Country paper

Eng. Chinthaka Balasooriya
Deputy Director,
Farm Mechanization Research Center, Mahailluppallama.
Sri Lanka.

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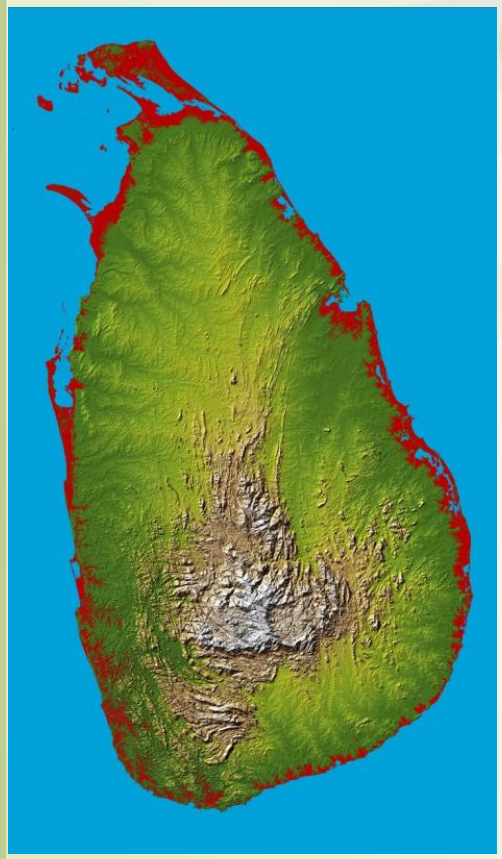
Background

Sri Lanka

The Democratic Socialist Republic of Sri Lanka



- Location - 7°N 81°E
- Total land area : 65,610 Km^2
- Population – 20.48 million (2013)

Population Distribution in Sri Lanka

- Urban – 21.5 %
- Rural – 78.5 %
- Actively engaged in agriculture – 4.0 million (20%)
- Population Density
  - 310 per square kilometer
- Wet Zone – 70%
  (30% country's land)
- Dry Zone – 20 %
  (60% country's land)

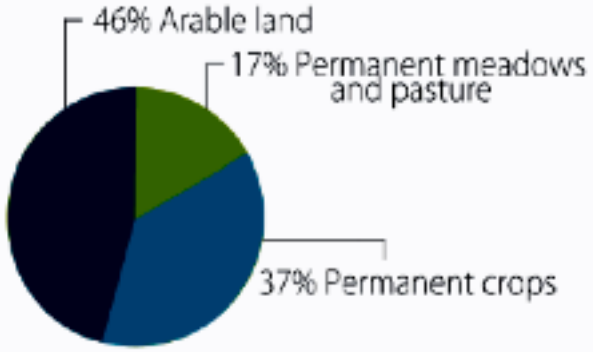
Land use

- Agricultural land - approx. 2.6 million hectares (42%)
- No. of smallholder farmers - 1.65 million
- Average landholdings - less than 2 hectares
- Smallholder farmers are in charge of almost 80% of Sri Lanka's total annual crop production

Land use

Land Use [5]

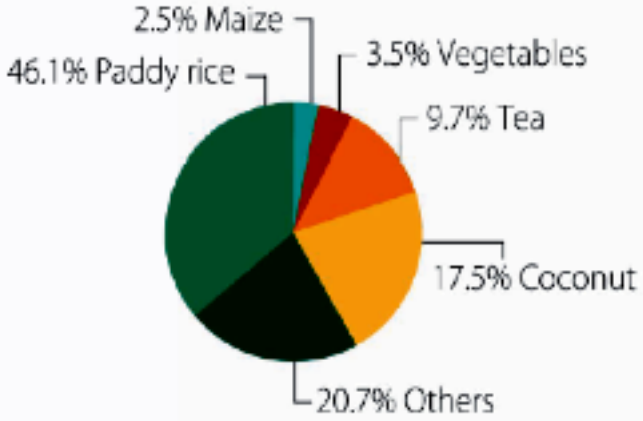
% of total land



Agricultural area is **41.8%** of total land area [5]

Main Crops [5]

% of total harvested area



Level of Mechanization

- Paddy Cultivation - Highly mechanized
- Vegetable cultivation - Low level
- Other field crops - Moderately mechanized
- Fruit sector - Low level
- Plantation crops - Low level
- Spices - Very low

Annual Agricultural Machinery Production/Import by 2015

Machine/Equipment	Units produced Locally (annual average)	Units imported (annual average)	Approximate Average Value of a Machine (USD)	Remarks
i. Single Axle Tractors (SAT)		8,200	2,600	7 & 12 hp tractors with rotovators
i. Twin Axle Tractors (TAT)		4,200	12,500	Up to 60 hp
i. SAT trailers	5000		650	
i. TAT trailers	2000		2,600	
i. Sprayers	13,500	12,000	75	
i. Irrigation pumps	5,500	3,500	325	
i. Ploughs for TAT		1000	500	For TAT
i. Animal drawn ploughs	500		100	
i. Threshers	500		1,200	
i. Winnowing fans	200		60	
i. Mammoties	350,000	300,000	10	

Machine/Equipment	Units produced Locally (annual average)	Units imported (annual average)	Approximate Average Value of a Machine (USD)	Remarks
i. Combine harvesters		1000	26,000	
i. Maize shellers	500		950	SAT driven
i. Paddy transplanters	750		3,000	Manually operated
i. Lowland seeders	500		150	Manually operated
i. Multi choppers	1000		660	For compost production
i. Paddy cleaners	200		860	For farmer level seed production
i. Power Weeders	1500		650	For rice cultivation
i. Inter-cultivators	2500		220	For OFC
i. Paddy reapers	250		1,700	
i. Groundnut shellers	100		1,315	
i. Highland seeders-manual	250		165	
i. Highland seeders-SAT coupled	200		300	
i. Highland seeders-TAT coupled	100		1315	

Former Design and Testing Unit – DTU 1968-1980

- Introduced suitable 4w tractors to Sri Lanka

Commercialized Machines 1980 - 1990

Manual Rice Transplanter

Cono Weeder

Paddy Thresher

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Commercialized Machines 1990 - 2000

- **Bucket Seeder**

- **Paddy Reaper**

Multi Chopper

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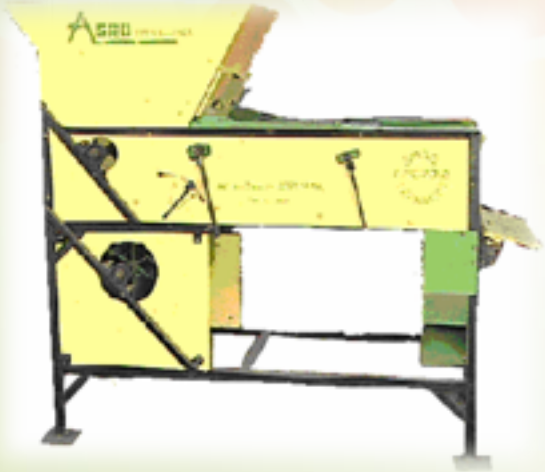
Commercialized Machines 1990 - 2000

- **Paddy Cleaner**



- **Pulse Processing Machine**

Ground Nut Decorticator

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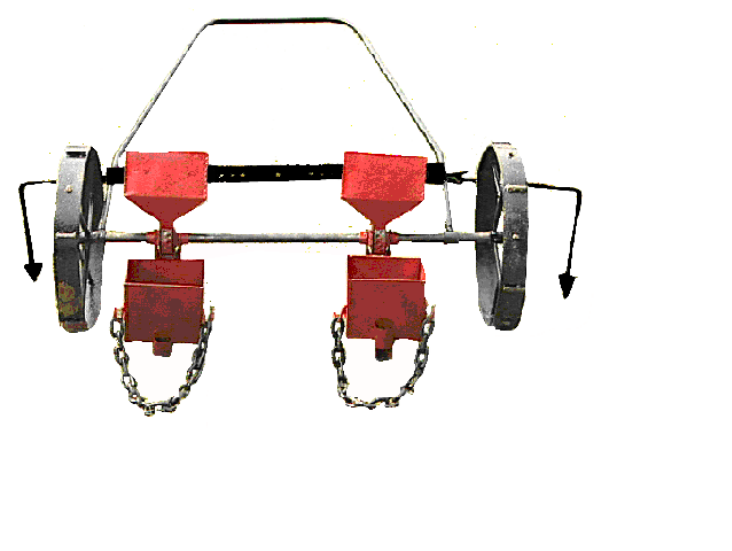
Commercialized Machines 1990 - 2000

- Manual Highland Seeder



- Multi Crop Thresher

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Commercialized Machines 2000-2010

- 3 Tine Tiller for 2W Tractor

- Drum Seeder

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Commercialized Machines 2000-2010

- Injector Planter

- Tractor Coupled Seeder

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Commercialized Machines
2010 – Up to now

Injector Planter – 4W Tractor Coupled

Axial Flow Water Pump – 2W Tractor Driven

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Commercialized Machines 2010 – Up to now

Improved Seed Paddy Cleaner

- **2W Tractor Rotary Coupled Seeder**

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Summary of related policies, strategy/long-term plan

Government support for farmers

- provision of credit for producers
  - Three forms:
  - short-term loans to farmers for the purchase of seeds and fertilizers
  - medium-term loans, intended for the purchase of farm machinery;
  - long-term loans for capital expenditure on storage, transport, and rice-milling apparatus.
- the setting of minimum prices for agricultural produce
- No Taxes for imported Agricultural Machinery
- building of irrigation works.

Limiting factors in Agricultural Mechanization

- Poor purchasing power of farmers
- Seasonal usage of machinery
- Lack of infrastructural facilities
- Difficulty in obtaining financial facilities
- Many machines are single purpose
- Lack of after sales services
- Non availability of machines at close proximity to the farms
- Lack of awareness on available technology
- High and varying hiring charges
- Some machine owners are reluctant to hire their machinery
- Insufficient machinery to cater the demand
- Financial hardships during peak periods
- Expected quality of work can not be achieved

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Strategies:

- *Facilities for owning the machinery* with the involvement of the Government
  - Provide quality assured machinery to the farmers
  - Provide easy payment facilities
  - Provide better after sales facilities
  - Function as the coordinator between the farmer and the supplier
  - Conduct awareness prorammes on the available technology with the help of respective agencies
  - Ensure the availability of repair facilities within the area
  - Direct the feed back of machinery conditions to decision makers
  - Keep strong linkages with Farm Mechanization Research Centre (FMRC) and Farm Mechanization Training Centre (FMTC)

NFPP 2016 – 180M

Riding type rice trans-planter	**04**
Walk behind type rice Trans-planter	**113**
Low land Power Weeder	**256**
Power disc plough for power tiller	**122**
Low land Box seeder	33
Mini Tractor with Ridger	**42**
Inter cultivator	**75**
Thresher for cowpea with engine	**04**
Groundnut Decorticator	15
Maize thresher (Power tiller driven)	10

NFPP 2017 – 52M

- **Walk Behind type Paddy Trans planters** **05**
- **Power Weeders** **10**
- **Laser Leveller** **02**
- **Bund forming Machine** **01**
- 4W Tractor Coupled Seeder 07
- **Rotary Inter cultivator** **14**
- High Capacity Maize Thresher 02
- Ridge forming for Maize 12
- **Harvester for Soy** **02**
- Power tiller attached seeder 12
- Grain polishing & splitting Machine 22
- **Crawler Tractor for boggy land cultivation** **01**

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Hon. Minister with TP

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National Planting Day 2015

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Strategies:

- *Facilities for hiring Farm Machinery*
  - At present hiring of farm machinery is done by the individuals and this service is not so effective due to reasons mentioned in above. Therefore, Government intervention is essential to provide sustainable, efficient and reasonable hiring facilities.
  - few years ago the Government controlled tractor-hiring units failed and compelled to be closedown due to inefficient management and especially due to the poor maintenance of the machinery.
  - Therefore, it is suggested that to establish Government controlled machinery hiring units island wide to hire the machines through farmer organizations to the individual farmers. The machines made available in these units for hiring may be preferably of less maintenance types. The machines kept at different hiring centers would have to be decided upon the requirement of respective areas. The hiring centers shall hire the machines to operate by the farmers themselves.

FMRC research policy **2017-2022**

Improving Labour productivity and timely cultivation with introduction of suitable mechanization solutions

- Further adoptive research on OFC packages
- Harvesters for OFC
- - Soy reaper binder, Maize and Green Gram Harvesters
  - Introduction of riding type paddy trans -planters

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FMRC research policy **2017-2022**

Promotion of environmental friendly agricultural practices

- Introduce technologies for reduce agro chemicals
- - Electrostatic Sprayers, Arial Spraying by drones, Zero Tillage Techniques

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FMRC research policy **2017-2022**

Improvement of land productivity by promoting abundant land cultivation

- Land preparation technologies for boggy land
- - Crawler Tractor, Bund Former, Laser Levelling

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FMRC research policy **2017-2022**

Alternative Energy Solutions for agriculture

- **- Battery powered machinery, solar electricity usage, wind powered pumps**

FMRC research policy **2017-2022**

Policy on Importing Agricultural Machinery

- Allow to imported only quality assured machinery
  - Participating to develop International test Codes

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FMRC research plan 2022-2030

introduction of high capacity machinery to suit with large scale mechanized farming . Engineering contribution to micro irrigation, green house establishment etc.. High tech engineering solutions for agriculture such as remote sensing

2030 afterwards : Promotion of One farm one farmer concept

Challenges

- Small field size
- Irregular shape land and uneven land
  - Make mechanization difficult as machines have to turn frequently
- Mechanization research and Other researches do not conducted parallel
- Lack of Human resources
- Insufficient investments on machinery research

Conclusion

- Despite its high cost and high profile, mechanization is still only an input like any other such as fertilizer, seed and crop protection chemicals, and is one of a mix of management tools a farmer has available to maximize production and profit. Therefore, in a free market situation, it is inappropriate for governments to have an individual policy on mechanization except as a component part contributing towards the realization of broader agricultural policy. To have a policy to 'mechanize' would imply that the introduction and expansion of mechanized inputs is an end in itself, whereas it is only one of a mix of management tools that a farmer uses for the purpose of agricultural production.

- Government policies on privatization and the market, as well as other policies, will affect the way in which mechanization inputs are made available and will determine the effectiveness of the sub-sector. In a free market economy the amount and choice of mechanization inputs is demand driven, whereas in a planned economy it is supply driven. Mechanization should not be an end in itself and therefore, in a true free choice situation, governments should refrain from making policies which will stipulate by which means or by how much, agriculture will be mechanized. ***The type and degree of mechanization should be decided by the producer to best suit his business and his own particular circumstances, and the choice of suitable methods will therefore be just one of a number of choices that the farmer has to make.*** The decision on if, and how to mechanize is often a complicated mix of reasons with economic reasons paramount.

Thank You

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