



Myths & Truths of Oil Palm in Asia

Key findings and
recommendations of
the study for Sri Lanka

19 January 2022



Introduction

- Sri Lanka's tea, rubber and coconut plantations (c. 900,000 ha) established during the British occupancy through deforestation;
- In the 1970's, dry zone forests were converted for paddy cultivation under the Mahaweli programme;
- Oil palm was introduced in 1968; expanded to about 11,000 ha now;
- In 2016, Government approved expansion to 20,000 ha (and nurseries set up later to carry out planting);
- Based on a report by the Central Environmental Authority, the Government, in April 2021 proclaimed total prohibition of oil palm cultivation, and decreed that existing plantings should be removed at 10% per annum – the latter decision in abeyance.

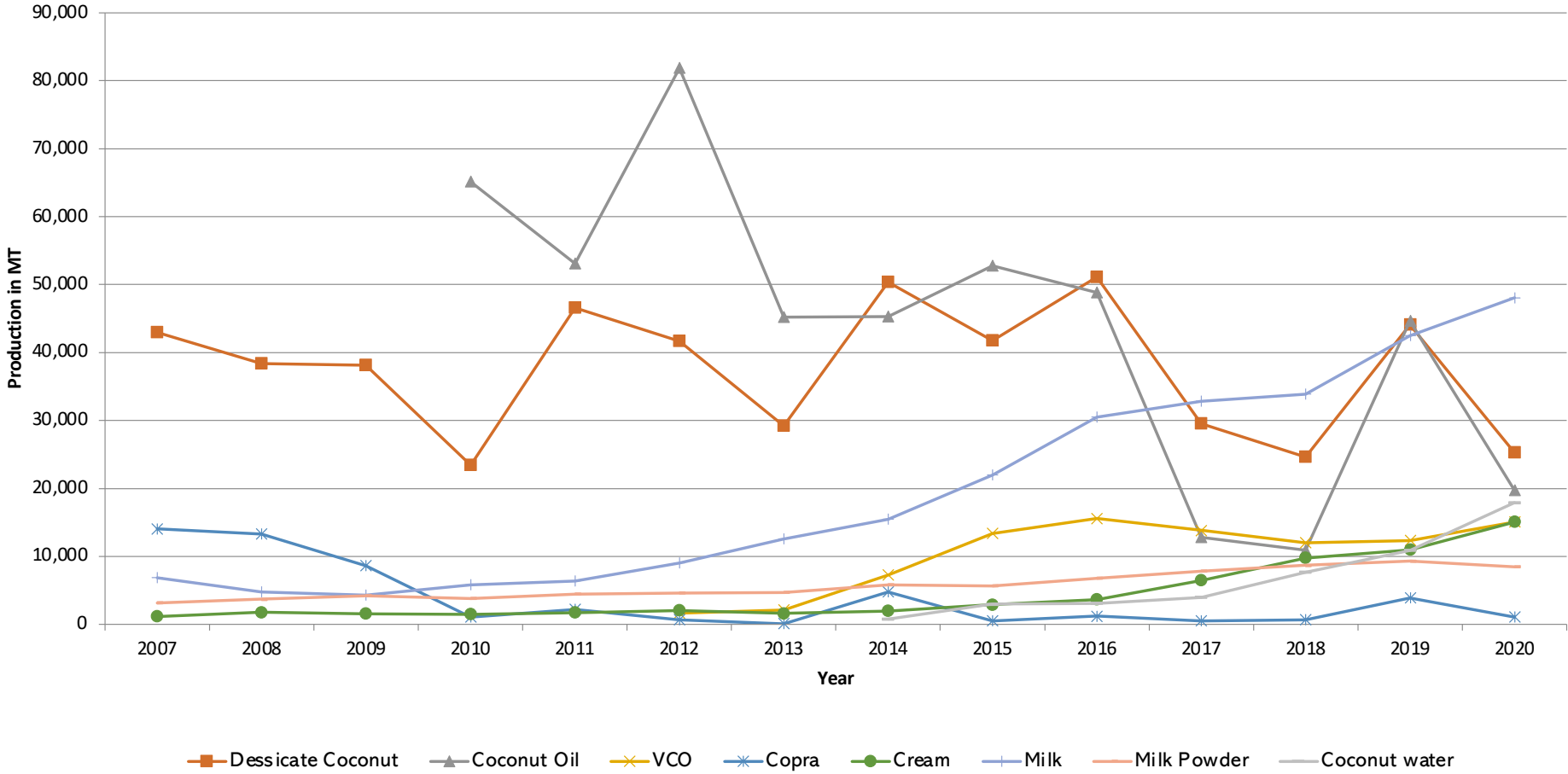
The Sri Lanka study

- Engaged a team of experts to examine the following aspects relating to oil palm cultivation and to compare with other plantation crops vis-à-vis Sri Lanka situation:
 - Demand and options for supply of vegetable oils in Sri Lanka;
 - Carbon capture;
 - Oil yield
 - Nutrient and water needs
 - Environmental impacts – biodiversity, soil health, waste management;
 - Nutrition and Health
 - Socio economic impacts
- Comprehensively reviewed available scientific literature both in Sri Lanka and elsewhere to derive conclusions.

Sri Lanka's demand and supply of vegetable oil

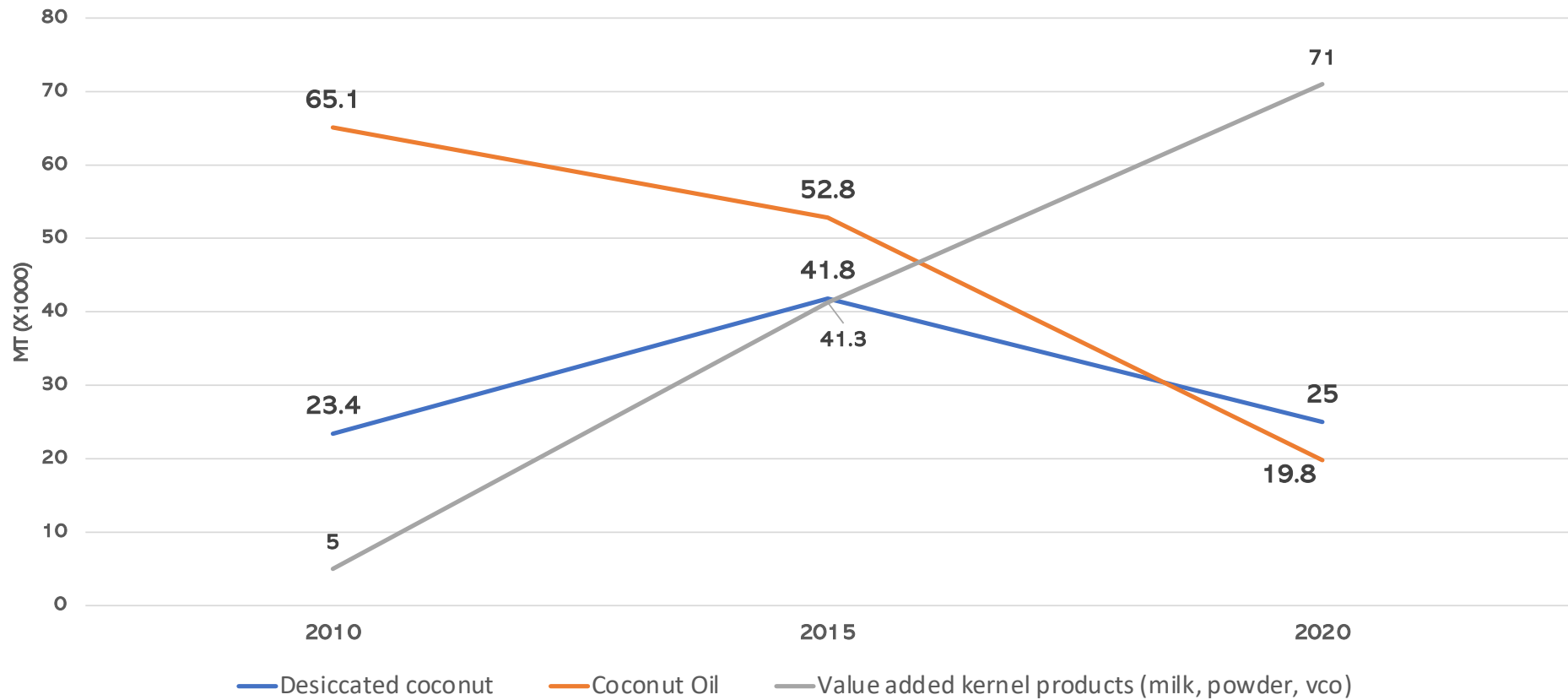
- Sri Lanka needs about 175,000 MT of vegetable oil annually;
- It produces 27,000 MT of coconut oil and about 20,000 MT palm oil;
- The balance is imported;
- If the balance is to be produced from coconut, an additional 270,000 ha of coconut are needed;(or about a fourth of that area under oil palm)
- In spite of the current tariff structure, imported palm oil is still cheaper than coconut oil.

Production of value-added coconut kernel products



Source: Coconut Development Authority

Increase in value-added kernel products



Source: Coconut Development Authority

Carbon capture

- Oil palm produces more biomass than other plantation crops.
- It has higher photosynthetic capacity than tea and rubber.
- It captures more carbon per unit area of land than tea and coconut, but less than rubber

Oil yield

- Oil palm has the potential to produce 8 – 12 MT of oil/ha/annum; however, average production is around 2-3 MT (in other countries);
- Coconut oil production in Sri Lanka is 0.8 MT of oil/ha/annum;
- Oil palm also produces more oil per nutrient applied and a litre of water used, compared to coconut;
- Overall, average oil yield is much higher in oil palm (4-5 times) than coconut.

Nutrient needs

- Because of its higher yields, oil palm requires higher amount of nutrients/unit area than rubber, but lower than tea and coconut;
- In order to produce the same amount of oil, coconut needs about three times more nutrients;
- Oil palm's nutrient use efficiency is higher than coconut, tea and rubber;
- Overall, fertilizer inputs for oil palm is not high compared to other crops.



Water needs

- In Sri Lanka, oil palm is grown in southern wet zone (from 2,400 mm to 3,200 mm rainfall/annum).
- Water requirement for oil palm is about 1,300 mm (or about 35-40% of annual rainfall); Rubber requires about 1,100 mm.
- Per unit of oil production, oil palm uses less water than coconut.
- Compared to rubber plantations, rainfall interception in oil palm plantations is better; however, soil moisture content is higher in rubber lands.
- There is no water deficit as a result of oil palm or rubber cultivation. The changes in water table in oil palm areas are due to seasonal changes in climate.
- Proper management practices will reduce water loss.

Effects on Biodiversity

Normally, biodiversity in plantations is lower than in forests;

In Sri Lanka, forest lands were not used to establish oil palm plantations but almost entirely rubber plantations at the end of their productive cycle.

Biodiversity in tea, rubber and oil palm plantations show only minor variations; there is no significant or conclusive evidence about differences in biodiversity amongst plantation crops, although leaf litter fauna was highest in oil palm.



Soil degradation and water pollution

- Erodibility and erosivity are the same as in tea and rubber plantations;
- Differences between soil carbon content amongst tea, rubber and oil palm were small and inconclusive;
- Oil palm does not require foliar application of pesticides;
- Due to high nutrient-use efficiency and low pesticide use, oil palm has a limited contribution towards chemical residues.
- No evidence was found on soil and water resource degradation due to oil palm cultivation;
- Indeed, proper management practices in oil palm plantations can improve soil fertility and soil carbon stocks

Impacts of Waste from oil palm

- Oil Palm plantations generate waste biomass (pruned fronds etc.);
- Empty fruit bunches are used to mulch the fields;
- The waste from processing factories is treated; work is in progress to develop more efficient and cost-effective treatment technologies;
- Published records on the efficiency of the treatment processes and compliance with effluent quality standards are however not available.
- Coconut and rubber processing produce large volumes of polluting wastewater, and compliance with CEA standards remains an issue. Overall, there is no evidence to assume that oil palm processing leads to environmental problems, than the processing of other crops.

Nutrition and Health

- Palm oil is one of the major edible oils used in the world as cooking or frying oil (and accounts for about 40% of the traded vegetable oils);
- Due to a number of reasons, palm oil is preferred to coconut in food manufacturing;
- In many aspects, palm oil is healthier than coconut oil; the latter can potentially carry mycotoxins, which are rare in palm oil;
- In any vegetable oil refining process, 3-MCPD is formed, which is a toxin. European Union has set the limits for 3-MCPD; Processers are changing their processing protocols to limit toxin generation in palm oil.
- Sri Lanka imports refined palm oil; as such, oil is expected to comply with international health standards.

Socio-economic aspects

- Since oil palm has replaced mostly rubber, social impact is a complex area.
- Workers in oil palm earn more than in tea and rubber; further, they have more free time for their families etc.
- Currently small holder sector is insignificant – expansion of oil palm cultivation to smallholders should improve their income and livelihood as happened in the South-east Asia.
- In terms of profitability, oil palm generates the highest income/ha of all plantation crops, and is the most stable income source of income for low country estates (given the fluctuating prices and high cost of production in other crops)
- The declining income from rubber is a major factor in converting rubber to oil palm;
- Oil palm could contribute more to GDP than other three plantation crops

The Way Forward...(1)

For consideration by the [Government of Sri Lanka](#):

1. Review its decision to ban the cultivation of oil palm; allow continuation of oil palm cultivation (at least up to the approved 20,000 ha); and develop a small-holder sector.
2. Undertake a life cycle analysis to provide information on the carbon and nutrient cycling in tea, rubber, coconut and oil palm plantation crops and associated environmental benefits.
3. Provide research support for priority research needs on oil palm cultivation.
4. Undertake periodic socio-economic analysis of the plantation crops in order to make informed decisions on policy matters.

The Way Forward...(2)

For consideration by the Regional Plantation Companies:

1. Ensure that all oil palm plantations are established only by strictly adhering to the Guidelines and Good Agricultural Practices advocated by the Coconut Research Institute;
2. Ensure that all oil palm plantations follow soil and moisture conservation practices.;
3. Implement integrated plant nutrient management;
4. Promote carbon trading with potential buyers;

The Way Forward...(3)

For consideration by the Regional Plantation Companies (contd):

5. Ensure that the habitats within the plantations including riparian habitats and understorey vegetation are well maintained to enhance the biodiversity and the ecosystem services.
6. Conduct awareness programmes on oil palm cultivation for the stakeholders based on proven research findings.
7. Introduce an overall quality assessment scheme for the plantations considering mainly the environmental aspects; and
8. Upgrade processing factories with new technologies for waste treatment to ensure compliance with CEA standards.

Thank
you for
your
attention

