Development Policy for Sugar Industry in Sri Lanka

Department of Development Finance
Ministry of Finance
2016

Contents

Executive Summary

The government's policy objective in respect to sugar is to achieve 50% of the local requirement by the year 2020 and cut down import expenditure. Approximately 32,000 ha of new land need to be allocated for sugar development in order to achieve the aforesaid target.

The sugar industry was initiated in the country as a government venture during the late 1950s and has been on the decline since the mid-1990s. Though it was able to achieve about 15% of the local requirement during the early 1990s, the current production meets around 8% of the requirement and the balance 92 percent is catered through imports. Sugar mills and distillery capacities have not been fully utilised and the industry has not been diversified to realise its full potential.

Some of the main problems of the sugar sector are low levels of productivity, out dated machinery, mill/distillery capacity utilisation and scale of operation, scarcity of labour, an absence of a proper pricing mechanism for sugarcane, sugar and its by-products, border measures for the protection of the industry and a proper legislative and institutional framework.

The current country's requirement of sugar is about 700,000 Mt, and it is projected to increase to about 730,000 Mt. by the year 2020 and to about 800,000 Mt. by the year 2030. A significant volume of electricity has being produced by utilizing by-products of sugar production and it is projected that the demand for electricity will also increase about 17,500 GWh by the year 2020. There are no proper estimates of the requirement of ENA but the current requirement is about 35 million liters.

There exists a vast potential for the expansion of sugar and allied industries due to the increasing demand for sugar and sugarcane-based products and co-products, increase of fossil oil prices, availability of suitable land and climate for sugarcane cultivation in dry and intermediate zones, possibility of manufacturing diverse value-added products and the suitability for diversification of small-scale agro industries in rural areas. In addition to large-scale productions such as sugar, ENA, power, organic fertilizer, pharmaceuticals (Aspirin), and small-scale cottage industries can also be developed to uplift the socio-economic status of rural areas. The feasibility of financing through carbon and organic fertilizer trading is an advantage for the development of the sugar industry.

Sugar is one of the most volatile and regulated commodities in world trade. Price instability has adversely affected both sugar producers and consumers. Hence, producing and importing countries have adopted various policies to insulate their sugar industries and such measures have caused further aggravation of the instability.

The world sugar production has been projected to increase to 205 million tonnes by 2020. Increased production is projected in Brazil, India, Australia, the EU and many small sugar-producing countries. The world sugar consumption has been projected to grow at an annual rate of 2.1% during the next 4-5 years. Though the per capita consumption in developed countries is declining, it is the opposite in developing countries. Total demand has also been projected to be more or less similar to production.

As supply of sugar in Sri Lanka comes mainly from imports, the situation in the world market has a significant impact over local prices. The world market for sugar is one of the most volatile markets and usually heavy state interventions are involved in almost all countries.

The agro-industrial expansion and diversification of the sugar industry will save foreign exchange, thereby easing balance of payment problems, increasing contribution to Gross Domestic Product (GDP), generating employment opportunities in rural areas, securing food and energy with minimum adverse effects on the environment, helping poverty alleviation in rural areas and socio-economic up-liftman of undeveloped and under-developed areas of the dry and intermediate zones. It will also contribute to clean development through reduction of carbon emissions to the environment.

There are ten (10) goals of the sugar sector development policy. They are; agro-industrial expansion and diversification of the sugar sector, improving productivity, increasing contribution to GDP, employment generation, saving foreign exchange, ensuring food and energy security, stabilisation of the domestic sugar price, ensuring equity of division of proceeds between the grower and miller, social and economic development of the backward areas, contributing to clean development by reducing carbon dioxide emission and green energy production.

Seven (7) policy pillars have been recommended in order to reach the above goals. These are; Institutional policy, Investment policy, Production and Land policy, Pricing policy, Import policy, Water Resources and Infrastructure Development Policy and Manpower Development Policy with the comprehensive strategies.

01. Institutional policy

Objective: To create a legal, institutional and regulatory framework for sugar development.

Strategies

I. Establish a ministry called the “Ministry of Sugar Industry” under which all existing government institutions which are involved in the sugar sector will belong.

II. This Ministry should act as the regulatory authority of the sugar Industry and a committee should be appointed under the chairmanship of the Secretary of this

Ministry consisting of seven members including the both public and private sectors, to advise the government on policy and regulatory measures.

III. Establish a "Sugar Stabilization Fund" to provide assistance to farmers and mills and to stabilize the local sugar price. This fund could be established by diverting tariff revenue which has been proposed to increase the SCL on brown sugar by Rs.10/= per kg, and imposing 2% CESS on imported sugar and ENA. This rate should be amended from time to time based on the efficiency price of the ex-factory pricing index.

IV. Amend the SRI Act to broaden its scope of authority to include technology transfers and development functions.

02. Investment policy

Objective: To promote Public Private Partnership through incentivize investment in sugar development and increase scale of operation

Strategies:

i. Grant cooperate tax exemptions for an initial period of five years for new investments to establish new mills, renovation/modernization of the existing sugar mills and distilleries and for cogeneration.

ii. Grant 100% tax concessions for the importation of machinery, equipment and spares to establish new mills/distilleries and for renovation/ modernization of existing mills/distilleries.

iii. Seek funding through donor agencies under CDM (carbon trading): since sugar qualifies for carbon trading by contributing to sustainable energy production, mitigating greenhouse gas emissions and enabling industrialized countries to meet their emission reduction targets, funds could be found through carbon trading.

iv. Specify the minimum plant size and demarcate the maximum operational zone for each sugar mill.

03. Production and land policy

Objectives: To increase high quality sugarcane yields, ensure cane supplies to mills, attract farmers for sugarcane cultivation and increase sugar and alcohol recoveries.

Strategies:

i. Introduce a working capital loan scheme for sugarcane growers with the finance assistance of the proposed Sugar Stabilization Fund. This proposed loan scheme will grant a maximum amount of Rs. 200,000 per Ha for new planting and Rs. 300,000 per Ha for replanting with new superior cane varieties under drip irrigation with solar pumping in non irrigated areas.

ii. Recognize sugar as a basic food item and extend the assistance given to other food crops by the government, such as free water to sugarcane growers under irrigation zones.

iii. Allocate a sufficient minimum extent of land to each mill according to their plant size within a 40 – 50 km radius.

iv. Establish four new sugar mills in Monaragala, Batticaloa, Kilinochchi and Ampara districts with plant sizes of 2,500 TCD, 2,000TCD, 3,300 TCD and 2,000 TCD respectively within a 40 – 50 km radius. Suitable land has already been identified in the above said areas.

v. Allocate a minimum size of 2Ha land for individual out growers to ensure sufficient income from sugarcane for their sustenance.

vi. Introduce mechanized agriculture practices for cultivation and harvesting of sugarcane.

04. Pricing policy

Objectives: To increase production efficiencies and income of sugarcane growers and millers, ensure distribution of income between growers and millers and stabilize the domestic market price of sugar to protect sugar producers and consumers.

Strategies:

i. Adopt a quality based pricing formula for sugar cane, keeping the minimum price as Rs. 5,000/= per Mt.

ii. Adopt a dual pricing mechanism for locally-produced and imported sugar, to make the former cheaper than the latter by imposing a variable tariff to protect the local sugar industry

iii. Develop an efficiency price which is the ex-factory price for locally-produced sugar, taking into consideration cost of production, processing efficiency, profit and risk margins sufficient for investment, production taxes etc. (If sugar mills are operated at their full capacity by producing by-products such as ENA, power, organic fertilizer, pharmaceuticals etc., sugar can be provided to customers at Rs. 75/= per kg.) Please see annex 01

iv. Impose a variable tariff on the imported sugar, based on the efficiency price, to stabilize the domestic market price and a certain level of fixed tariff to ensure revenue for the government.

v. Determine the by-product prices according to the products for which they are used.

05. Import policy

Objective: To protect the local sugar industry from cheap imports of sugar and sugar industry by products

Strategies:

i. Introduce a separate HS classification for brown sugar and white sugar to avoid confusion in implementing border measures.

ii. Increase the special commodity levy (SCL) on brown sugar by Rs. 10/= per kg in order to discourage importation of brown sugar and keep the SCL on white sugar less than brown sugar. Then the total amount of SCL on brown sugar will be Rs. 40/= per kg and SCL on white sugar will be Rs.30/= per kg.

iii. Increase import tariff rates by 2% for all types of sugar by-products. This rate should be decided based on the efficiency price of the ex-factory price index.

iv. Increase the custom duty on ENA to Rs.450/= with the purpose of tightening the border measures of ENA importation.

v. Impose a higher tariff rate of Rs. 15/= per kg for importation of jaggery/Sakkara in order to protect local manufactures who are located in distant areas of the Badulla and Monaragala districts.

06. Water resources and infrastructure development policy

Objective: To ensure irrigation water and other facilities for sugarcane cultivation and processing.

Strategies:

i. Renovate/rehabilitate the Uda Walawe tank, Gal Oya tank (Senanayake Samudraya), Ekgal Oya tank and Kantale tank with their canal networks. Consequently, the construction of the new irrigated project of Maduru Oya reservoir should be accelerated in order to feed the newly identified areas for sugar mills.

ii. A water resource development committee should be appointed under the leadership of the Secretary to the Ministry of Irrigation and Water Resource Management for the development of water resources in the dry zone and rehabilitate the exiting tanks for sugarcane cultivation.

iii. Recognize that the development of other infrastructure such as road networks, water supply, schools, hospitals etc. in new sugar growing areas is a responsibility of the government.

07. Manpower development policy

Objective: To develop the manpower needs of the sugar sector

Strategies:

i. Establish a sugar industry training center attached to the Sugarcane Research Institute to train manpower for the sugar industry

ii. Arrange with universities and other relevant educational organizations to include subjects related to sugarcane in their degree/diploma programs

iii. Find international collaboration with regional countries such as India, Mauritius, Pakistan, Philippines etc. to train the sugar industry and research personnel on sugar and alcohol manufacturing, cogeneration, etc.

Sugar Industry in Sri Lanka at a glance

Current Status

Sugar

Total Requirement: 700,000 Mt in 2016 (730,000 Mt by 2020 & 765,000 Mt by 2025)
Per capita consumption 31 kg

Annual Local Production : Pelawatta 28,000 Mt (TCD = 3,300, productivity rate 44.89 %)
Sevanagala 13,000 Mt (TCD = 1,250, productivity rate 55.02 %)
Hingurana 15,000 Mt (TCD = 2,000, productivity rate 39.68 %)

Total Annual Production = 56,000 Mt (8% of the total requirement)

Annual Import : 644,000 Mt (92% from total requirement)

Import Value : Rs. 35 Bn

ENA

Total Requirement : 35 Mn L

Local Production : Pelawatta 5Mn, Sevanagala 3.4Mn, Hingurana 3.4Mn = 11.9Mn L

Annual Import : 23 Mn L

Import Value : Rs. 5 Bn

Potentials for the Development

If existing factories are improved to utilize its 100% capacity

Factory Name	TCD (Tonnes Crushing per Day)	Days	SRR (Sugar Recovery Rate)	Sugar (Mt)	YPH (Yield Per Hectare)	Land Requirement (Ha)
Sevanagala	1,250	210	9%	23,600	100	3,300
Pelawatte	3,300	210	9%	62,400	80	10,800
Hingurana	2,000	210	9%	37,800	100	5,300
Kantale	3,000	210	9%	56,700	80	9,900
	9,550			180,500		29,300

Future Target

Assuming that existing mills have being utilized its 100% capacity

50% Self-sufficiency in 2020			**100% Self-sufficiency in 2025**		
• Local production	=	365,000 Mt	• Local production	=	765,000 Mt
• Sugar Deficit (365,000Mt – 180,500Mt)	=	184,500 Mt	• Sugar Deficit (765,000Mt – 180,500Mt)	=	584,500 Mt
• Additional Factory Requirement	=	9,800 TCD	• Additional Factory Requirement	=	30,930 TCD
• New Land Requirement (80YPH)	=	32,000 Ha	• New Land Requirement (80YPH)	=	101,700 Ha
• **Total Land Requirement**	=	**61,300 Ha**	• **Total Land Requirement**	=	**131,000 Ha**
• **Total Factory Capacity Requirement**	=	**19,350 TCD**	• **Total Factory Capacity Requirement**	=	**40,480 TCD**
COP - Only Sugar – Rs. 70/kg			**COP- Sugar with ENA/Power – Rs. 31/kg**		

Contribution to National Economy and Farmers Profitability

At 100% self-sufficiency

1. Food security
2. Number of farmer families – 58,500
3. Foreign exchange savings - Rs. 44 Bn/year
4. Income to rural economy - Rs. 39 Bn/year
5. Income per family per month - Rs. 35,000
6. Employments – 17,000
7. Produce 200Mw renewable energy
8. Produce 200,000Mt of organic fertilizer
9. Produce 40Mn liters of Bio fuel
10. Annual Rs. 42.6 Bn as profit and Rs. 4.26Bn as tax income to the government
11. Food grade CO2 production
12. Retail price is approximately Rs.75/-per kg

Farmer – Profitability (Ha/ year) from 2,000 TCD Sugar Factory

Income - Rs. 5,000 x 80Mt = Rs. 400,000

Cost - land preparation	- 14,625
Seed cane	- 10,000
Fertilizer	- 33,000
Chemicals	- 13,600
Labour	- 27,500
Interest	- 10,000
Harvesting	- 80,000
Total cost	- 188,725

Profit per Ha/year - 211,275

Profit per family - 422,550

Profit per family/per month-Rs:35,212.50

2,000 TCD Sugar Factory

Investment - Factory/Agri = Rs. 8 Bn
Distillery = Rs. 1 Bn
Power = Rs. 3 Bn

Total Investment Rs. 12 Bn

Pay back – 5.63 years
ROI - 16%

Agriculture Requirement for a 2,000 TCD Factory

Yield	- 80 T/Ha
Nursery	- 250Ha
Land requirement	- 6,500Ha
Factory	- 250Ha
Number of out-grower farmers (2Ha/Family)	- 3,250

Manufacture requirement for a 2,000 TCD Factory

Working days	-210
Sugar Recovery Rate	- 9%
Cane requirement	- 420,000Mt
Molasses	- 5%
Power	-12Mw (sell 10Mw)
Employees	- 900

Factory – Profitability per year (2,000 TCD factory)

	T/O Rs. Bn	Profit Margin	Profit Rs.Mn
Sugar 37,800 Mt(95Rs./Kg)	3.6	* 25 Rs./kg	945
ENA 5.8Mn L (300Rs./L)	1.7	100 Rs./L	580
Power 50.4 Mn KWH (18Rs./KWH) (10x 1000 x 24hours x 210days)	0.9	12 Rs./KHW	605
Compost 12,600 Mt(Rs.10/kg)/ CO2	0.13	5Rs./kg	63
	6.33 Bn		2,130 Rs.Mn

* A price formula should be developed to transfer the high profit margin of sugar to both growers and consumers. (Assumptions – Retail price is Rs. 75/- per kg.)

Sri Lanka need 20 factories and 131,000 Ha of lands to become 100% self-sufficiency in Sugar

1. Overview of the Sugar Industry

1.1 History of the industry

The development of the sugar industry originated during the Dutch rule with the commencement of plantations along the plains of Deduru Oya, Kelani Ganga, Kalu Ganga, Gin Ganga and Nilwala Ganga. The sugar industry was advanced during the British rule with the further expansion of sugarcane cultivation on the plains of Nilwala, Kalu and Gin Ganga and the establishment of two large sugar factories in 1890 in the Baddegama and Mapalagama areas in the Galle district.

Sugar development was formulated in Sri Lanka as a government venture during the late 1950s with the opening of new sugar land in the Gal Oya valley, and later, the establishment of the Sri Lanka Sugar Corporation (SLSC) under the State Corporations Act No. 47 of 1957 to undertake sugar development in the country. Two government-owned mills with crushing capacities of 2,000 TCD (tonnes crushing per day) and 1,200 TCD were established by SLSC in 1960 and 1961 at Hingurana and Kantale respectively.

Accordingly, about 15% of the total sugar requirement was achieved during the early 1990s. The government's policy objective with respect of sugar in 1988 was the production of 60% of the annual requirement and then it was scaled down to 35% in 1995. To achieve this target, the government's strategies were; change the existing large-scale sugarcane plantations to a small-holder settler system together with an out-grower cultivation, form joint-venture enterprises with the private sector, convert the state-owned Sri Lanka Sugar Corporation into a public/private company and offer an uniform price for sugar producers based on the long-term trend of the world price while taking handling and transport margins into consideration.

In 1986, the sugar industry was expanded with the establishment of two more sugar processing complexes, one at Pelwatte and another at Sevanagala. In addition to the nucleus estates of these two sugar projects, land had been allocated among small-holders from the establishment of these two mills. The Pelwatte sugar company was the result of the promotion of private sector participation in sugar development under the liberalised economic policy of the government. The sugarcane plantation-factory complex at Pelwatte, which initially had a capacity of 2,800 TCD, with provision for expansion up to 4,000 TCD, was established as a joint venture company with a government share of 49% and 51% owned by private companies and individuals. The capacity of this factory was increased up to 3,300 TCD in 1992. At first, the Pelwatte Company did not have a distillery for processing molasses, but in 1996, it started putting up a distillery with the production capacity of 30,000 litres of spirit per day (100 Mt of molasses per day). The sugarcane plantation-

factory-distillery complex at Sevanagala was commissioned by SLSC as a government venture. The factory which has a capacity of 1,250 TCD has been integrated with a distillery with a capacity of processing 60 tonnes of molasses per day.

In 1989, under the privatisation program, restructuring of the state-owned SLSC was initiated, converting it into a public company (Sri Lanka Sugar Company Ltd.) and then into a holding company in 1991. The three plantations and factories (Hingurana, Kantale and Sevanagala) were converted into three separate companies. In 1993, the Hingurana and Kantale companies were sold to private entrepreneurs. The governments' shares of the Sevanagala and Pelwatte sugar companies were also sold by the Public Enterprises Reform Commission (PERC), the government's privatisation arm which handled the restructuring of state-owned enterprises.

In January 1997, the Kantale and Hingurana sugar companies were re-acquired by the government due to alleged mismanagement and plundering of company assets by the investors in these two companies. In 2001, the Sevanagala and Pelwatte sugar mills were fully privatised, but the privatised companies failed to run the two plantation-processing complexes as expected by the government. In 2005, Gal Oya Plantations (Pvt) Ltd. was established with 51% shares for the government and the remaining 49% shares for the private sector. It started development of plantations in 2006 by reverting paddy land to sugarcane. The mill started operations in 2012.

In 2011, Pelwatte and Sevanagala sugar industries were vested in the government under the Act No 43 of 2011 on Underperforming and Underutilised Assets. In 2012, the government-owned Lanka Sugar Company (Private) Ltd was formed, and it presently runs the sugar mills at Sevanagala and Pelwatte.

1.2 Present Situation of the Industry

The sugar industry has been in a state of contraction due to the closure of the state-owned two mills at Hingurana and Kantale after the privatisation. The Hingurana mill had a processing capacity of 2,000 TCD and that at Kantale had 1,200 TCD, each of which had been integrated with a distillery with a processing capacity of 30 tonnes of molasses per day. With the resumption of operations at the mill at Hingurana as a public-private partnership in 2012, currently, only three sugar mills are functioning. The Sevanagala and Pelwatte owned by the government-owned Lanka Sugar Company (Pvt) Ltd. have processing capacities of 1,250 TCD and 3,300 TCD respectively. Each mill has an ENA production plant with a daily production capacity of 15,000 litres at Sevanagala and 30,000 litres at Pelwatte. The total processing capacity of the three sugar mills is 6,550 TCD and thus for a 200-day crushing season, a total of 1.3 million tonnes of cane can be processed and 112,000 tonnes of sugar can be produced annually at an average sugar recovery rate of 8.5%. Nearly 59,000 tonnes

of molasses can also be produced as a by-product which can be processed into about 18.0 million litres of ENA annually.

Presently, only a volume of 56,000 Mt. of sugar which is around 8 % of the total requirement of 700,000 Mt. and nearly 7 million litres of ENA is being produced due to insufficient cane supplies to run the mills at their full capacity. None of the sugar companies were able to produce excess electricity by co-generation using bagasse to supply to the national grid. Thus, there exists a large scope for further improvement in sugar, ENA production and electricity generation even with the existing mill and distillery capacities of the country.

Local Production of Sugar

Description	2010	2011	2012	2013	2014	2015
Cane Area (Ha)	7,360	6,482	11,150	16,217	16,048	16,990
Cane Yield (Mt./Ha)	50	50	50	67	75	90
Cane Production (Mt.)	414,000	440,000	432,000	543,000	636,518	750,007
Sugar Recovery Rate (%)	7.6	7.9	7.9	8.2	8.0	7.5
Sugar Yield (Mt./Ha)	3.80	3.56	4.59	4.76	3.60	4.25
Sugar Production (Mt.)	31,336	34,876	36,689	53,062	52,343	55,960
Cost Of Production of Sugar (Rs./kg)	79.40	82.00	90.33	100.05	103.57	98.00
ENA Production (Mil. lts)	7.45	7.98	2.93	8.90	9.25	6.27

Source: Annual Report of Central Bank of Sri Lanka, Sugar Research Institute

2. SWOT analysis for Sugar Industry

The major strength of the sugar industry in Sri Lanka is its high demand. The sugar industry should have a dry and intermediate climate and Sri Lanka is endowed with such suitable weather conditions. The sugar industry has several weaknesses which threaten its future viability such as increasing costs of production, weakening efficiency of production for smallholders, the high cost of transportation etc. However, several opportunities are present within the industry and its related sub-sectors which are supported to reach a self-sufficient level and make the industry sustainable. The biggest threat facing the industry is price pressure from the world market.

Strengths	Weaknesses
• Sugarcane cultivation and sugar mills are located in rural areas and therefore the labour cost is cheap comparing to the other sugar cane producing countries. • Well established system with favourable sub cultures • Good infrastructure facilities • Highly oriented and skilful work groups for each sector • Availability of land, factories and skilled employees for increasing production • Market acceptance of producing high quality sugar and by-products • Increasing market demand. • Favourable agro climatologically for sugar assimilation • Availability of suitable places to establish more factories such as Kilinochchi, Anuradhapura, Batticaloa etc.	• Unavailability of high yielding sugarcane varieties. • Farmers use out dated technology and have poor knowledge in modern technology for production. • Lack of usage of well-developed technology in the sugar industry • Lack of marketing infrastructure. • High transport costs. • Increasing costs of sugar production. • Increasing inefficiency of smallholder farmers in growing sugarcane. • Deficiencies and inefficiency of public utilities with their related high costs. • Less productivity in cane growing. • Less technical efficiency in sugar production. • Absence of proper recycling systems which results in high water consumption. • Sugar recovery rate is less than the international standard. • Majority of farmers are not involved full time • Labour scarcity • Underutilized staff due to the seasonal based industry • Unavailability of proper weed

	management chemicals. • Unavailability of a proper insurance scheme.
Opportunities	**Threats**
• Diversification into other sugar-based products. • Possibility to increase per yield production by using new technology and fertilizers. • 92% market share open for local sugar manufactures • Enhancement of the industry due to the declaration of a further 160,000 ha. for sugarcane plantations • Limited sugar factories in Sri Lanka • Government support for industry development • Existing electrical energy vacuum in the country • Industrial diversification • High potential to enter the tourism field due to availability of a natural environment and other valuable resources • Integration of livestock • More than 60 by products could be produced. • Demand for organic fertilizer. • Demand for bio-fuel (renewable energy) in the future	• Price pressures in the world market. • Failure of smallholders to run farms efficiently. • Low returns to smallholders and reduced viability of irrigation projects. • The decreasing production of sugar cane due to diminishing productivity of cultivated land. • Unavailability of water sources and a proper irrigation system. • Using sugarcane cultivable land for other cultivations and construction purposes will improve the farmer living standards' and infrastructure development of the area • Continuous elephant, cattle and wild boar attacks on sugarcane cultivation • Sugarcane is a vulnerable crop to fire • Unpredictable weather patterns • Unexpected pests and diseases

3. Market Analysis

3.1 World Sugar Market

Out of the total world sugar production which is currently 175 million tonnes, about 72% comes from sugarcane and the remaining 28% from beet and over 80% of the sugar traded is cane sugar. Beet sugar production is concentrated mainly in temperate countries in the northern hemisphere dominated by the European Union (EU). Cane sugar is produced mainly in Brazil, India, Australia, South Africa, Cuba and Thailand. Sugar is produced from sugarcane in 110 countries and around 70% of the output is consumed domestically. Hence, the supply of sugar to the world market mainly consists of exports of a few countries which produce a surplus over local demand. Similarly, buyers in the world market also purchase to meet the deficit over local production. This type of market is called a residual type market and is a result of various trade barriers against imports and incentives for local production in individual countries. Therefore, world trade of sugar cannot be considered as free and is subjected to various types of government interventions.

Major sugar producers in the world are Brazil, EU, India, China and USA. However, given the fact that the world market depends on surplus production, major exporters are not essentially the major producers. While Brazil and EU are by far the two largest exporters, China and USA are net importers. Even though India is second only to Brazil among all sugar-producing countries, its contribution to the world exports is proportionately quite low. Australia and Thailand are the third and fourth largest exporters even with relatively low production volumes compared with India, China or USA.

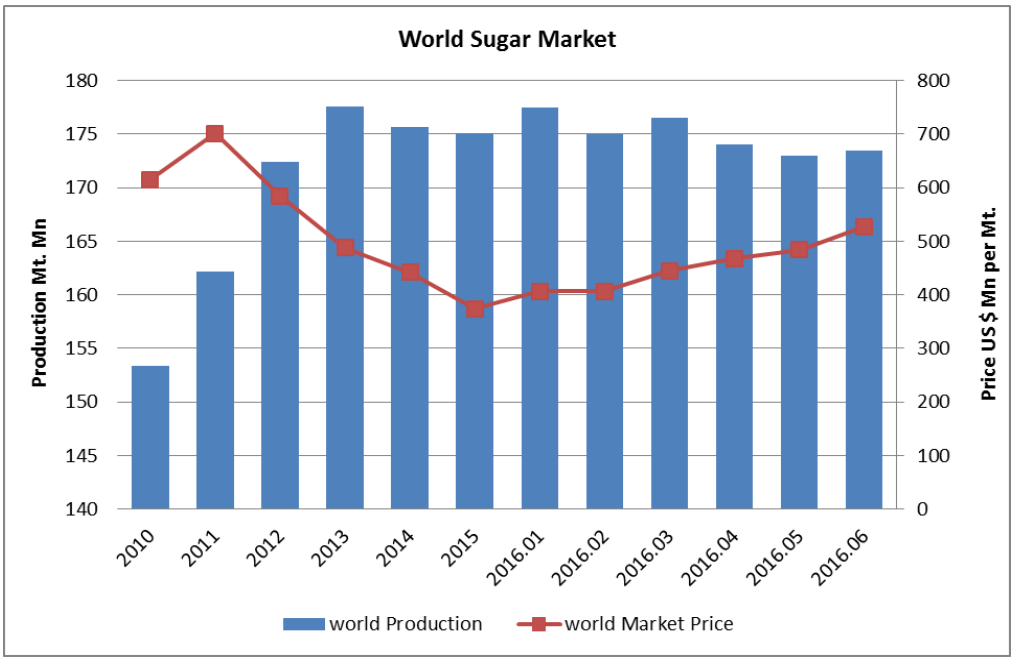
As un-liberalised, residual type trade on sugar depends on surplus production, the supply situation is highly volatile in the world sugar market and so is the price. The market is often affected by weather conditions in major exporting countries and other supply constraints. Similarly, residual nature of demand also affects the world sugar price as demand from major importers fluctuate according to domestic production levels. Moreover, being an outcome of interaction between residual demand and residual supply, price of sugar in the world market usually tend to be below the average cost of production.

In addition, fluctuating fuel prices has also become a factor to be reckoned with in the world market for sugar as a part of sugarcane output is diverted to production of ENA. Brazil, the major sugar producer and exporter in the world is the major supplier and user of ENA too, a bio-fuel which is becoming increasingly popular as an alternative for gasoline. Spearheaded by Brazil, a significant number of countries, including India, are gradually turning towards ENA to reduce the dependency on gasoline (petrol).

Sugar is one of the most volatile and regulated commodities in world trade. Price instability has adversely affected both sugar producers and consumers, and hence, producing and importing countries have adopted various policies to insulate their sugar industries. Such measures have caused further aggravation of the instability of sugar price.

At present, the world white sugar price stands between US$ 515-525/t. It has been forecasted that this price level will prevail for another few years. But it depends on the changes in supply and demand for sugar and ENA in response to these price movements and the policies adopted by sugar producing and exporting countries.

The world sugar production is projected to increase to 205 million tonnes by 2020. Increased production is projected in Brazil, India, Australia, the EU and many small sugar-producing countries. World sugar consumption has been projected to grow at an annual rate of 2.1% during the next 4-5 years. Though, per capita consumption in developed countries is declining, it is other way in developing countries. Total demand is also projected to more or less similar to production.



Source: USDA Foreign Agriculture Service

3.2 Local Sugar Market

The total annual requirement of sugar in Sri Lanka is approximately 700,000 Mt and per capita consumption of sugar is around 31 kg. The volume of 56,000 Mt of sugar which is around 8% from total sugar requirement is being produced locally and the balance requirement of around 650,000 Mt of sugar has to be imported. Accordingly, the import expenditure of sugar is around Rs. 35 bn per annum and it is the highest import expenditure for a food product in Sri Lanka.

Recent years have witnessed an upward trend in the retail price of sugar in the local market. Starting from the price of sugar Rs. 40/= per kg in 2005, the price of sugar has increased up to Rs. 100-120/kg currently.

Local Production Retail Price 2000 – 2016

Year	Total Production 000' Mt.	Price Rs. Per kg
2000	64	30.03
2001	48	36.45
2002	38	34.22
2003	54	33.51
2004	60	37.09
2005	54	41.44
2006	56	57.05
2007	29	53.25
2008	39	63.07
2009	32	81.97
2010	31	93.76
2011	35	92.72
2012	36	103.59
2013	53	102.71
2014	52	100.39
2015	56	90.48
2016 June	56	120.00

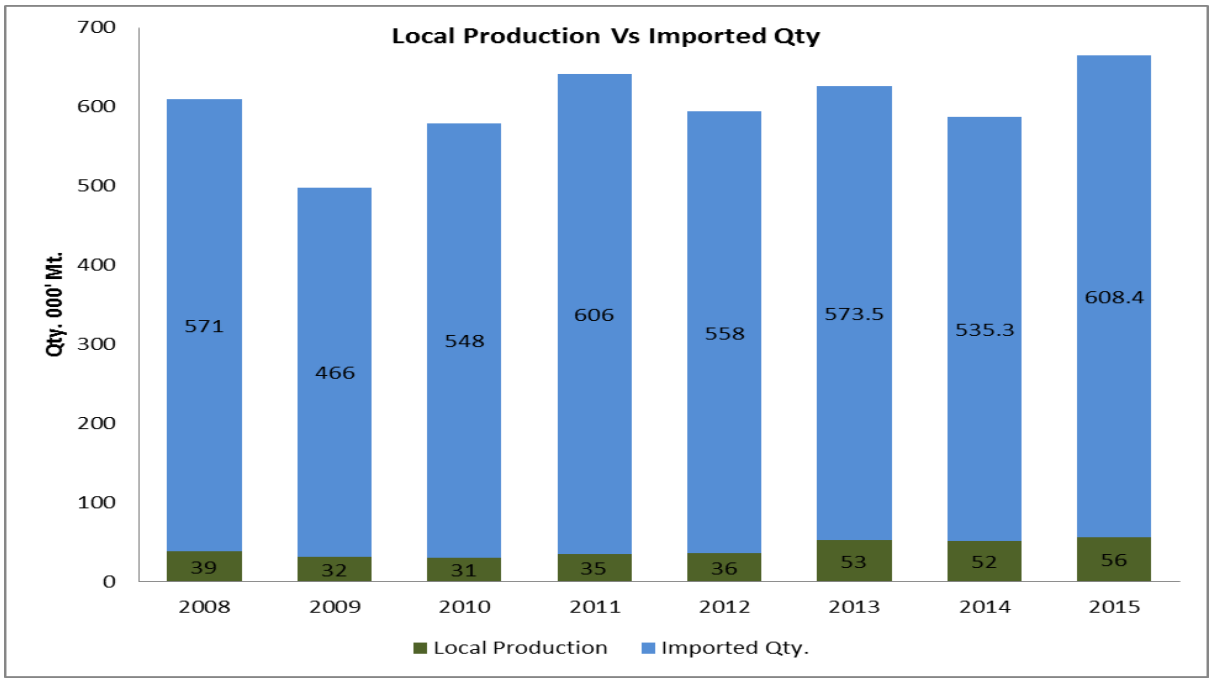
Source: Department of Census and Statistics, Sri Lanka

Since sugar is an essential consumer product with relatively in-elastic demand, short-run changes in sugar price are determined mainly by supply-related factors. As supply of sugar in Sri Lanka comes mainly from imports, the situation in the world market has a significant impact over local prices.

Annual Importation of Sugar

Description	2013		2014		2015	
	Imported Qty.	Amount Rs.Mn	Imported Qty.	Amount Rs.Mn	Imported Qty.	Amount Rs.Mn
Sugar (000' Mt.)	573.5	39,069.7	535.3	34,179	608.4	33,496
ENA (Mn. Litres)	10.8	1,189.8	13.6	1,480.8	21.3	2,200.6
Sakkara & Jaggery(Mt.)	1,249.3	25.9	1,156.1	36.4	1,349.6	55.9
Glucose & Glucose Syrup (Mt.)	6,499	450	6,879	451.2	8,700	578.5
Other Products (Mt.)	2,282.2	389.4	2,760	508.8	2,673	505.9

Source: Sri Lanka Custom



3.3 Future Demand & Potential

The current requirement of sugar is about 700,000 Mt., and it is projected to be increased to about 730,000 Mt. by the year 2020 and to about 800,000 Mt. by the year 2030 with population growth, without considering income and price elasticities of demand.

With the increasing demand for energy to provide for the country's economic and social development, total primary energy demand is expected to increase to about 15,000 kTOE (Thousand tons of oil equivalents), i. e., nearly 17500 GWh of electricity by the year 2020 at an average annual growth rate of about 3%. Due to the limitations in further hydropower development, accelerated development of non-conventional renewable energy are likely to make a significant change in Sri Lanka's mix of primary energy resources.
Though correct statistics on ENA production and demand are not available, it is plausible to assume that the local sugarcane and coconut-based and other ENA production is sufficient to meet less than 50% of the requirement, i.e., 100 million litres. Sri Lanka is not currently using alcohol as fuel.

A vast potential that exists for the expansion of sugar and allied industries in Sri Lanka is as follows:

- Increasing demand: Local production of sugar, ENA and other sugarcane-based products are not sufficient to meet the country's requirements and their demand is increasing with the growing population. At the current level of consumption, demand for sugar will increase to about 730,000 Mt. by the year 2020.

- Increase of fossil oil prices: It also likely that with the increase of fuel prices, prices of sugar will increase and the demand for ENA as a source of energy will also increase.

- Adverse impact on the balance of payments: Total consumption requirement is on an increasing trend and the world price of sugar will not reduce significantly. As such, the cost of the importation of sugar will continue to increase and it will be a significant burden on the balance of payments.

- Availability of suitable land and climate for sugarcane cultivation: A sufficient extent of undeveloped and under developed land suitable for sugarcane cultivation is available in dry and intermediate zones of Sri Lanka.

- Possibility of diverse value-added products: Although the present production mix in the sugar sector is limited, a large number of products, apart from sugar, can be produced from sugarcane and its by-products, which ensures increased long-term sustainability of the industry (i.e., ENA, pharmaceuticals, electricity, animal feed, particle boards, organic fertilizer, etc.).

- Suitability for diversification of small-scale agro industries in rural areas: In addition to large-scale production of sugar and ENA, small-scale cottage industries such as jaggery, syrup, vinegar, animal feed, mushroom, etc. can be produced from sugarcane/sugarcane by-products, which could facilitate the upliftment of the socio-economic status of the rural areas where large-scale sugar processing plants cannot be established.

- Contribution to poverty alleviation: Development of the sugar industry will be complementary to the regional development efforts and anti-poverty programs as well.

- Feasibility of financing through carbon trading: Since sugar development qualifies for CDM, funds for sugar development can be sought from donor agencies.

4. Development Policy for the Sugar Industry

4.1 The necessity of a Development Policy

Sugar being an essential food commodity providing caloric energy and the country producing only 8% of the requirement with the balance being imported, costing more than Rs.35 Bn annually, there exists a vast potential for the sugar sector to contribute to GDP, employment, food and energy security, poverty alleviation and upliftment of the economic

status of the underdeveloped areas of the country. The government targets at achieving 50% of the self-sufficient level by the year 2020. This requires, in addition to the modernisation and expansion of the existing sugar mills, establishment of sugarcane cultivation and processing complexes in new areas. Sugarcane industry development is highly capital intensive and production of sugar alone is not highly attractive for investment. Therefore, diversification of the sugar industry with products such as ENA, electricity, animal feed, organic fertilizer etc. is important for the sustainability of the industry. Furthermore, proper planning, guidance and regulation of the industry is required to achieve the targets of sugar development in the country.

The country is endowed with suitable climatic and soil conditions for sugarcane cultivation and sufficient extents of land are available in the intermediate and dry zone areas.

The high price volatility has caused the sugar-producing and -exporting countries to adopt various policies to protect their industries which in turn have caused further aggravations of the instability. As a result, the price of sugar in the world market is highly distorted.

Sri Lanka does not have a sugar policy and since the country is targeting at rapid development of this sector by exploiting the country's potential while facing the international market situations, the need for a sugar policy is called for.

4.3 Policy Objectives

Building public-private partnerships in the development of the sugar sub-sector is required as the major thrust of the policy to achieve the following broad objectives.

- Social and economic development of the under-developed areas in the dry and intermediate zones of Sri Lanka which will also facilitate the upliftment of living standards of the people in those areas.
- Increasing contribution to GDP and generation of employment opportunities by expansion of sugarcane production and diversification of the sugar cane industry to sugar, jaggery, syrup, vinegar, fruit-flavoured drinks, ENA, electricity, fertilizer, animal feed etc.
- Saving foreign exchange by applying an import substitution industrialization (ISI) policy for sugar, ENA and allied products.
- Agro-industrial expansion and diversification of the sugar sector to enhance the competitiveness and sustainability of the industry.
- Assisting to ensure food and energy security in the country.

- Create a legal, institutional and regulatory framework for sugar development.
- Improving processing efficiencies of sugar and molasses.
- Incentive investment in sugar development.
- Stabilize the domestic sugar price.
- Incentives to farmers for increasing cane yield and producing high-quality cane and industries for increasing processing efficiencies and to ensure equity of the division of proceeds between grower and miller.
- Ensure cane supplies to mills.
- Develop water resources and infrastructure for sugar development.
- Develop manpower for sugar sector development needs.
- Expand functions of SRI.
- Contributing to clean development by reducing carbon dioxide emissions and green energy production.

4.4 Policy instruments

In view of the sugar industry in Sri Lanka, building public-private partnerships in the development of the sugar sector is required as the major thrust of the policy to achieve broad objectives such as social and economic development of the backward areas in the dry and intermediate zones, create legal, institutional and regulatory framework for sugar development, incentivise investment in sugar development, stabilise the domestic sugar price, increasing contribution to GDP and employment generation by expanding sugarcane area and production, diversification of the sugarcane industry, ensure cane supplier to mills, protect local sugar industry, develop water resources, infrastructure and manpower for sugar development, expand the function of SRI and strengthen institutional frame work.

Based on the forgoing analysis on above issues and forecasted objectives of the sugar industry, the following policies could be recommended to achieve 50% of self-sufficiency in sugar sector.

1. **Institutional Policy:** To create an enabling environment for the sugar sector since Sri Lanka does not have a conducive legal, institutional and regulatory framework for the development of such a sector.

2. **Investment Policy**: Sugar manufacturers/investors need to be given sufficient incentives to invest in new sugarcane-factory-distillery-cogeneration complexes, diversify into other processing industries, expand and modernize the existing mills/distilleries etc. Since sugar, ENA production and electricity generation is highly capital intensive, the government has to ensure sufficient returns to their investment within a shorter period.

3. **Production and Land Policy:** The existing inferior sugarcane varieties have to be replaced with superior high-cane-yielding high-sugar varieties and the processing efficiencies have to be improved. The cane holdings should be sufficiently large to ensure adequate income for growers and each sugar mill should have a sufficient minimum extent of land within a short distance to ensure a sufficient supply of cane to the mill.

4. **A Pricing Policy:** Pricing of sugarcane, sugar and by-products is a very important policy instrument in the sugar industry development and in the past there has been no rational pricing mechanism for them. Sugarcane has been paid on the basis of weight and has therefore provided no incentive to sugarcane growers to improve the sugar content in cane and to the mills to improve processing efficiencies. A suitable pricing policy will help increase production efficiencies and incomes of sugarcane growers and millers, ensure distribution of income between growers and millers and stabilise the domestic market price of sugar to protect sugar producers and consumers.

5. **Import Policy:** Some import control mechanism should be introduced to protect the local sugar industry and sugar industry co-products from cheap imports. An import policy which includes a sufficient tariff rate should be introduced to protect the industry as well as the consumer.

6. **Water Resources and Infrastructure Development Policy:** Renovation/rehabilitation of the existing irrigation tanks and canal networks is of paramount importance in both the existing and new areas of sugar development as water is the most limiting factor for expanding sugarcane cultivation and achieving high yields. Many irrigation tanks are available in the existing and potential areas of sugar development. Since these tanks are under the Department of Irrigation, a mechanism has to be devised to accomplish this task.

7. **Manpower Development Policy:** The expansion and development of the sugar industry needs manpower of different disciplines and appropriate action has to be taken to ensure that the required manpower is available for the sector. Agriculturists, Engineers, Technologists, Accountants, Technicians etc. are required in

large numbers. Since the existing educational programs of the country do not produce manpower for the needs of the sugar industry, necessary arrangements have to be made with the training institutions to train people in the areas required for the industry.

4.5 Policy Matrix

Policy Instrument	Objectives	Strategies
1. Institutional Policy	To create a legal, institutional and regulatory framework for sugar development.	a. Establish a ministry called the 'Ministry of Sugar Industry' by merging all existing government institutions which are involved in the sugar sector in order to avoid duplications and irregularities. b. A high-powered body named as "Sri Lanka Sugar Board" consisting of the following members to be established by enacting the "Sri Lanka Sugar Act" to advise the government on the policy and regulatory measures. i. Secretary to the Ministry which has been proposed to be newly established as the Ministry of Sugar Development (Chairman) ii. A representative from the Ministry of Finance iii. A representative from each Ministry handling the subjects of land, water resources/irrigation, agriculture and environment iv. A representative from the Lanka Sugar Company (Private) Ltd. v. A representative from the Sugarcane Research Institute. vi. Representatives from the private sector who are involved in the sugar Industry. c. Establish a "Sugar Stabilization Fund" under the same Act (Sri Lanka Sugar Act) to provide assistance to farmers and mills and to stabilize the local sugar price by making deficiency payments to importers during price boosts to protect consumers and to pay price supports to sugar producers during price drops. This Sugar Stabilization Fund could be established by diverting a portion of tariff revenue which has been proposed to increase the SCL on brown sugar by Rs. 10/= per kg, and imposing 2%

		Cess on imported sugar and ENA. The total amount that can be collected by increasing the above mentioned SCL and imposing the CESS on sugar and ENA will approximately be Rs. 7.2 Bn per annum. d. Amend the SRI Act to broaden its scope of authority to include technology transfers and development functions. This will enable the SRI to involve in research functions and facilitate the adoption/application of the knowledge/technology generated through research.
2. Investment Policy	To incentivize investment in sugar development and increase scale of operation	a. Grant income/cooperate tax exemptions for an initial period of five years for renovation/modernization of the existing sugar mills and distilleries and for cogeneration b. Grant 100% tax concessions for the importation of machinery, equipment and spares to establish new mills/distilleries which have a minimum plant size of 2,000 TCD. Plant sizes below a 2,000 TCD capacity will be granted 50% tax concessions for the importation of machinery, equipment and spares. c. Grant 100% tax concession for the importation of machinery, equipment and spares for renovation/ modernization of existing mills/distilleries. d. Seek funding through donor agencies under CDM (carbon trading): Since sugar qualifies for carbon trading by contributing to sustainable energy production, mitigation of greenhouse gas emissions and enable industrialized countries to meet their emission reduction targets, funds could be found through carbon trading. e. Specify that the minimum plant size and maximum operational zone for each sugar mill should be 2000 TCD and 40-50 km radius respectively.
3. Production and Land Policy	To increase high quality sugarcane yields, ensure cane supplies to mills, attract farmers	a. Introduce a working capital loan scheme for sugarcane growers with the finance assistance of the proposed Sugar Stabilization Fund. This proposed loan scheme will grant a maximum amount of Rs. 200,000 per Ha for new planting and Rs. 185,000 per Ha for replanting with new superior cane varieties.

	for sugarcane cultivation and increase sugar and ENA recoveries.	b. Recognise sugar as a basic food item and extend the assistance given to other food crops by the government, such as free water and extension services, to sugarcane growers. c. Allocate a sufficient minimum extent of land for each existing mill according to their plant size such as 3,300 Ha for a 1,250 TCD mill, 5,300 Ha for a 2,000 TCD mill, 9,900 Ha for a 3,000 TCD mill and 10,800 Ha for a 3,300 TCD mill within a 40-50 km radius. d. Establish four new sugar mills in Monaragala, Batticaloa, Kilinochchi and Ampara districts with the plant sizes of 2,500 TCD, 2,000 TCD, 3,300 TCD and 2,000 TCD respectively within a 40 – 50 km radius. Suitable land has been identified; 22,815 Ha in Monaragala, 12,000 Ha in Baticaloa, 30,000 Ha in Kilinochchi and 4,500 Ha in Anuradhapura. e. Allocate bigger land holdings for individual growers to ensure sufficient income from sugarcane for their sustenance. A minimum holding size of 2 ha is proposed for each family and land fragmentation should be prohibited. f. Adopt a quality-based cane payment system which considers the quality of individual farmer's cane supplies and its variation according to time of harvesting. Farmer families that cultivate under factories with a minimum plant size of 2,000 TCD and 80 YPH will be paid Rs. 5,000 /= per Mt. g. Introduce mechanized agriculture practices for cultivation and harvesting of sugarcane.
4. Pricing Policy	To increase incomes and ensure distribution of income between growers and millers and stabilise the domestic market price of sugar to protect sugar	a. Adopt a quality and productivity-based cane payment system to produce high-quality sugarcane, encourage millers to improve processing efficiencies and ensure equitable division of proceeds between grower and the miller. b. Adopt a dual pricing mechanism for locally-produced and imported sugar to make the former cheaper than the latter by imposing a variable tariff to protect the local sugar industry c. Develop an efficiency price mechanism which is the ex-factory price for locally-produced sugar taking

	producers and consumers.	into consideration cost of production, processing efficiency, profit and risk margins sufficient for investment, production taxes etc. Please see annex 01. d. Impose a variable tariff on the imported sugar based on the efficiency price to stabilise the domestic market price and a certain level of fixed tariff to ensure revenue for the government. e. Determine the by-product prices according to the products for which they are used. f. Remove excise duties and value-added tax (VAT) on ENA to enable it to be used as a fuel.
5. Import Policy	To protect the local sugar industry from cheap imports of sugar and other sugarcane-based products	a. Introduce a separate HS classification for brown sugar and white sugar to avoid confusion when implementing border measures. b. Increase the special commodity levy (SCL) on brown sugar by Rs. 10/= per kg in order to discourage importation of brown sugar and keep the SCL on white sugar less than brown sugar. Then the total amount of SCL on brown sugar will be Rs. 40/= per kg and SCL on white sugar will be Rs.30/= per kg. c. Increase import tariff rates by 5% for all types of sugar by-products. d. Increase the custom duty on ENA to Rs.450/= with the purpose of tightening the border measures of ENA importation. e. Impose a higher tariff rate of Rs. 15/= per kg for importation of jaggery/Sakkara in order to protect local manufactures who are located in distant areas of the Badulla and Monaragala districts.
6. Water Resources and Infrastructure Development Policy	To ensure irrigation water and other facilities for sugarcane cultivation and processing.	a. Renovate/rehabilitate the Uda Walawe tank, Gal Oya tank (Senanayake Samudraya), Ekgal Oya tank and Kantale tank with their canal networks. Construction of the new irrigated project of Maduru Oya reservoir should be accelerated with the purpose of feeding the newly identified areas for sugar mills. b. A water resource development committee should be appointed under leadership of the Secretary to the Ministry of Irrigation and Water Resource Management for the development of water

		resources in the dry zone and rehabilitate the exiting tanks for sugarcane cultivation. c. Recognize the development of other infrastructure, such as road networks, water supply, schools, hospitals etc., in new sugar project areas as a responsibility of the government.
7. Manpower Development Policy	To develop manpower needs of the sugar sector	a. Establish a sugar industry training center attached to the Sugarcane Research Institute to train manpower for the industry b. Arrange with universities and other relevant educational organizations to include subjects related to sugarcane in their degree/diploma programs c. Find international collaboration with the regional countries such as Thailand, India, Mauritius, Pakistan, Philippines etc. and well established countries such as Australia, Brazil etc. to train the sugar industry and research personnel on sugar and ENA manufacturing, cogeneration etc.

5. Conclusion

The government recognizes the sugar sector as one of the most inevitable sectors to attract new investments and a vast potential exists to contribute to GDP, generate employment, establish food and energy security, alleviate poverty and uplift the economic status of the underdeveloped areas of the country. The government target is to achieve 50% self-sufficiency by 2020 through implementation of the proposed policy instruments and private-public partnerships and they strongly believe that the policy will guide the sugar industry to become a more productive and sophisticated industry in the economy.

Annex 01

Ex-factory Sugar Pricing Formula

In view of the high volatility of the world market price of sugar and Sri Lanka being a net importer of sugar, a methodical pricing mechanism for local ex-factory sugar and stabilisation of the price with due consideration of the maximising the efficiency of the sugar manufacture is of paramount importance for the sustenance of the local sugarcane industry. The ex-factory pricing formula prepared based on the recommendations of the report on the pricing policy for the Sri Lanka sugarcane industry, prepared by the committee appointed for the purpose in 2006 is given below.

Ex-factory Pricing Formula

The following ex-factory pricing formula (1)) for locally-manufactured sugar was devised with the concurrence of the Sugar Companies:

EP = kCS ---------- (1)

where, EP = efficiency price which is the ex-factory price of sugar (Rs/t)

k = profit, tax and efficiency factor

CS= cost of sugar production (Rs/t)

The factor k can be defined as follows (Equation 2):

k= (1+a)(1+b)c ----------(2)

where, a = normal rate of profit including a risk margin (%)

b = tax rate on production if any (%)

c = ratio of sugar recovery rate at actual efficiency to maximum attainable efficiency, i.e. c = (RCSA/RCSE), where RCSA= sugar recovery rate at actual efficiency (%) and RCSE = sugar recovery rate at maximum attainable efficiency (%)

The factor k is 1.05 for 10% profit margin including a risk margin with zero VAT and 8.0% sugar recovery rate at a current level of efficiency of 79%. The maximum attainable efficiency considered was 80% (95% mill house efficiency and 85% boiling house efficiency under the existing conditions of the sugar mills).

(Note: Under the maximum attainable efficiency condition of sugar processing, efficiency price covers the cost and risk of production and provides a margin of profits after deducting all taxes on production).

This formula has taken k = 1.05 (10% profit (including risk factor) margin and zero-rated

VAT) for the purpose of setting the ex-factory price. Taking the estimated cost of sugar manufacturing for 2016 as Rs. 100/kg, the ex-factory price should be Rs. 105/kg.

In establishing the ex-factory price, the following procedure must be adhered to:

i. The Chairman/Director of the Sugarcane Research Institute should establish the ex-factory price by 31st March of every year on the basis of the previous year's data and provide it to the Secretary, Ministry of Sugar Industry (proposed). Data for the calculation of the ex-factory price should be supplied by the sugar companies.
ii. The Secretary, Ministry of Sugar Industry (proposed) should announce the ex-factory price for the year, through the media accordingly.