

Country Report - Sri Lanka

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1. Introduction

Democratic Socialist Republic of Sri Lanka is an island lying close to the South East coast of the Indian sub continent. Its land area is 64,630 square kilometers and for administrative purpose the country is divided into nine Provinces. The total population is nearly two million.

2. Agricultural Background

The country is predominantly an agricultural based country and agriculture plays a dominant role in the economy in terms of food security, value addition, employment generation and export earning. The total arable land area is about 1.887 million hectares and out of that about 1.0 million hectares is under permanent plantation crops mainly tea, rubber and coconut. Annual crops, such as paddy, maize, sugar cane, green gram, vegetables, finger millets cover about 0.887 million hectares. About 38 percent of the economically active population is engaged in agriculture contributing 19 percent of GDP whereas the contribution to the GDP by service sector is about 53 percent.

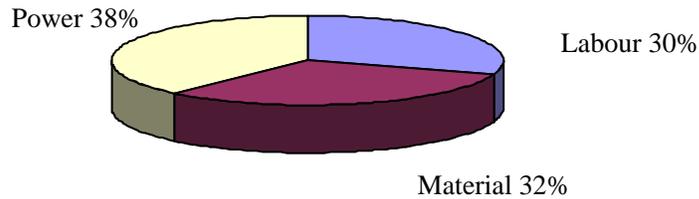
The island receives rain mainly through two monsoons. The rainfall intensity varies across the country due to its geographical features where tall mountains located in the centre and the plains located around the central hills. There are four distinguish climatic regions namely, the wet zone (annual rainfall more than 2500 mm), the dry zone (annual rainfall less than 1750 mm), the intermediate zone (annual rainfall less than 2500 mm and more than 1750 mm), and the arid zone (annual rainfall less than 1000 mm).

Rice is the most important food crop, occupying nearly 29% of the total agricultural land in Sri Lanka and provides the livelihood of the peasant agricultural sector and maize has become the second major crop. The paddy is grown in two seasons in most part of the country and other crops also grown in two seasons.

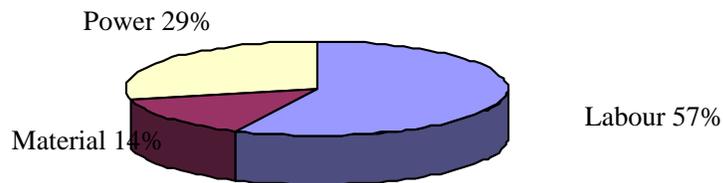
The labour scarcity for agricultural activities gradually becomes a serious problem and if immediate remedial measures are not taken, the percentage of the population engaged in agriculture will further decline and output targets laid down in the policy papers could not be achieved.

2.1 Cost of Cultivation

Cost of cultivation of paddy in large scale cultivating area and small scale cultivation area is different. In the latter case it is very labour intensive activity and in large scale cultivation recently introduced machinery, specially combine harvesters, are used. Introduction of efficient small scale machinery and implement is necessary to improve the productivity of small scale farmers.

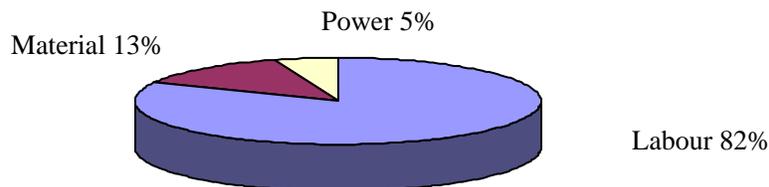


Cost of production of paddy in large scale cultivation



Cost of production of paddy in small scale cultivation

The major component of the cost of cultivation of vegetable and other field crops is labour. In chilli cultivation it is relatively very higher and accounted 82% of the total cost. Mechanization has to play a major role to solve the labour scarcity problem prevailing in this field.



Cost of cultivation of Chilli

2.2 General Situation in the North

The majority of the area in Northern Province was abandoned for 30 years because of the civil disturbances. 100% paddy lands in Killinochchi and Mulativu districts and 21% of Jaffna, 68% of Mannar and 39% of Vavunia were abandoned for nearly three decades. Farmers and general public were not exposed to latest technology which were generated and adopted in the rest of the country. Naturally technology is transferred, from generation to generation. Since farming was not practiced for three decades, this traditional communication channel was also broken. Face to face technology transfer mechanism was also hampered due to lack of staff and various other reasons. In short, the majority of farmers and general public who are in the IDP camps are novices for agriculture. On the other hand, the soil of arable lands in the area is virgin and not polluted with chemical fertilizers and pesticide. The farmlands in the area are organic by default.

Therefore environmental friendly sustainable agricultural technology could be introduced in these areas which demands effective, appropriate and affordable technology transfer mechanism to reach the farmer.

4. National Agricultural programmes

4.1 “Api wawamu – Rata nagamu” (Lets cultivate and build the country) National Food Production Drive Programme

At present the entire economy and food supply depend on imports. To minimize the import of food commodities a national production drive called “api wawamu rata nagamu” has been launched.

A Presidential Task Force has been set up to strengthen the Government national food productive drive Api Wawamu Rata Nagamu (Let’s cultivate and build the country).

This national food production drive launched countrywide on 3rd September 2008 has achieved a number of positive results during the past.

A huge public participation has been made on this national programme. Schoolchildren and politicians have extended their fullest support to implement this programme.

Some countries have already stopped exporting local food items. Steps were taken to set up this Presidential Task Force to further strengthen the Government’s national food production drive to face this situation.

The country’s home garden sector has achieved considerable progress due to the national food productive drive. Nearly 160,000 home gardens have been prepared in the first six months. Under this programme, nearly 10,000 hectares of abandoned paddy lands have also been developed and re-cultivated.

4.2 Granary Area Program

This was implemented in the major irrigation schemes of inter-provincial areas Ampara, Anuradhapura, Polonnaruwa, Hambantota, Hasalaka, Moneragala, and provincial areas of Hambantota, Kurunegala, Puttalam, Batticaloa, Trincomalee, and Mannar. Activities conducted were the Rice production yaya program, Saruketha yaya program, organic manure application promotion campaigns, training of farmers and officers on rice productivity improvement, rice product development promotion programs and setting up cyber extension units. Total expenditure was Rs.24.25 million out of 26 Million allocated and the value of the increased production is expected to be about Rs.1600 million in addition to indirect social benefits.

4.3 Organic fertilizer programme

More than 95% subsidy is given for chemical fertilizer for paddy farmers. Almost all fertilizer is imported. The government has recently launched a programme to promote production of organic fertilizer at domestic level. The fertilizer subsidy will not be given if a organic fertilizer pit is not made. Training programmes for root level officers are being conducted to disseminate technology in organic fertilizer production. This drive will lead to apply minimum amount of chemical fertilizer add hence the sustainability of agriculture could be achieved.

5. Mechanization Status

5.1 Land Preparation

Power tiller with rotovator is the commonly used land preparation machine in both lowland and highland in the country. However in large scale cultivation, specially commercial growers and highland maize cultivation areas four wheel tractors (with disc plough or tine tiller) are used. The population of four wheel tractor is considerably lower than the power tiller population. The riding type 12 hp tractor version is the most popular power tiller because of its riding facility and comparatively high field capacity. Use of animal power and manual power is still practiced in the areas where mobility problems and accessibility problems exists.

5.2 Irrigation

Most of the paddy fields are fed by gravity irrigation system which is systematically arranged throughout the country since more than 2000 years back. However new irrigation schemes are being constructed to facilitate water to the dry zone areas by utilizing the excessive rainfall receives in other parts of the country. In other field crop cultivation and vegetable cultivation areas centrifugal type small size (3 hp – 5 hp) engine driven pumps are commonly used.

Micro irrigation systems are being introduced and being popularized in protected agricultural techniques. However the use of micro irrigation systems is confined to specific places.

5.3 Crop Establishment

Majority of the farmers still practice hand broadcasting of pre-germinated paddy. This practice is not suitable for crop management and use for mechanical harvesters. In this process the application of chemical herbicides is necessary and this will result an environmental pollution issues. There are other social implications as well.

Two types of direct seeding machines for paddy have been introduced recently and gaining popularity. There are many advantages in use of seeders. Reduce the application of chemical herbicides by protecting environment, use of harvesting machines in harvesting and increased yield (10% - 15%) are some of the benefits of seeder weeder combination.

Transplanting of rice is almost not practiced due to lack of appropriate transplanting machines. However research is being done to modify the existing manual transplanter to reduce the drudgery involved with the machine and to develop semi mechanized or self propelled transplanter. Possibility to introduce imported transplanting machine having the recommended planting space is also being investigated.



Box type paddy seeder

(Band sowing)



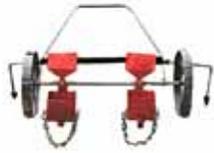
Drum type paddy seeder

(Hill sowing)

Seeders for planting highland crops, especially for maize, have been developed and introduced and gaining popularity. The following types are available for technology dissemination.

- Two wheel tractor drawn highland seeder
- Manually operated highland seeder

- Manually operated seeder for small size seeds
- Tractor drawn rolling injector planter



5.4 Weed control

To minimize the use of chemical herbicides by protecting environment, the cono weeder, developed by IRRI, has been slightly modified and introduced. However because of the drudgery involved with the operation of this implement, a motorized rotary weeder has



Cono-weeder

There is no efficient weeding tool to use in highland farming except the use of power tiller rotovator as an inter-cultivator in maize cultivation. The use of this cultivation is limited because of the row spacing of other crops. An appropriate motorized weeder has a very high potential among the farmers and it is an urgent need.



Use of two wheel tractor rotary as an inter-cultivator

5.5 Harvesting and Threshing

In the Eastern province where the paddy cultivation is done extensively in large size plots, the majority of the farmers use large scale combine harvesters imported mainly from India. In other parts of the country reaper windrower and backpack type modified brush cutter is used in paddy reaping followed by combine thresher for threshing. Though, the use of dryers is necessary after use of combine harvesters, appropriate dryers yet to be introduced. As a result of inadequate drying of rice, the quality is deteriorated when storage.



Two wheel driven combine thresher

5.6 Processing and value addition

Various types of processing machines for seed production and for end products have been developed.

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5.6.1 Onion seed extracting machine

This machine is designed to extract seeds from dried onion seed bulb. It is a simulation of hand rubbing system. The machine is powered by a single phase electric motor



5.6.2 Seed Graders

Manually operated and electrical motor driven seed graders have been developed and are being used by research stations in production of breeder seeds.

5.6.3 Groundnut decorticators



Two type of decorticators can shell the groundnut for consumption and also for seeds. Manual operated machine has the capacity of about 50 kg per hour and the electrical motor driven machine has fairly a large capacity.

5.6.4 Maize shellers

Most of the farmers practiced traditional maize shelling techniques which consumes more labour and also it was very tiresome. The quality of the produce was also very poor. As a result of converting maize cultivation as a commercial business, second to the paddy cultivation, newly introduced shellers are being used.



5.6.5 Pulse Processing Machine

Farmers can earn more income if the produce is sold to the market as a value added product. The pulse processing machine is designed to grade, de-hull and split the pulses.

5.7. Drying & Storage

The Institute of Post Harvest Technology has introduced new dryers and effective storage systems for paddy and other crops. Adaptation of this technology is yet to be done.

6. Mutual Exchange of Technology

1. A tree coconut tree climbing frame has been developed based on the presentation of India in the last technical committee meeting.
2. A set of design drawings of pulse processing machine, developed by Sri Lanka has been sent to Thailand

.References:

Cost of Production of Agricultural Crops – Department of agriculture

Annual report 2008, Department of agriculture, Sri Lanka

Annual report 2008, Farm Mechanization Research Centre