higher returns.

The total acreage in the district of this Class I lands is 124,000 acres.

Class II (Red) : Moderate to highly degradated lands with low to marginal productivity lands where soil conservation measures are a condition to prevent irreversible degradation.

The total acreage in the district of this Class II lands is 32,000 acres.

Class III (Black) : Severely degradated lands with low production levels which have to be withdrawn from regular cultivation to prevent complete degradation.

The total acreage in the acreage are the encroachments in forest reservations which are about 6,000 acres. Most of these encroachments are Class III lands. The total acreage, including reservations of this Class III lands is 15,000 acres.

The total acreage of Class I, II & III lands is 171,000 acres. This corresponds with 77% of the total cultivated acreage (= 221,000 acres) in the district.

Conservation measures on Class I lands can generally be executed by the farmers themselves and consist of appropriate erosion preventing cultivation methods.

On Class II lands degradation is more serious and erosion preventing constructions(wells, ridges, bunds) are required. On Class III lands conservation methods consist of erosion preventing

constructions combined with the establishment of permanent pastures or / and replanting of forest.

It is particularly in the Class II and Class III lands that erosion is for an important part beyond the control of the farmers and where Government assistance will be required.

3. A PRIORITY REAFFORESTATION AND SOIL CONSERVATION PROGRAMME IN THE MATARA DISTRICT

Anticipating on the results of the discussions on the sub 1 mentioned integrated afforestation and soil conservation programme a priority reafforestation and soil conservation programme in the Matara district is proposed. On Map 2 priority sites for reafforestation and soil conservation works are indicated. The indicated sites, specified for tea estates, tea small holders, rubber estates, homestead gardens and scrub lands, concern all Class II and Class III lands.

For the 1981 - 1982 IRDP budget it is proposed that the Forestry Department starts a reafforestation and soil conservation programme in S.L.S.P.C. managed tea and rubber estates. These sites are indicated on Map 2: tea estates red lined and rubber estates black lined.

4. ORGANISATION

In preliminary discussions with the Forestry Department and S.L.S.P.C., both institutions showed interests on the proposed programme. According to the Forestry Department reafforestation works on S.L.S.P.C. estates could be started in 1981 by the Department in the framework of the IRDP programme.

Discussions are continuing on the selection of the sites, the acreage and the costs.

APPENDIX I

PROJECT COSTS

1. Coconut processing Project

1.1 Cost of Extension

- Two Motor cycles at Rs.12,000/- each	-	Rs.24,000
Annual Expenses		
- Renting two office rooms at Rs.150/- p.m.	-	3,600
- Salaries of two officers at Rs.800/- plus 15%	-	22,080
- Travelling and subsistence - 50% of salary	-	11,000
- Incidental office expenses	-	5,000
		Rs.41,680

1.2 Cost allocated for research

- Maintenance of colour consistency and the improvement to colour	-Rs.	25,000
- Reduction in retting time	-	25,000
- Improvements to spinning machine		50,000
- Improvements to cleaning machine	-	25,000
- Mechanical beating	-	50,000
- Extraction of white fibre from green husks without retting of husks	-	25,000
	Rs.	200,000

N.B. (The above costs do not include any payment of royalties or acquiring patents)

1.3 Financial support to the individual producers and societies

- 50 cleaning machines at Rs.4,000/- each 50% subsidy	-Rs.	100,000
- 500 spinning machines at Rs.400/- each 50% subsidy	-	100,000
- Refinancing - 200 retting pits of 500 to 5000 capacity at Rs.500/-		100,000
Average per pit	Rs.	300,000

The actual details have to be worked out subsequently.

COST ESTIMATE FOR A BROWN FIBRE MILL & BROWN YARN MAKING PROJECT

Capacity - drim pairs at 2500 husks per drim per 200 working days - One million husks per year.

Location - Hakmana electorate

Capital -

1. Land - 3 acres at Rs.10,000/- per acre		Rs. 30,000
Buildings		
2. Hill shed and office	- 30' x 40' at Rs.75/- sq. ft.	90,000
3. Bristle fibre store	- 15' x 10' at Rs.65/- " "	9,750 *
4. Balloting shed	- 15' x 20' at Rs.65/- " "	19,500 *
5. Retting tanks - 2 Nos.	- 15' x 10' at Rs.65/- " "	39,000
6. Water tank for washing fibre	- 10' x 10' at Rs.65/- " "	6,500
7. Drying floor for the fibre	- 20' x 40' at Rs.30/- " "	24,000
		Rs.188,750

Machinery

8. 2 pairs of drims at Rs.20,000/- each with 3 HP motors	Rs. 40,000
9. Husk crusher with 10 HP motor	50,000
10. Paddle sifter	20,000
11. Ordinary sifter	12,000
12. Hand operated balloting machine	5,000
13. Water pump with motor	5,000
14. Two wheelbarrows	1,000
15. Installation of machinery	25,000
16. Electrification of the mill	10,000
17. Office equipment	15,000
18. Contingencies - 20% of above costs	80,350
	Rs.482,100

Personnel Requirements

1.	OIC/Manager - Rs.800/month plus 15% benefits	11,040
2.	One clerk - Rs.450/months plus 15% benefits	6,210
3.	Four machine operators at Rs.35/day plus 15% benefits	23,000
4.	Two male labourers at Rs.15/day	6,000
5.	Two female labourers at Rs. 10/day	4,000
6.	One watcher - Rs.350/-p.m. plus 15% benefits	4,825
		55,075
	Fixed portion (1,2,3,6)	45,075
	Variable portion (4,5)	10,000

Working Capital Estimate

1.	One month husk at Rs.40/- per 1000 husks plus transport	6,000
2.	Cash and contingencies	10,000
		16,000

* Finished goods are transferred to yarn making projects.

Cost of Production - Fibre Mill

Variable Costs

1.1	Purchase of husks - 1 million husks at Rs.40/- per 1000 husks	40,000
1.2	Transport of husks - 200 loads at Rs.150/-	30,000
1.3	Wages and benefits at 15%	10,000
1.4	Electricity	10,000
		90,000

2. Fixed Costs

2.1	Salaries and benefits	Rs. 45,000
2.2	Repairs and maintenance	5,000
2.3	Office miscellaneous	5,000

Depreciation

2.4	Buildings and installations - 2½% - 4720		
2.5	Machinery and equipment - 25 years - 7320		12,000

Interest

2.6	Working capital - 16% on 16,000	- 2560	
2.7	Fixed capital - 16% on Rs. 482,000/1 minus Rs.25,000/- subsidy on 10 years repayment in equal instalments	40,276	43,000
	Total fixed cost		110,000
	Total cost		200,000
Cost / Mt of mixed fibre			1,600

Transfer 125 Mt. of mixed fibre to yarn making at Rs.1,600/- Mt.

Brown Yarn making Unit

1. Capacity - 125 tons of brown fibre converted to 100 Mt. of yarn.
2. Method of production - Machine twisted yarn by distribution of fibre to homes of members of the society, with machines provided and payment at 30% commission.

Capital Requirements

1.	Spinning wheels (at 25 pounds of yarn/machines per day and 300 working days - 30 machines at Rs.400/each	12,000
2.	Yarn store and office (Bristle shed with mill to be used as this will not be engaged)	-
3.	Weighing machines and office equipment	15,000
4.	Contingencies - 20%	6,000
		33,000

Working Capital

1.	15 days yarn stock at Rs.3500/- ton	15,000
2.	15 days fibre stock at Rs. 1600/- ton	8,300
3.	One month wages	1,000
4.	Cash and contingencies	5,000
		29,000

Cost of Production & Profitability

1.	125 Mt. of fibre at Rs.1600/1 Mt.	Rs. 200,000
2.	Yarn spinning expenses at 30% commission on 100 Mt. of yarn at 3800/-Mt.	114,000
3.	Wages - one labourer at Rs.15/- day for 200 days	3,000
4.	Collection of yarn and distribution of fibre - by cart variable cost	5,000
		322,000

Fixed Costs

5.	One clerk at Rs.450/- plus 15% benefits			6,200
6.	Depreciation - Machinery - 10% - 1200			
	Equipment - 25 yrs.- 600			1,800
7.	Interest			
	Working capital - 16% on Rs.29,000		- 4640	
	Fixed capital - 16% on 33,000 in 10 yrs. repayment		- 2904	7,550
	Fixed cost			15,550
	Total cost			337,550
8.	Sales value of 100 Mt. of yarn at 3800/Mt. profit			42,000

Economic Indices

1.	Percent of profit to capital	- 8.7%
2.	Capital output ratio	- 1.36
3.	Capital to net output ratio	- 1.50
4.	N.P.V. at 10% on 25 yrs project period	- + 45
5.	Income benefit to the region	- Rs. 253,000 per year
6.	Export substitution benefit	
	(F.O.B. value per Mt. - local price/Mt.) x 100 Mt.	
	(i.e. Rs. 8065/- minus 3800/-) x 100 Mt.	426,500/Yr.

Summary of Costs & Benefits

	Annual expenditure	Capital
1. Extension	Rs. 42,000	Rs. 24,000
2. Research	200,000	-
3. Subsidies	200,000	-
3.1 Refinancing	100,000	-
4. Fibre mill & Yarn Project	369,000*	515,000
Total	Rs. 911,000	Rs.539,000

* Excludes depreciation

Benefits

1. Income from husks	Rs. 70,000
- Wages & salaries	178,000
- Profits	42,000
- From retting pits and machines	137,500
2. Benefits to the country from export substitution	427,000
3. Employment - 99 people (direct)	854,500

3.1 500 spinning and 50 cleaning machines - 1300 units
(boys treated as half units)

NOTE:- Benefits from research not costed.

2. Buffaloe Calf Heifer Raising Unit

Costing Calf-Heifer Raising Unit (100 acres and 400 heads) - against 1980 prices

Table 1 . Capital Investment

		Total (Rs.)
A. Land (150 acres)	1) Land development and pasture establishment (Rs.1000/acre)	150,000
	2) Fencing (Rs.250/acre)	37,500
		187,500
B. Buildings	1) Calf sheds (individual and group sheds) 40 sq. ft. per heifer Rs.45/sq. ft.	720,000
	2) Staff quarters (10000 sq.ft.) Rs.90/-sq.ft.[1])	540,000
	3) Silos and hay barns	90,000
	4) Electricity and water service	200,000
		1550,000
C. Machinery & Equipment	1) 2 tractors and 3 trailers	400,000
	2) Vehicle	175,000
	3) Equipment(weighbridge, bet. equipment	60,000
		635,000
D. Purchase of stock	1) 400 calves (Rs.1250/-)	500,000
	2) 10 stud bulls (Rs.4000/-)	40,000
		2,912,500

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[1] Assumption that 60% of the staff quarters still have to be constructed.

Table 2 : Operational Costs[1]

		Total (Rs.)
A. Wages	- Manager	35,000
	- Assistant Manager	25,000
	- Labourers (50)	250,000
B. Concentrates - 3 pounds/day 220 tons/Rs.2000 - ton		440,000
C. Pasture Maintenance (about Rs.75/acre)		10,000
D. Maintenance machinery/buildings		40,000
E. Depreciation - machinery 10% (Rs.60,000)		
	- buildings 2.5% (Rs.40,000)	100,000
F. Fuel costs		125,000
G. Incidentals		75,000
Total		Rs.1,100,000

Table 3 Schedule of Movement of Cattle

(in number of head)

Year	Calves purchased	Heifers (in calf) sold	Net Purchase	Animal present in centre
1981	60	-	60	60
1982	130	30	100	160
1983	215	95	120	280
1984	292	172	120	400
1985	253	253	-	400

(From 1985 onwards unit in full operation)

Note:- Number of animals in centre applies to end of year for earlier years, and to average and end of year for later years.

- Average presence in centre assumed to be 1½ years.
- Mortality rate assumed to be zero. Should be adjusted in in light of experience and figures adjusted accordingly.

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[1] Assumption no interest on capital

Table 4. Summary of preliminary cost estimates

	1981	1982	1983	1984	1985
Operation costs in %	25	50	75	90	100
Operational costs in Rs.	275,000	550,000	825,000	990,000	1,100,000
Proceeds for sales (Rs.5000/heifer 1980 prices)	-	150,000	475,000	860,000	1,265,000
Deficit	275,000	400,000	350,000	230,000	-
Surplus	-	-	-	-	150,000

To be financed from IRDP Funds (against 1980 prices and under the assumption mentioned)

Capital costs	-	Rs. 2,937,500	
Operational costs	-	Rs. 1,255,000	
Total		Rs. 4,192,500	(against 1980 prices)

IMPORTANT FUTURE PRICE INCREASES ARE NOT YET TAKEN INTO ACCOUNT. FOR AN ESTIMATE OF FINANCE REQUIREMENTS IT IS ESSENTIAL TO TAKE FUTURE PRICE INCREASES INTO ACCOUNT, IF NOT, BUDGET PROVISIONS MADE NOW WILL TURN OUT TO BE INADEQUATE BY THE TIME OUTLAYS ARE TO BE MADE. FINANCE REQUIREMENTS IN CURRENT PRICES WILL ROUGHLY DOUBLE THE TOTAL COSTS.

Table 5 : Capital Investment, small units

		Total (Rs.)
A. Land (50 acres)	1) Land development and pasture establishment (Rs.1000/acre)	50,000
	2) Fencing (Rs.250/acre)	12,500
		62,500
B. Buildings	1) Calf sheds (individual and group sheds) 40 sq.ft. per heifer Rs.45/sq. ft.[1]	252,000
	2) Staff quarters (6000 sq.ft.)Rs.90/sq.ft.[2]	324,000
	3) Soils and hay barns	30,000
	4) Electricity and water service	100,000
		706,000
C. Machinery and Equipment	1) 1 tractor and 2	
D. Purchase of stock	1) 100 calves/heifers (Rs.1500/-)	150,000
	2) 10 stud bulls (Rs. 4000/-)	40,000
		190,000
		Rs.1,443,500

[1] Sheds for 185 heads of cattle (100 heads of cattle to be distributed and 25 heads of local buffaloes to be served at the B.C.R. Unit).

[2] Assumption that 60% of the staff quarters still have to be constructed.

Table 6. Operational Costs[1], Small Units

A. Wages	- Manager	35,000
	- Asst. Manager	25,000
	- Labourers (20)	100,000
B. Concentrates	- 3 pounds/day 55 tons/Rs.2000 - ton	110,000
C. Pasture Maintenance - (About Rs.75/acre)		4,000
D. Maintenance machinery/buildings		20,000
E. Depreciation	- machinery 10% (Rs.50,000)	
	- buildings 2.5% (Rs.15,000)	65,000
F. Fuel Costs		100,000
G. Incidentals		25,000
Total		Rs.484,000

Table 7. Schedule of movement of Cattle, Small Units
(in number of head)

Year	Calves purchased	Heifers (incalf) sold	Net Purchase	Anima to be buted in ce
1981	50	-	50	
1982	100	25	50	1
1983	75	75	0	1

(From 1983 onwards unit in full operation)

NOTE:- - Number of animals in centre applies to end of year of earlier years and to average and end of year for late

- Average presence in centre assumed to be 1½ years.

- Mortality rates assumed to be zero. Should be adjuste light of experience and figures adjusted accordingly.

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[1] Assumption no interest on capital

Table 8. Summary of preliminary cost estimates, Small Units

	1981	1982	1983
Operational costs in %	50	100	100
Operational costs in Rs.	241,000	484,000	484,000
Proceeds for sales (Rs.5000/heifer 1980 prices)	-	125,000	375,000
Deficit	241,000	359,000	109,000

To be financed from IRDP funds (against 1980 prices and under the assumptions mentioned) :

Capital costs	-	Rs.1,443,000
Operational costs	-	Rs. 709,000
Total		Rs.2,252,000[1] (against 1980 prices)

[1] Future price increases are not yet taken into account.

3. Development of Regularised Encroached Lands

3.1 Surveys and Experiments

1.	Pedological survey	- Rs. 40,000
2.	Sylvo-pastoral survey	- Rs. 40,000
3.	Socio-economic survey	- Rs. 40,000
4.	Experiments on 30 acres (4 locations) establishment	- Rs.120,000
	Total - surveys, establishment and experiments	- Rs.240,000
5.	Maintenance costs on 30 acres 30 labourers and supervisor	- Rs.125,000/year

3.2 Pilot Projects

Project Element 1: Period 1981 - 1982

Pilot Scheme on 200 acres

40 mandays/acre	- 8,000 mandays	
Wages	- Rs. 8/day	
Money equivalent of food ration	- Rs. 8/day	
Total	- Rs.16/day	
On 8,000 mandays	- Total	- Rs.128,000
Total Project Element 1		- Rs.128,000

Project Element 2: Period 1981 - 1982

1.	Establishment of 3 demonstration plots annexed nurseries	- Rs.150,000
2.	Incentive scheme on 200 acres Average subsidy Rs.3000/acre	- Rs.600,000
	Total	- Rs.750,000

It is not possible to estimate the costs after 1982. The magnitude of the programme depends on the acceptance of the project by the farmers.

Project Element 3: Period 1981 - 1982

Establishment

Labour inputs	-	70 mandays/acre
On 200 acres	-	14,000 mandays
Wages	-	Rs. 8/day
money eqivalent of food ration	-	Rs. 8/day
Total	-	Rs.16/day
On 14,000 mandays	-	Rs.224,000
Non-labour inputs (fertilizer,seeds) (Rs.100/acre	-	Rs. 20,000
Total - establishment pilot plantation scheme	-	Rs.224,000

Maintenance Cost

Labour	-	15 mandays/acre
On 200 acres	-	3,000 mandays
3,000 mandays at Rs.16/day	-	Rs.48,000
Non-labour costs Rs.20/acre (fertilizer)	-	Rs. 4,000
Total - Maintenance	-	Rs.52,000

As for the other two project elements, it is not possible to estimate the costs after 1982.

Also, this project element has an experimental character.

Project Element 4

It is proposed to start project element 4 only in 1983. A detailed cost estimate cannot be given unless more basic agranomic data are available. Referring to the costs of other Pilot projects, costs on establishment of 200 acres can be estimated at Rs.250,000

3.3 Sub-office - Galle Divisional Office

Office rent	-	Rs. 30,000
Furniture	-	Rs. 50,000
Equipment, Jeep	-	Rs.130,000
Total	-	Rs.210,000

3.4 Total Costs

	1981	1982	1981-82	1983
Surveys and experiments	365,000	125,000	490,000	125,000
Pilot Projects				
Project Element 1	64,000	64,000	128,000	
Project Element 2	450,000	300,000	750,000	
Project Element 3	148,000	174,000	322,000	52,000
Project Element 4	-	-	-	250,000
District Forest Office	210,000	30,000	240,000	30,000
	1,237,000	693,000	1,930,000	427,000

Overhead costs of the Departments involved are not indicated on this budget.

DEVELOPMENT OF TEA SMALL HOLDINGS PROJECT

CAPITAL EXPENDITURE ESTIMATED FOR DEVELOPMENT OF S.P.C. FACTORIES . MATARA DISTRICT INTEGRATED RURAL DEVELOPMENT PROGRAMME

Items	CAPITAL REQUIREMENT (RUPEES)								
	Sathmale Ells			Kiruwanaganga			Indola		
	* P I	P II	P III	P I	P II	P III	P I	P II	P III
Lenear ft T/Witherers including fans with motors	172,500	-	-	262,500	-	-	202,500	-	33,750
Rollers 47"	356,400	-	-	534,600	-	-	356,400	178,200	-
Rollers 45.5"	175,350	-	-	175,350	-	-	-	-	-
Rollers 40"	159,325	-	-	-	159,325	-	-	-	-
Roll Breakers 4½"	112,000	-	-	168,000	-	-	112,000	56,000	-
Roll Breakers 3½" with conveyors	-	-	-	-	-	-	-	-	-
Tea Bulker	-	-	-	-	-	-	-	-	-
Humidifiers	-	24,000	-	24,000	-	-	48,000	-	-
Driers 6'	560,320	-	-	560,320	-	-	-	-	-
Driers 5'	-	-	-	-	-	-	-	-	499,620
Driers 4'	-	-	-	-	-	-	-	-	-
Chota sifters	65,000	-	-	65,000	-	-	65,000	-	-
Michie sifters	-	70,000	-	35,000	-	-	35,000	-	35,000
Rotary sifters	-	-	-	-	-	-	-	-	-
Tarry nippers	30,000	-	-	30,000	-	-	-	-	-

*P = Priority

CAPITAL EXPEND URE ESTIMATES FOR CTORY DEVELOPMENT Contd.)

Items	Capital Requirement (Rupees)								
	Sathmale Ella			Kiruwanaganga			Indola		
	P I	P II	P III	P I	P II	P III	P I	P II	P III
3 T stalk extractors	95,000	-	-	95,000	-	-	-	95,000	-
MIDL stalk extractors	-	49,000	-	49,000	-	-	49,000	-	-
Winnowers	-	59,660	-	-	-	-	59,660	-	59,660
Double packers	-	31,000	-	31,000	-	-	31,000	-	-
Leaf hoists	90,000	-	-	90,000	-	-	90,000	-	-
Fuel tanks 5000 Gls.	-	-	-	-	-	-	-	-	-
Fuel tanks 2500 Gls.	-	-	-	-	-	-	112,500	-	-
Fuel tanks 500 Gls.	-	-	-	-	-	-	-	-	-
Dust fans	-	15,000	-	15,000	-	-	-	-	-
Cutters	-	32,000	-	-	-	-	32,000	-	-
Peltons	-	-	-	-	-	-	-	-	-
Blowers	-	-	-	-	15,000	-	15,000	-	-
Grinders	-	-	-	-	20,000	-	-	-	-
Leaf trolleys	-	-	-	-	-	-	15,000	5,000	5,000
Lathes	-	-	-	-	-	-	-	-	-
Motors	-	-	-	-	-	-	-	-	-
Transformers 200 KVA	75,000	-	-	-	-	-	-	-	-
Alternators 350 "	-	-	-	-	-	-	-	-	-
" 325 "	-	-	-	-	-	-	-	-	-
" 300 "	-	-	-	-	-	-	-	-	-
" 250 "	-	-	-	-	-	-	-	-	-

CAPITAL REQUIREMENTS FOR LIMITED INVESTMENT TO S.P.C. FACTORIES

1. Name of Factory - HANDFORD S.P.C.

Machinery Required	Estimated Cost (Rs.)
Rollers 47"	178,200.00
Rollers 45.5"	175,350.00
Roll Breakers 4½"	56,000.00
Humidifiers	48,000.00
Winnowers	49,000.00
Fuel tanks (5,000 Gls)	90,000.00
Peltons	500,000.00
Flourescent lights	25,850.00
Factory extension	100,000.00
Total	Rs.1,222,400.00

2. Name of Factory - HULANDAWA S.P.C.

Machinery Required	Estimated Cost
Roll Breaker (2)	78,000.00
Driers 6'	56,320.00
Chota sifters	65,000.00
Terry Nippers	30,000.00
3^T Stalk Extractors	95,000.00
Winnowers	59,660.00
Leaf Hoists	90,000.00
Alternators 50 KVA	112,000.00
Factory extension	23,386.00
Total	Rs.1,113,366.00

Name of Factory - BELMONT S.P.C.

Machinery Required	Estimated Cost (Rs.)
Rollers 47"	356,400.00
Roll Breakers 4½"	112,000.00
Michie sifters	105,000.00
Terry Nippers	30,000.00
3T Stalk Extractors	95,000.00
Winnowers	59,660.00
Alternators 50 KVA	112,000.00
	Rs.870,060.00

GRAND TOTAL = Rs.3,206,126.00

5. Homestead Development Projects

5.1. Costs & benefits of homegardening (vegetable plot of 300 sq.feet)

Per person of 4 months, the following yields can be obtained under average management:

Crops (Plots of 3 x 10)	Yields (Pounds)	Price/Pound (Market Price)	Value of Production
2 plots of yams	120	Rs.1.00	Rs. 120.00
2 plots of pulses	50	1.50	75.00
1 plot of green vegetables	40	1.20	48.00
2 plots of green chillies	20	3.00	60.00
2 plots of ladies fingers	40	1.25	50.00
1 plot of brinjal	25	1.25	31.00
	295		Rs. 304.00

Pulses are included to improve the protein content of the diet.

Running Costs per Season

Seeds (Vegetables)	Rs. 3.00
Fertilizer (24 pounds in 4 pound bags)	16.00
Agro-chemicals	30.00
Half cart load of cowdung	20.00
Miscellaneous	4.00
	Rs. 73.00

Only family labour is used at a rate of 2 man hours a day for a 300 sq.ft. plot.

Equipment (Lasting about 3 years)

Watering can	Rs. 25.00
Supports	freely available tree branches
Mammoty	Rs. 48.00
Plantboxes	free, self constructed from local material
Garden sprayer	Rs. 60.00
	Rs.133.00

Investments will be considerably higher if fencing is necessary. Most gardens are already fenced. Also investments will be much higher if one digs a well and/or instals a foot driven peddle pump (Rs.1000/-). This is only worthwhile in case of larger plots with higher returns. A 300 sq.ft. plot can be watered by hand.

Nursery Management

- As insect attacks and virus diseases (especially in shady areas) are severe much spraying is necessary. A small garden sprayer should be made available.
- Compost and cowdung should be applied. A compost pit or heap can easily be constructed. Also the ashes of coconut husks used for firewood can be brought into the soil.
- In most gardens removing of excess trees is necessary.

5.2. Costs and benefits of Poultry

If the number of chicken kept per household is too small one tends to neglect them. It should not be too big either in order to avoid heavy risks and in order to enable a larger number of households to profit from poultry. As this programme is meant for low income households, we feel that 25 birds would meet both requirements.

Yields (under average management)

Start with 25 day-old chicks, loss of 3 chicken, left 23. After 6 months they start laying at 70% during 6 months and continue laying for another 6 months at 50%.

Value of egg production (at Rs.r70/- per egg, farmgate price)		Rs. 3,402.00	
Layers of 2.5 pounds each will be replaced after one year and sold at Rs.7/- per pound live weight,		Rs. 402.00	
Total value of production in 18 months value		Rs. 3,800.00	

Costs

Capital costs	-	Sheds	Rs.500.00	
		Equipment	100.00	600.00
Operational costs	-	Chicks (at Rs.4/75)	120.00	
	-	Feed (2500 lbs at Rs.50/- per 50 lbs. bag)	2500.00	
	-	Drugs	25.00	
	-	Miscellaneous	25.00	
				2670.00
Net profit in 18 months : 3800 - 2670 - 60 (amortization)				1070.00

Profit per year is Rs.713/- representing a 10% increase of household income.