

MAHAWELI ENTERPRISE DEVELOPMENT

MED/EIED PROJECT

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COMMERCIAL DEMONSTRATION FARM INVESTMENT POTENTIAL FOR NAWAMEDAGAMA (JICA)

A short-term consultancy report
by
Dr Cedric R. De Vaz

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Report 9/1992



INTERNATIONAL SCIENCE AND TECHNOLOGY INSTITUTE, INC.

WITH :

ERNST & YOUNG CONSULTANTS (Sri Lanka)
DEVELOPMENT ALTERNATIVES, INC.
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The Mahaweli Enterprise Development Project

The Government of Sri Lanka and the international donor community have given high priority to the development of the natural and human resources of the Mahaweli river basin. The first phase of this development, the construction of dams, irrigation and power systems, roads and other physical infrastructure, is largely complete. The second phase, settling the land and forming an agricultural production base, is well under way. The third phase, the major challenge for the 1990's, is the building of a diverse and dynamic economy, improving employment and income prospects for Mahaweli settlers and their families. In this phase the private sector has a leading role to play.

The Mahaweli Enterprise Development Project (MED) is a USAID-supported initiative of the Mahaweli Authority of Sri Lanka to promote investment and business development in agribusiness, manufacturing, tourism, minerals and services. MED directly assists small, medium and large-scale investors with technical assistance, marketing support, training, business advisory services and credit. MED also provides policy assistance to improve access to resources, such as land, water and capital, and the legal and institutional framework for enterprise development.

The official MED implementing agency is the Employment, Investment and Enterprise Development Division of the Mahaweli Authority. The main MED technical consultancy is provided by a consortium led by the International Science and Technology Institute, Inc., a private consulting firm with head offices in Washington DC. Other firms in the consortium are Agroskills, Development Alternatives, Ernst and Young, High Value Horticulture and Sparks Commodities. Marketing services are provided by SRD Research and Development Group, Inc.

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MAHAWELI ENTERPRISE DEVELOPMENT PROJECT
NAWAMEDAGAMA (JICA) FARM

by

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AUGUST 1992

LIST OF ACRONYMS

| | | |
|-----|---|---|
| CM | - | Centimeters |
| H | - | Hectare |
| KG | - | Kilogram(s) |
| MED | - | Mahaweli Enterprise Development Project |
| M | - | Meter(s) |
| Rs | - | Rupees |

PREFACE

Dr. Cedric de Vaz, an agronomist, is a retired Deputy Director of Agriculture with extensive experience in agriculture and horticulture. He has prepared this MED information report on Nawamedagama (JICA) Farm as part of the preparation by the MASL for offering this farm to the private sector for development. The views and proposals expressed in the report are those of the consultant and do not necessarily represent the views of ISTI, the MASL or USAID as the funding agency.

This report is based in good part on information provided by the staff and files of the MASL. However, frequent staff changes and incomplete documentation have contributed to serious gaps in the institutional memory and records of activities and performance on Nawamedagama (JICA) Farm.

PERSONS INTERVIEWED IN COMPILING THE REPORT

1. **Dr. Jim Finucane, Chief of Party, MED**
2. **Mr Jayantha Jayewardene, Deputy Chief of Party, MED**
3. **Mr. J. Weerakody, Manager, Mahaweli Development Centre, Girandurukotte**
4. **Mr Ranjith Wickremasinghe, Farm Manager, Seed Production Farm, Nawamedagama**
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6. **Mr. Toshimitsu Iwasaki, Horticulturist, JICA Farm**

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SEED PRODUCTION FARM - NAWAMEDAGAMA (JICA FARM)

PREAMBLE

The seed production farm (JICA Farm) at Nawamedagama is located in System C of the Mahaweli project in the Amparai District, in the Eastern Province of Sri Lanka. The farm is connected by a good macadamized highway to two important towns namely, Girandurukotte (10 km) and Dehiattakandiya (20 km) on either side.

Discussions with relevant officers and inspection of the farm by the Consultant, revealed the latent untapped potentialities of this farm which could be revamped into a profitable agri-business venture. The large farm area of 277 hectares comprises both irrigable lowland and highland, from which 23 h have been demarcated for research and demonstration of paddy, vegetables and other field crops, under the JICA project with Japanese assistance which was initiated in 1985 and officially terminated in February 1990. However, after some negotiation another Japanese expert on other field crops assumed duties under the same project and is expected to continue till December 1992. A further 20 h have been allotted to the Ceylon Tobacco Co. since April 1992 for seed production of tobacco, maize and soya.

The farm is mainly engaged in the production of seed paddy in about 180 h during both Maha and Yala seasons. There appears to be no serious constraints about irrigation facilities, as the tank in close proximity to the farm provides ample water. The lined irrigation channels within the farm contribute to a satisfactory irrigation system currently in use. Oftentimes, the available paddy land is not fully cultivated due to a lack of funds, machinery and labour. Seed paddy yields of about 4 t/h were reported, with a profit of Rs. one million during 1991, from the sale of seed paddy, rice and rice flour, the latter two being possible after the installation of a rice mill under the JICA project to produce quality rice and seed paddy.

Earlier attempts to cultivate horticultural crops in the highland areas of the farm were unsuccessful due to severe wild boar and elephant damage.

The farm, has a perimeter fencing supported on concrete posts only on one boundary facing the main road. The rest of the farm area is identified only by irrigation channels. The internal farm roads are in satisfactory conditions and motorable to most sites. The housing complex, offices, stores and other buildings are well constructed and provided with electricity and water supply. Regretfully, no telephone facilities are available, which is a severe communication constraint, considering its remote location.

1. FARM EXTENT

| | |
|---------------------------|-------|
| Irrigable lowland (paddy) | 217 h |
| Irrigable highland | 60 h |
| | ----- |
| Total | 277 h |
| | === |

An extent of 23 h has been demarcated for research and demonstration purposes from the irrigable lowland area of 217 h, while a further 20 h and 2 h blocks have been released to the Ceylon Tobacco Co. and also for research and seed production programmes, respectively.

2. CLIMATE

The farm gets its precipitation from the NE monsoon, commencing October to early January, with very little rainfall during the Yala.

The annual rainfall is between 1600 to 1700 mm. Temperatures range from 28 to 38°C, with the months of July and August being very dry and strong winds being experienced during June/July.

Maximum soil temperatures during the Maha season (October 1991 to May 1992) indicated an average of 33.8°C, at 5 cm depth and 30.2°C at 30 cm depth.

The percentage relative humidity varied from 60 to 77, during the period October 1991 to May 1992.

3. SOILS

The soils are a combination of Reddish brown Earths and Low Humic Gley Soils. Approximately 15 h are currently abandoned due to poor drainage and a further 60 h adjacent to the research trial area needs levelling for effective irrigation. Lack of funds is apparently the only reason to restore these areas for successful cropping. Based on observations of past cropping and standing crops in the farm, a wide range of exotic and local vegetables, fruit crops and paddy can be successfully incorporated into a viable agricultural enterprise.

4. AVAILABLE FACILITIES

(a) **Roads**

The farm is well linked by a very good macadamized highway to two important towns on either side namely, Girandurukotte (10 km) and Dehiattakandiya (20 km). The farm roads are in satisfactory condition and motorable to most sites.

(b) **Electricity**

All farm buildings are provided with electricity and some living quarters and office complexes enjoy air and conditioning facilities.

(c) **Buildings**

Well constructed permanent housing, office complexes, stores and garages with brick and cement are listed below:

| Description | Sq. m | Housing | Number |
|----------------|-----------------|------------------|--------|
| Office complex | 448.6 | Staff qtrs Gr. 1 | 10 |
| Cold room | 147.4 | Staff qtrs Gr. 2 | 6 |
| Stores (4) | 393.7 (each) | Staff qtrs Gr. 3 | 8 |
| Stores (2) | 78.9 (each) | Staff qtrs Gr. 4 | 1 |
| Store (1) | 157.4 | Minor staff | 1 |
| Workshop | 328.0 | Japanese experts | 4 |
| Rice mill | 915.0 | | |
| Garage | 215.28 | | |
| Garage | 257.64 | | |

5. IRRIGATION

The irrigation lined channels are in satisfactory condition and require little attention in some places where weed growth tends to block the free flow of water. The water is conveyed to the fields by gravity flow. The official periods for the release of water are October 10th to March 15th for the Maha season and April 20th to September 15th for the Yala. No problems concerning supplementary irrigation were indicated during the discussions and consequently cultivation is done in both Maha and Yala seasons, with water being available from the tank in close proximity to the farm.

6. LABOUR

There exists a problem regarding the availability of required labour during important operations like land preparation, planting and harvesting. This is mainly due to the casual labour working their own lands during these periods. Its only when their private commitments are completed, they return for farm employment. The average wage rate is Rs. 77/- per day.

7. PAST CROPPING

Cropping has mainly been confined to production of seed paddy of the 3 to 4 1/2 months age groups. Attempts to cultivate fruit crops like banana were unsuccessful, mainly due to severe damage by wild boar and elephants. Other field crops including vegetables needing intensive labour for transplanting, weeding and harvesting may not be feasible economically due to shortage of labour at crucial periods.

It transpired during the discussions that the total cultivable area is generally not planted fully, due to shortage of funds, labour and lack of appropriate and adequate machinery. In spite of these constraints, a profit of about Rs. one million was recorded in 1991, manifesting the latent potentialities of this farm. It was also indicated that some of the highland area will require deep ploughing to break up an existing hard pan, if fruit crops are envisaged for future cropping.

8. SETTLERS

It was mentioned that there are about 1000 settler registered families surrounding the farm, owning one hectare of irrigable land and 0.2 h for the homestead. They cultivate during both Maha and Yala seasons and the crops include paddy, vegetables, and some legumes with fruit crops in the home gardens.

9. CONSTRAINTS

- (a) Total required and requested funding for proposed cropping programmes is usually not forthcoming, thus restricting the area cultivated each season. This severe drawback appears due to the existing practice of all income earned by the farm being directly credited to government revenue, and consequently the management having to go back to the Treasury to obtain funds for capital and recurrent expenditure.
- (b) Sever damage to crops by wild boar and elephants continues to pose an on-going hazard. Wild boar seem to have made a permanent abode on large areas of uncultivated farm land, which is overgrown with tall grasses, providing an ideal hideout for these animals.
- (c) Shortage of labour during important operations of land preparation, planting and harvesting, thus restricting the total cultivable area.
- (d) Inadequate availability of farm machinery for mechanization and consequently, the current practice of hiring equipment and machinery for farm operations at high cost.
- (e) Lack of telephone facilities for quick communication.
- (f) Perimeter fencing restricted only to one side of the farm. A large area of the farm is demarcated by irrigation channels as its boundaries.
- (g) Approximately 60 h highland need levelling for effective irrigation and a further 15 h of highland lie abandoned due to drainage problems.

10. RECOMMENDATIONS FOR CROPPING AND OTHER ACTIVITIES

- (a) Provision of adequate funds to fully utilize the cultivable area which will have a dramatic effect of significantly reducing the current wild boar population which have made a permanent abode in the thick and tall grass growth in the large extents of uncultivated land. The current government policy of withdrawing firearms from registered license holders, has also contributed to the increased wild boar population. Consequently, serious attempts should be made to convince the authorities of returning the firearms to their owners.

As for the current financial constraints which hampers farm development, it is mainly due to the existing practice of all income earned by the farm being directly credited to the Government revenue. If a system of a revolving fund is established, where the farm income is credited to a separate farm account, these monies together with the interest accrued thereon will be readily available for farm activities, without depending on dole outs by the Government Treasury.

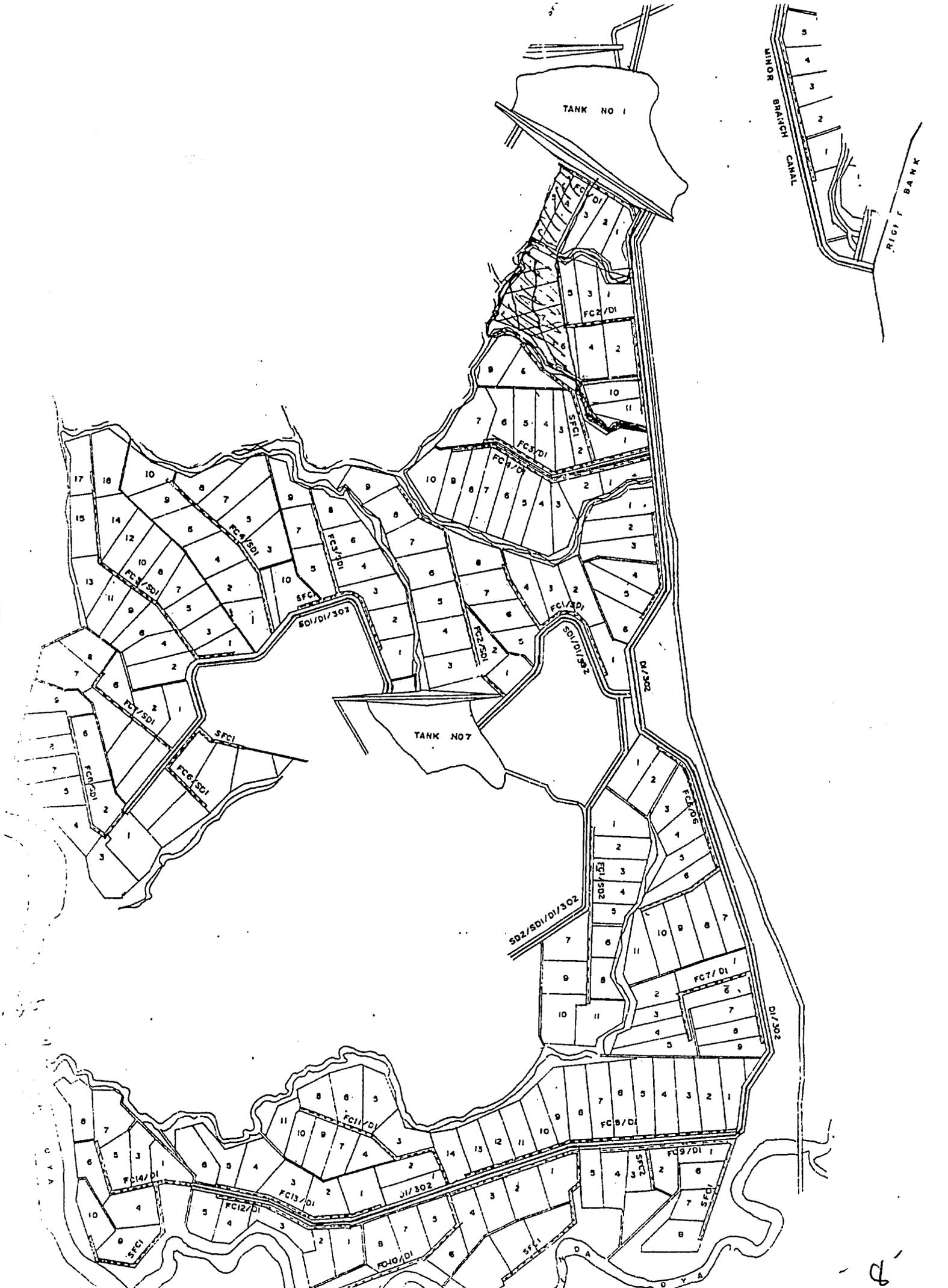
- (b) Elephant damage which is mainly seasonal, should be controlled in collaboration with the Wild Life Department. The erection of electric fences although effective, may not be feasible due to its cost and the large extent of the farm.
- (c) Serious and positive attempts should be made to mechanize every possible farm operation due to the scarcity of labour. Machinery like combined harvester/thresher, transplanters, graders etc. together with appropriate farm implements, should be significantly influence the efficiency of farm output and revenue. It was regrettable to note that currently this large farm area has only one tractor in working condition.
- (d) If adequate and appropriate farm machinery and implements are procured, it appears a feasible proposition to hire these out during the periods when not required for farm use and thereby earn a substantial income. Currently, the cost of ploughing one hectare is around Rs. 4,000/- such a service by the Mahaweli Authority of Sri Lanka, will certainly be appreciated by the private sector in the surrounding areas of the farm.
- (e) Some of the highland areas remain abandoned due to poor drainage or levelling. After appropriate remedial measures, these problem areas can be gainfully utilised for permanent crops like mango, passion fruit, banana etc.
- (f) The soils sadly lack in organic matter. Consequently, the establishment of a livestock and poultry unit will provide the much needed organic manure at no extra cost and easy availability.
- (g) A programme specially for fattening of bull calves for meat seems a viable proposition, considering the land area and also the large quantities of basic roughage available like, straw and grasses. Foliage of cassave and sweet potato can also be included in their diets, as these crops grow quite easily in this area. There is also the possibility of using the leaves of Glyricidia and Ipil-Ipil which are found in plenty all over this region.
- (h) Poultry, for eggs and day old chicks (layers) appear to have a good demand in the area and its surroundings. Currently a limited number of "day old" are brought here from Kandy, Gampola etc. on a regular basis and sold to the settlers. The current price of eggs in this locality is Rs. 2.25/- each.

- (i) A unit for the manufacture of poultry and livestock feed in the farm seems a meaningful venture, as currently these feeds are transported all the way from Colombo, Kandy etc. A distinct advantage in this programme is the easy local availability of some of the important ingredients for these feeds, like rice bran, soya, green gram, maize etc. Subsequently, if this venture proves successful, cassava chips can also be incorporated into the feed, which will boost the cultivation of cassava in this agro-climate where it grows with very little effort.
- (j) Successful commercial crops of quality tomato can be grown in the farm by exploiting the principle of creating anaerobic soil conditions to control the disease bacterial wilt caused by Pseudomonas solanacearum, which is an acknowledged limiting factor for the extensive cultivation of tomato in Sri Lanka. This can be achieved by only impounding the water in the paddy fields for a few weeks, without actually puddling the soils and planting paddy. This practice will also assure that the Low Humic Gley Soils of the paddy lands will not be subject to an adverse alteration in soil structure due to puddling. Such an approach, will make feasible the large scale cultivation of high yielding, introduced tomato varieties, which otherwise will succumb to bacterial wilt. This practice will also significantly reduce the weed population under semi aquatic soil conditions.
- (k) The JICA research trials have indicated the success achieved with sweet potato grown in the farm. This crop could well be exploited in the farm cropping programme both for human consumption and livestock feed (foliage).
- (l) The sale of local and exotic vegetable seedlings like chillie, egg plant, tomato, big onion, cabbage, beet root etc. appears a viable proposition. Eventually, large scale cultivation of exportable varieties will be made possible, due to the recommended or appropriate varieties of seedlings being sold to all the surrounding farmers. This exercise will assure the uniformity of the harvested produce, thereby enabling the investor to meaningfully programme for the disposal of harvest either in a processed or fresh form.

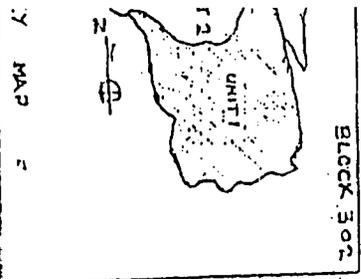
SUMMARY

Nawamedagama Seed Farm has the latent untapped potential for a viable agricultural venture with its good soil and assured water availability. The farm land is ideally suited to accommodate diverse cropping patterns involving paddy, fruit crops, vegetables and other field crops, in conjunction with a viable livestock and poultry unit, which will provide the much needed organic manure to sustain efficient cropping.

Undoubtedly, a few constraints have to be overcome like adequate funding, control of wild animals and mechanization of farm operations to circumvent labour shortages. Remedial actions as suggested by the Consultant should produce spectacular results generating a substantial income and transforming this farm into a model Mahaweli agri-business enterprise.



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