IMPROVING THE SUSTAINABILITY OF COCOA FARMING IN TRINIDAD AND TOBAGO

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OUTLINE OF PRESENTATION

- INTRODUCTION
- HISTORY OF TRINIDAD AND TOBAGO COCOA
- CONCEPTS OF SUSTAINABILITY
- BACKGROUND - Prism Agri Estates Co. Ltd.
- SUSTAINABLE PRODUCTION SYSTEMS
- SUSTAINABILITY CO-FACTORS - LAND
- SUSTAINABILITY CO-FACTORS - LABOUR
- SUSTAINABILITY CO-FACTORS - CAPITAL
- SUMMARY
- POINTS FOR CONSIDERATION
- ACKNOWLEDGEMENTS
INTRODUCTION

- Fine or flavour cocoa beans are produced from *Criollo* or *Trinitario* cocoa-tree varieties, while bulk cocoa beans come from *Forastero* trees.

- The International Cocoa Agreement, 1993, recognizes 17 countries as producers of fine or flavour cocoa.

- Of these, 8 are classified as exclusive producers of fine or flavour cocoa; Dominica, Grenada, Jamaica, St. Lucia, St. Vincent and the Grenadines, Samoa, Suriname, and Trinidad and Tobago.

- The others are part producers of fine or flavour cocoa; Ecuador (75%), Venezuela (50%), and Costa Rica and Colombia (25%).
INTRODUCTION

Regional Producers of Fine or Flavour Cocoa
INTRODUCTION

- Latin American and the Caribbean region supply 80% of world fine or flavour cocoa, followed by Asia and Oceania (18%) and Africa (2%).

- The market for fine or flavour cocoa is a relatively small, highly-specialized and separate market, with its own supply and demand characteristics.

- The share of fine or flavour cocoa in the total world production of cocoa beans has fallen dramatically, from 50% at the beginning of this century to just under 5% (120 thousand tonnes) per annum now.

- The collapse in the relative importance of the production of fine or flavour cocoa is explained by the fact that most major activity over the past five decades has involved only bulk cocoa.
Trinidad and Tobago is the birthplace of the Trinitario cocoa germplasm.

Trinidad and Tobago is an exclusive producer of fine or flavour cocoa.

Trinidad and Tobago is world renowned for its exquisite quality and distinctive taste.

Ranked 5th in the World in 1921 with a production of over 30 million kg of cocoa beans.

Trinidad and Tobago is the custodian of the International Cocoa Gene Bank (ICG,T) and so possess the most important collection of cocoa varieties in the World.
HISTORY OF TRINIDAD AND TOBAGO COCOA

- Production declined drastically to 935,000 kg in 1992 due to socioeconomic and disease problems.

- Currently, demand outstrips modest production and the highest price is commanded on the World Market.

- Trinidad and Tobago can comfortably triple its’ production without affecting price.
Sustainability can be defined within two broad classifications:

1. Economic Sustainability: A farm which is a business entity can only be sustainable if it is profitable.

2. Environmental Sustainability: A production system can be sustainable only if the practices employed are sustainable for the natural environment.

Social sustainability can be achieved when these two ideals are satisfied.

Cocoa is a natural forest under storey crop and so is well suited to the cropping system of permanent and temporary shade.

Farming systems in Trinidad and Tobago are geared towards the adoption of the most sustainable production systems.
COCOA FARMING SYSTEMS IN TRINIDAD AND TOBAGO

There are two broad classifications of cocoa cultivation systems.

**Plantation based systems:**

- Large estates where cocoa is grown as a single crop or intercropped with vegetable crops or lumber.

**Small land holder systems (small cocoa farmers):**

- Family run estates with mixed cropping systems of plantain, banana, cassava or pigeon peas.

There are approximately 3,000 registered small cocoa farmers in Trinidad and Tobago. Of these farmers, 61%, 22% and 12% own 2-hectare, 5-hectare and 10-hectare respectively. There are only 5 large farmers which account for 5% of the farm population.

Average production of cocoa beans from Trinidad and Tobago varies from 1.5 million to 2.5 million kg/year.
COCOA FARMING SYSTEM IN TRINIDAD AND TOBAGO
PRISM AGRI ESTATES CO.LTD.

- A plantation based system comprising of 4 estates situated in the central and southern regions of Trinidad and Tobago.

- Producer of the exclusive brand, TAMANA COCOA.

- Company Vision: “To become a diversified agro-enterprise with the emphasis on the production of high quality cocoa”.

- The company climate facilitates the development of new innovations and technology in cocoa farming.

- The estates comprise of 750 ha of cocoa trees of the Trinitario variety.

- A mixed farming system is used on all estates where lumber, plantain and banana trees are intercropped with the cocoa trees to provide shade for the crop.

- The cocoa beans produced on the estates are produced at a high quality and are in high demand for chocolate production in Europe.

- Prism Agri Estates Co. Ltd. is trying to adopt the most sustainable farming techniques.
Cocoa farming systems in Trinidad and Tobago contribute to economic and environmental sustainability through the manipulation of three farm variables; Land, Labour and Capital.

Through the manipulation of these variables farmers are better able to maximize the genetic potential which exists in Trinidad and Tobago.

Trinidad is regarded as the birthplace of the Trinitario germplasm from which the widely distributed Imperial College Selections (ICS) have been made.

Trinidad and Tobago has the longest unbroken cocoa breeding programme that spans well over 60 years. Through breeding and recurrent selection conducted by the Ministry of Agriculture the genetic potential of the ICS germplasm has been optimized to produce the Trinidad Selected Hybrid (TSH) varieties. These are:

- Higher yielding.
- More resistant to witches broom and black pod diseases
- More adaptable to local soil conditions.
- Possess a greater flavour potential.
COCOA POD OF THE ICS VARIETY
The farming method employed at the Prism Agri Estates and most local estates caters for efficient land utilization and maximization of quality.

Land clearing and field layout is done to retain the natural drainage as much as possible and some forest trees (such as immortelle *Erythrina* spp. trees) act as permanent shade for the cocoa crop at a planting density of 18.3 m x 18.3 m.

The planting material used are the TSH varieties which are more disease resistant hence there is less dependence on chemical fungicides.

Planting densities used at Prism Agri Estates are 1.8 m x 1.8 m (6ft x 6ft) which reduce the prevalence of weeds and the dependence on chemical weed control.

A large number of small farmers either don’t fertilize their fields or use a mixture of unknown minerals to fertilize their fields.

Prism Agri Estates applies 2 well-timed applications for both young and bearing cocoa trees at the beginning of the rainy season and about four to five months later. Over fertilization is not a problem.
The TSH varieties afford a high quality with greater flavour potential which facilitates a higher market price.

Traditional farmers use the old planting density of 3.6 m x 3.6 m which leaves planting space for cash-earning intercrops such as plantain, banana, pigeon peas and cassava.

Modern planting density of 1.8 m x 1.8 m used by Prism Agri Estates and some local farms enables a mixed farming system with plantain, banana and lumber trees inter-cropped with cocoa trees. After 4 years of the cocoa lifecycle, the plantain and banana trees are removed.

This system provides shade and income for the cocoa crop in the early stages of development.

The Prism Agri Estates Co. Ltd. is also engaged in the rehabilitation of old estates and the development of new estates.

This initiative fuels the economic sustainability of the company in years to come.
PRI SM AGRI ESTATES’ PLANTING SYSTEM
Manual labour is used for weed control which presents problems for economic sustainability in light of the high cost of local labour.

Chemical weed control is the best alternative to manual weed control however, this method implicates environmental sustainability as residues from the chemicals remain in the cocoa trees and the soil.

This factor provides a critical crossroad for farmers as both methods adversely affect sustainability.

A main obstacle to economic sustainability is the lack of rural access roads which renders main amenities inaccessible to cocoa farmers.

Additionally, the new real estate revolution in Trinidad and Tobago is threatening the expansion and new establishment of cocoa estates as agricultural lands are converted into housing settlements.
Labour on cocoa estates can be sub-divided into technical labour and intellectual labour.

At the Prism Agri Estates and on most local estates, there is a shortage of all labour in terms of quality and quantity.

Trinidad and Tobago is a victim of the “Dutch disease” whereby agricultural development is bypassed for industrial, particularly oil and gas, development.

As a result, agricultural workers shy away from agricultural work due to more lucrative alternatives in the industrial sector.

Furthermore, other competition agencies such as National Employment Relief Programmes, lure workers with the promise of higher wages and shorter working hours.
LABOUR - Constraints to Economic Sustainability

- At the Prism Agri Estates workers are paid a daily wage which is above minimum wage. On many local estates workers are paid according to the task performed rather than a daily wage.

- To effectively compete with other employment entities, farmers have to increase their wage rate, however this is very difficult with rising costs and constant prices.

- With regards to intellectual labour the farming population is highly traditional, less receptive to improved cocoa technology and less innovative. Younger educated entrepreneurs, however, are not interested in cocoa farming and seek employment yet again in the industrial sector.
Through the Cocoa Revitalizer Initiative the Ministry of Agriculture in conjunction with the Agricultural Development Bank has developed credit facilities for all farmers rehabilitating old estates and establishing new estates.

Other Agricultural Incentive and Support Services, such as monetary incentives for field rehabilitation and establishment, have also been developed by the Ministry of Agriculture to assist cocoa farmers.
The accessibility of agricultural incentives and services, however, is limited in Trinidad and Tobago.

Acquisition of capital is still a problem for small farmers even with the availability of new credit facilities.

Rising cost of farm equipment and vehicles.

Low availability of mechanized alternatives locally, in the cocoa farming system.

Most local farmers lack the knowledge with regards to quality retention and post harvest equipment and processes.
The Trinidad and Tobago Cocoa Industry possess key elements for sustainability:

1. High yielding, disease resistant planting material.
2. Trinitario germplasm which has the fine flavoured characteristic which commands a premium due to its distinctive taste.
3. Economically sustainable planting system with cash earning inter-crops.

The constraints to sustainability are:

1. High labour cost which lowers profitability.
2. Low quality of technical and intellectual labour.
3. Weed control dilemma: Chemical weed control which is environmentally unsustainable vs Manual weed control which is costly.
4. Low availability of investment capital and insufficient mechanization of field operations.
POINTS TO CONSIDER

- EDUCATION & TRAINING- Cocoa entrepreneurs and labourers should be trained so that there is continuity in the industry and a better quality of labour.

- QUALITY RETENTION- Farmers should seek to improve and maintain quality standards in order to maintain price premiums.

- MECHANIZATION OF FARM PROCESSES- R&D should focus on mechanization of farm operations so as to reduce high dependence on costly manual labour.

- GOVERNMENT SUPPORT SERVICES- The government should increase the availability and accessibility of services, funding and credit facilities for farmers.
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THANK YOU!

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