The Economic, Social and Environmental Impact on Mauritius of Abolition of Internal Quotas of Sugar in EU Market

Executive Summary, Stocktaking, Findings and Recommendations for:

Ministry of Agro Industry and Food Security Mauritius

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Table of Contents

Contents

List of Tables

List of Diagrams

Executive Summary

The erosion and likely loss of preference in the EU sugar market following the abolition of quotas in 2017 marks a dramatic change for the Mauritian cane sector. Even with the preference, cane area and sugar production have been in decline, despite the numerous measures that were implemented under the MAAS. Moreover, in its current, reformed structure, the sector continues to face rising costs.

To make matters worse, the industry's income will fall steeply in 2014 – well before quota abolition – as a result of over-supply in the EU market. On 26th September 2014, the Mauritius Sugar Syndicate (MSS) announced its second estimate of the sugar price payable to producers: MUR 12,500 per tonne. This estimate has not changed. This figure compares with MUR 17,573 for the 2012 crop and MUR 15,830 for the 2013 crop and an average of over more than MUR 16,000 since the last EU sugar sector reforms in 2006. More importantly, it is well below the viability prices of planters and millers.

Prices for crop 2015, on the basis of data and facts available as of now, would be as reduced as for the 2014 crop.

The causes of weaker industry prices are threefold: (a) lower prices in the EU, (b) greater competition in the markets for special sugars, which is already destroying value in the sector and (c) a strong Rupee. The consequences of price erosion will be felt at two levels.

- *Individual producers*, for whom it will translate into lower income, which will lead to further land abandonment and contraction of cane supply.
- *Industry as a whole*, for which erosion of income is compounded by declining sugar output, which will reduce the industry's capacity to fund its current institutions. To put this challenge into perspective, total sugar output of the island is now similar to, or less than, some individual sugar factories in countries as diverse as Brazil, the EU, Sudan, Thailand and Zambia.

The threats ahead are so formidable that Mauritius must now do away with the legacy of its sugar history and think in terms of competition in a globalised world. 2014 represents a wake-up call and the response to change has to start now and not in 2017, when it will be too late. If industry and Government do not act now, the consequences for the sugar sector will be grave and its repercussions will have broader social, environmental and economic impacts.

Environmental considerations

A few decades back, the sugar industry had a key social and rural stabilisation role. This has significantly dwindled, in that the sugar industry employs less than 2% of the labour force and small and medium planters have, over the past 10 years, decreased by nearly 40%.

The MAAS has elaborated on the positive role of cane cultivation in respect of the environment and has explained the risks of the disappearance of this crop. The MAAS has also underscored the importance of the cane sector for the tourism industry, ensuring that the pristine lagoons are not despoiled and that a soothing and appealing landscape is maintained.

Additionally, the sugar sector provides some 15% of the electricity production of the country through the use of bagasse, thereby avoiding the import of some 200,000 tonnes of coal or some 80,000 tonnes of high sulphur heavy fuel oil, also containing carcinogenic poly-naphthalenes. The establishment of a mandatory framework for the blending of gasoline (or mogas as it is termed in Mauritius) would allow the country to move to an E10 mode and thus allow it to move away from zero use of renewable energy in the transport sector. Already the entry into operation of bagasse/coal plants has enabled the country to generate nearly

20% of its electricity from renewables, a status that many developed countries have not yet attained; to step up private sector participation in energy generation to some 55% of the total; and to diversify the energy base and move away from risky and volatile oil.

In time, a well-performing industrial set-up can allow the country to enhance its share of renewable energy if needed. In the transport sector, the economics of oil may one day justify a diversion of cane juice to ethanol and result in a higher use of cane biomass. In particular this would be of high biomass cane varieties, to generate electricity that does not involve imports of fossil fuels nor the emission of additional carbon dioxide and sulphur dioxide, which is considered by the US Health Department to be a key factor in respect of asthma and broncho-restriction diseases.

Thus, cane and the preservation of land are essential, not only for sugar production and the tourism industry but also for the energy sector, now and, more importantly, in the future. The sugar sector has to be a guardian of land. In spite of its low relative importance in terms of GDP, it is a public good that must be preserved for future generations, and policies should be tailored accordingly. Large-scale abandonment of cane plantations by small and medium planters has introduced a serious risk for the sugar, tourism and energy industries.

In most countries, the price per kWh of a renewable source of energy is higher than that of fossil fuels. Even in Mauritius, solar and wind energy are priced higher than high-sulphur heavy fuel oil. The reverse applies to bagasse energy; it is priced below fossil fuel energy and, in certain cases, price mechanisms act as a deterrent to the higher use of biomass.

The difference between the price of electricity sold by sugar companies and the cost of generation of the CEB is more or less equal to the subsidies afforded by the CEB to the export manufacturing sector. This was possible in the heydays of the Sugar Protocol. The challenging future calls for a revision of biomass pricing policies. The cane biomass industry is very often, for reasons of expediency, viewed with the blinkered perspective of a long history and there has been a great reluctance to foster this activity. This is even less understandable given the fact that all power companies using bagasse have small planters and employees as shareholders via the Sugar Investment Trust.

In the past, the proceeds from Mauritius' preferential access to the EU allowed the sugar industry to make important and valuable contributions to Mauritian society. The current price drop, a foreteller of the post-2017 situation, calls for a different approach. Transfers are made in many countries to support agriculture and ensure that land remains under commercial production; it is time now for Mauritius to embark on such a venture.

Business as usual outcome

Under the current Südzucker contract, and also under the three successor agreements that will run from the 2015 to 2018 crops, the industry's marketing strategy will remain EU-focussed. It is therefore possible to derive indicative estimates of the ex-Syndicate price over this period by projecting prices in the main markets in which the MSS will sell sugar. The objective of this is not to determine with precision the evolution of the ex-Syndicate price — which is impossible given the high degree of market certainty — but to:

1. Identify how the gap between expected income and stakeholder viability prices is likely to evolve in broad terms, and

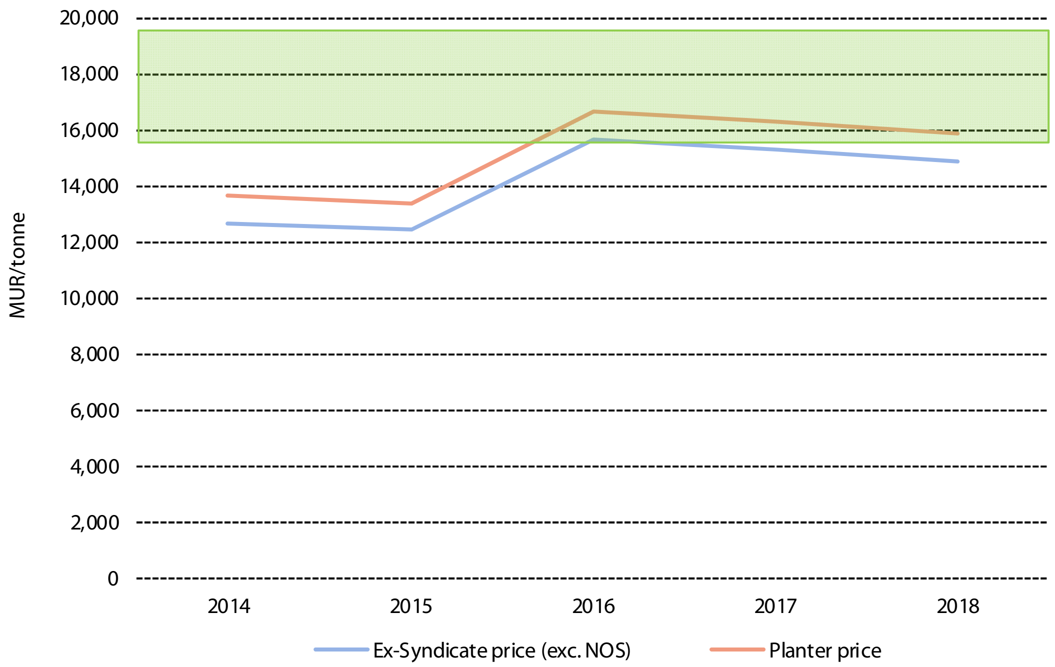
2. Establish the extent to which new measures are required to close this gap over the duration of MSS' contracts (2014 to 2018).

The results are summarised in Diagram E1, which presents:

- The ex-Syndicate price as well as planters' price (assuming they earn an additional MUR1,000 per tonne for the value of by-products).

- The broad range of viability prices for planters and millers.

Diagram E1: Outlook for the ex-Syndicate price vis-à-vis the industry viability price



The conclusion is stark: unless the industry urgently undertakes bold measures to address the challenges ahead, the island can expect to see further significant contraction of the sector, the consequences of which will be far-reaching, directly affecting livelihoods, the environment, the economy and the energy matrix.

Terms of reference

The TOR of this study refer to certain key concepts, namely the *resilience* of the sugar cane industry in the face of multiform competition from *sugar suppliers and alternative sweeteners*; the importance of the *filière* approach; the *relocation* of operations in Mauritius; a *bold and innovative* plan in respect of small planters for their continued involvement in sugar directly or through other means.

Timeframes

The MAAS was formulated for a period of 10 years, 2006 to 2015 with a mid-term review conducted in 2010. The next adaptation strategy also warrants a similar approach, that is a new ten year timeframe, 2015 to 2024, with a mid-term review.

The duration of the first tier of the new MAAS is guided by several factors:

- The length of the new marketing arrangements being negotiated by the MSS, 2015 to 2018 crops.

- The time-span of the new collective agreement between employers and employees in the sugar sector.

- The time required to implement measures needed to allow the country to withstand fierce competition.

The mid-term review of 2018 would take stock of progress achieved in the implementation of the MAAS 2 and, taking account of market circumstances, advise on the date of entry of the full liberalisation of the sugar sector. This would include a review of the scope of role of MSS and the full integration of the sugar sector into the overall economy. The mid-term review would also give a pronouncement on the need to shift away from sugar to energy or otherwise.

Measures to ensure the future viability of the sugar sector

Given the considerable strides the industry has already made to lower the costs of field and factory operations, scope for further reduction has become more limited and harder to achieve. In particular, there are no longer any large, easy gains to be made. Instead, the focus must now shift towards a broad range of measures, each of which has the potential to lower costs or improve income and, when taken together, can contribute significantly to ensuring the future viability of as much of the industry as possible.

In practical terms, this means minimising contraction and abandonment of cane lands, maximising small planter participation in the sector, limiting reliance on fossil fuels for electricity generation and maintaining the greatest possible contribution of the sector to Mauritian society and environment.

Importantly, following the submission of the Draft Report, the Ministry of Agro Industry circulated the Report and sought the views and comments of Government Ministries and Departments, service providing institutions and stakeholders. The outcome of meetings and written views were forwarded to the Consultants. On the basis of the responses received, the recommended measures were reviewed and now represent a delicate balance in what would be termed in WTO parlance as a Single Undertaking or alternatively as one Unit.

The measures recommended by this report are grouped under the following headings:

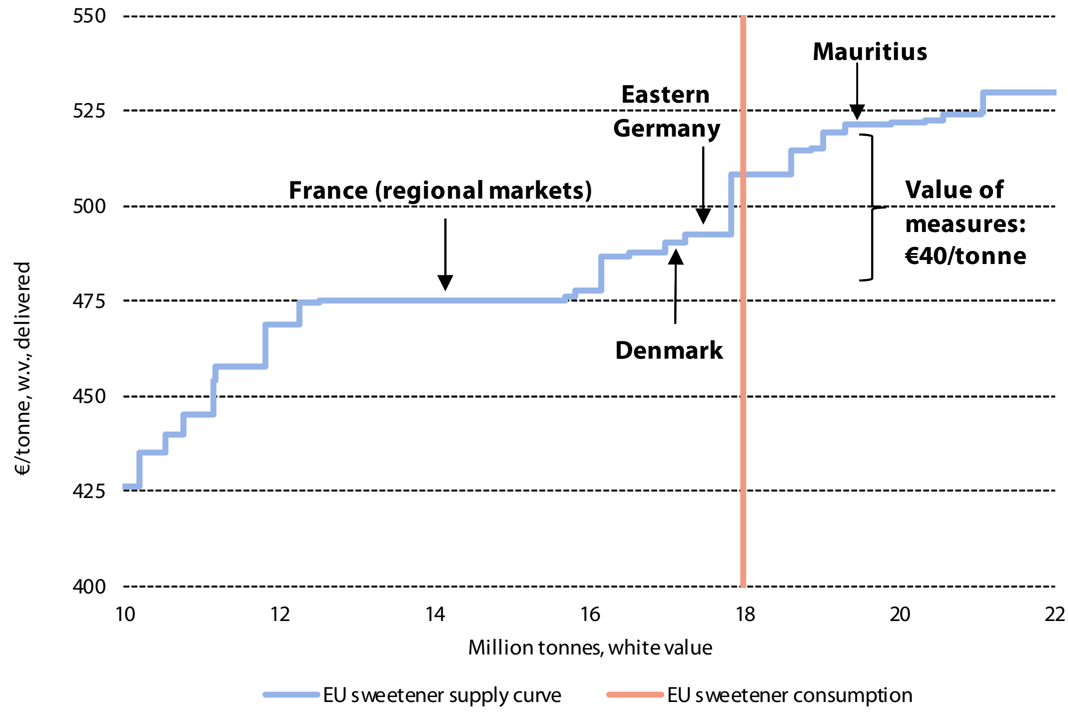
1. Sugar sales: new markets, value addition and the MSS
2. Employment
3. Small and medium planters
4. Environment & social
5. Institutions
6. By-products

Our findings and recommendations regarding each of these measures are discussed in the next section. A more detailed discussion of measures is contained in Section 6 of the main report, in which we also estimate their value to the industry assuming they are implemented. In some cases, this value manifests itself in the form of revenue enhancement; in others, the gain comes in the form of a cost saving.

Implications for industry viability of the implementation of these measures

Our analysis suggests that, despite the efforts to lower the costs of its field and factory operations over the last few years, Mauritius' competitive position as a supplier to the EU market remains precarious if further measures are not implemented. The main reason for this is that, while Mauritius has lowered its costs, the performance of the EU beet sector has improved markedly over the last decade, which has strengthened its competitive position. To demonstrate this point, Diagram E2 presents a cumulative cost curve for the EU market, which includes all the potential suppliers (beet sugar, isoglucose and third countries).

Diagram E2: Delivered cost of bulk white sugar, beet sugar and imports

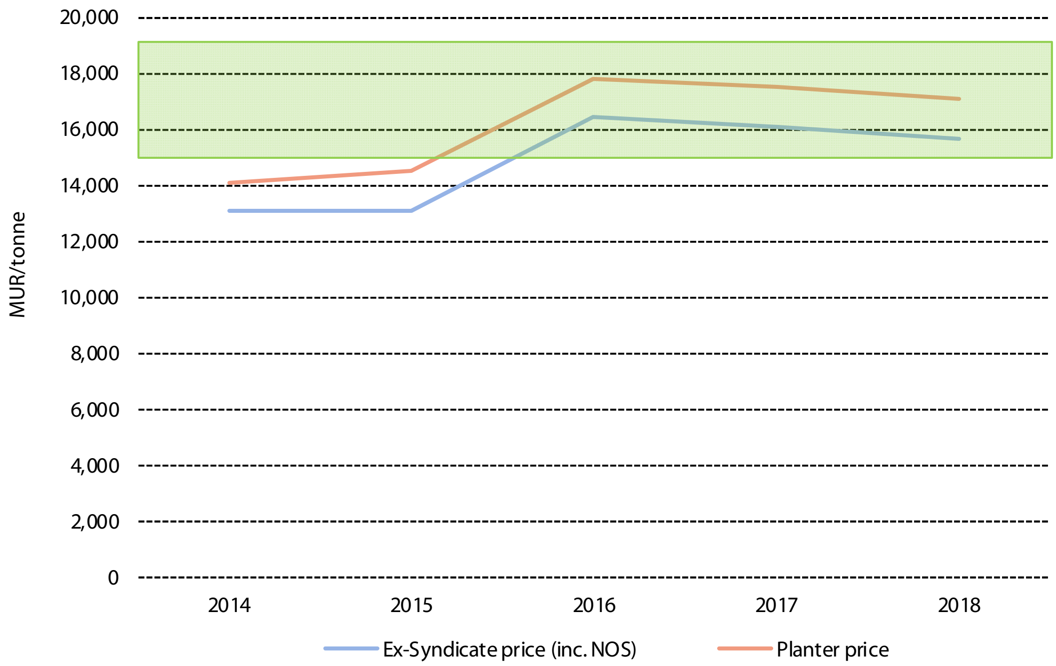


From the diagram, the following conclusions can be drawn:

- Based on its current cost structure, Mauritius would not be a competitive supplier to the EU market after 2017, i.e., its supply price falls to the right-hand side of the demand curve.
- However, the proposed measures would act to lower its supply price by approximately €40 per tonne. This would be sufficient to make the EU a viable market for Mauritius, although it would remain among the higher cost suppliers to the market.

As well impacted Mauritius's competitiveness in the EU, the can help support industry viability. The combined value of the proposed measures is summarised in Diagram E3. The diagram is analogous to Diagram E1 but <u>includes</u> the additional revenues and cost savings from the measures outlined above, *excluding payments from the SIF, which we consider below*. The result is to lower industry costs and to inflate the ex-Syndicate price.

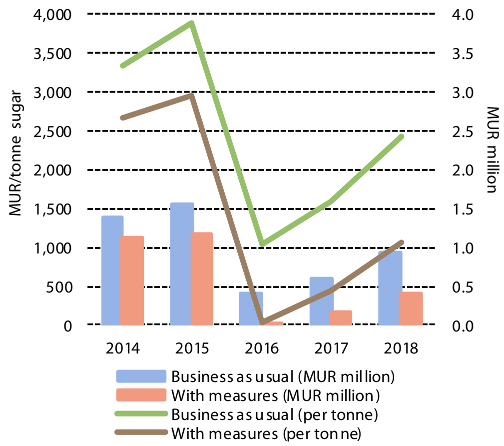
Diagram E3: Outlook for the ex-Syndicate price vis-à-vis the industry viability price after implementation of measures



Despite implementation of these measures, there is likely to remain a gap between the ex-Syndicate price and the industry average viability price, especially for the next two crops. The magnitude of this gap is estimated in Diagram E4 and is expressed *per tonne of sugar* and *in absolute terms (MUR millions)*.

In reality, the magnitude of the gap will depend on the evolution of market prices over the next few years, the level of sugar output and how successfully and quickly mitigation measures are implemented. Moreover, any measures that require payment of redundancy packages will incur up-front costs, although they will lead eventually to recurrent cost savings.

Diagram E4: Projected gap between the ex-Syndicate price and the industry viability price with implementation of mitigation measures



With these caveats in mind, this analysis suggests the gap between the ex-Syndicate price and the <u>average</u> viability price will total close to MUR 5.0 billion during the period 2015 to 2018 if business as usual continues. This compares with the current Sugar Insurance Fund surplus (prior to the 2014 payment) of MUR 5.4 billion. If the above measures are implemented, we estimate that the gap could be reduced. In practice, it will take time for these measures to be implemented, so recourse to the Sugar Insurance Fund will be essential to help the industry to bridge the industry's likely income gap over the coming years.

Concluding remarks

Sugar prices in the EU today are trading at around €400-430/tonne, down from more than €700/tonne two years ago, and prices are unlikely to exceed €500-550 per tonne before quotas are lifted on 1st October 2017. Once industry costs are deducted, Mauritius already earns little preference on sales of sugar to the EU over returns from the world market.

- *2014 represents a real wake-up call for things to come and the response to change has to start now and not in 2017 when it will be too late. On 26 September 2014, MSS estimated that the ex-Syndicate sugar price for the 2014 crop will drop to just MUR12,500 per tonne, far below the viability price of producers throughout the sector.*

From 1st October 2017, the beet industry in the EU is planning to supply a greater share of internal market demand at the expense of imports. The challenge facing overseas suppliers, such as Mauritius, is that EU beet growers and processors have made huge strides in improving the efficiency of their production, allowing them to raise significantly their competitiveness against imports. Indeed, the most efficient beet sugar producers in Europe will soon be competitive as exporters on the world sugar market.

The ability of the beet sector to expand has been demonstrated emphatically this year, with beet sugar output expected to exceed quota by 5-6 million tonnes. To gain market share at the expense of imports, sugar prices in the EU will fall to a level at which it is no longer attractive for overseas suppliers to ship sugar to the EU.

- *The implication of this is that overseas suppliers will no longer earn a preference from sales of raw or refined sugar in the EU vis-à-vis the world market.*

The Mauritian sugar industry will have to stand up to such challenges and, as a consequence, review and overhaul practices and rules that date back from the zenith years of the sugar industry and which are neither applicable nor wise in the times of fierce competition that lie ahead.

A new sugar industry means new ways of doing things, new paradigms and the shedding of past privileges. The Sugar Protocol was said to be of "*indefinite duration*". This was raised to the status of a mantra and hailed by the ACP as being of a permanent nature and the accord was termed a "*sacrosanct*" agreement by the ACP. The Protocol has been terminated and the Sugar Regime, which was also considered as permanent, is being overhauled to its very foundations. The European sugar industry, traditional ally of the ACP since 1975, is gearing up to be world competitive and is ready and eager to displace imported sugar in the EU from 2017 now that benefits from the entry of ACP sugar have disappeared. The "*commonality of interests between beet producers and ACP exporters"* is now a thing of the past.

Price forecasts for 2014 and beyond are below the level required to ensure that Mauritian producers receive a price that is in line with viability. This is the *sine qua non* condition for the maintenance of a sugar industry. A *business as usual* scenario that focuses on *acquis* and is lukewarm to change will spell disaster.

- *The threats ahead are so formidable that Mauritius should do away with the legacy of its sugar history and think in terms of competition in a globalised world.*

Finally, the package of measures constitute a delicate balance and have to be considered as a Single Undertaking or as one Unit.

Stocktaking, Findings and Recommendations

Stocktaking

The Multi Annual Adaptation Strategy (MAAS) 2006-2015, which followed the 2001-2005 Sugar Sector Strategic Plan (SSSP), contained a comprehensive set of recommendations. A certain number of them were implemented albeit in some cases with considerable delays.

Plus points

The plus points arising from the implementation of these measures of the MAAS and of related decisions can be summed up as follows:

- The country has secured entitlements for grants from under the EU Accompanying Measures to the tune of €250 million and actual receipts would amount to some €238 million;
- Mauritius has benefited from concessionary finance for modernisation programmes pursuant to the ACP/EU Joint Council of Ministers Decision of May 2006 taken in Port Moresby, Papua New Guinea;
- 100% of exports are in the form of value added sugars, specials and refined;
- The country has developed a market strategy which has brought it closer to the market than during the pre-2009 Tate & Lyle days when the refiner stood between Mauritius and the market;
- The Südzucker/Mauritius Sugar Syndicate(MSS) Long Term Partnership Agreement (LTPA) starting in 2009, with its merits and shortcomings, has procured higher revenue to the country and has allowed the transition from raw sugar for refining in the EU to white sugar produced in Mauritius for direct consumption in the EU;
- The Südzucker venture has allowed the Mauritius Sugar Syndicate (MSS) and sugar producers to have a better knowledge of the workings of the EU market and has paved the way for a deeper penetration of the EU market. Mauritius has the possibility to secure further value addition through a *filière* approach, which was not possible in 2009 when the Sugar Protocol was phased out and the LTPA was concluded;
- The industrial set-up, which required considerable investments, some US$110 million, will be in a position to produce and export refined sugar at more competitive prices once its debt servicing is completed in 2015;
- The tolerance afforded by the EU allowing up to 15% by value of exports to the EU to be made up of 15% of Non-Originating Sugars (NOS) has to a substantial extent mitigated the impact of decreasing production. Moreover, it has allowed land to be used for developmental needs and ensured higher use of the industrial set-up, as well as provided higher revenue to all producers, large and small;
- The then Mauritius Sugar Authority (MSA) was able in three weeks in December 2007 to process the cash compensation of some 6,800 employees who had accepted to avail themselves of offers of voluntary retirement;
- Cost of running service providing institutions has been reduced by nearly 50%;
- The Fairtrade Initiative spearheaded by the MSS, and boosted by measures taken in August and December 2010, has proved to be quite successful and useful to small cooperative planters. Some 5,000 of them export roughly 22,000 tonnes of sugar; and some US$78 (MUR2,340 at US$1=MUR30) additional premium is obtained by these planters per tonne of sugar so traded;

- The Planter Harvest Scheme boosted in 2010 has proved to be useful in quite a few cases;
- The liberalisation of the import of sugar for the local market has allowed operators other than the MSS to enter the market;
- Some SMEs engaged in producing for instance sugar cubes and spice-scented sugars involving persons not coming from a planter background have cropped up and operate successfully;
- Cane quality has improved through the introduction of purity thresholds.

From the investment perspective, the following is relevant:

- The cost of the various voluntary retirement schemes for field and factory employees has totalled €195 million including the last factory closure, of which €94 million came from Accompanying Measures; transfers to employees in terms of cash and kind, monetary value of land with infrastructure, compensation would amount to €220 million or MUR8.8 billion;
- Value addition, namely two refineries and special sugar facilities, projects in the sugar sector represent US$110 million (€85 million at €1=US$1.30);
- The Power plant at La Baraque plus the ethanol cluster, the carbon burn out plant and the energy plant would cost €140 million;
- €80 million will be spent on the FORIP by 2015, all met from Accompanying Measures transiting through the Government Budget;
- Total investments represent €500 million.

The SIFB was not considered in the MAAS as a contributor of resources; nonetheless, it has on several occasions supported the industry, with premium discounts of 10% in 2009, 70% in 2010 and thereafter a legal discount of 50% as from 2011. Currently, the SIFB has reserves worth MUR 6 billion, 28% thereof being used to provide special assistance and a premium waiver, subsequent to an Actuarial Review, to all sugar producers for the 2014 and 2015 crops.

Negative points

The negative points from the economic and social perspectives are as follows:

- The implementation of the SSSP, finalised in August 2001, started immediately; that of the MAAS, approved in April 2006, commenced in December 2007;
- Mauritius risks the loss of €10 million. This comprises €6 million as no tenders were launched for a new high efficiency coal plant and €4 million as no policy has been put in place for the blending of ethanol and mogas;
- Cost of production has come down but not to the extent required to face further challenges as labour costs have continued increasing and the rigidities and uncertainties of the labour market have remained;
- Labour costs increase in the sugar sector are brought about by the compounding of two elements, firstly, the percentages agreed in the context of collective agreements, and secondly, the cost of living allowances; in most other sectors of the economy, only the second element prevails;

- New labour legislation enacted in 2008 is such that in actual fact it privileges strike action as opposed to arbitration in cases of labour disputes;
- Administrative delays have resulted in employees encountering substantial delays in receiving their land entitlements;
- The recouping of sugar reform costs by entities having incurred such costs has been slow due to administrative delays;
- These delays are partly explained by the absence of clear transparent guidelines on land use that are available to both operators and deciders, as well as by the grey area between the developmental needs of an ambitious economy an agricultural needs and the wrong perception that Mauritius can be self-sufficient in its food needs when it has to import most of its major requirements such as cereals, edible oil, pulses, meat and milk, and feed for poultry (maize and soybean oilcake);
- In 2004, there were approximately 27,500 small and medium planters. The number has fallen below 17,000 in 2013, a drop of some 40%. This has occurred in spite of the fact that small and medium planters benefit from a high level of sugar and by-product entitlements, favourable tax regimes and concessionary finance. Moreover, Government has already injected some €70 million in the Field Operations Regrouping and Irrigation Project (FORIP) project and is likely to disburse a further €10 million in 2015.
- Initiated in 2006/07, the FORIP had the twin objective of, firstly, regrouping planters to enable them to benefit from economies of scale and, secondly, preparing the regrouped land for full mechanisation of cultural operations. The project was on target up to 2009 and thereafter it has deviated from these objectives and planters have not been geared to face the formidable challenges ahead;
- Small and medium planters who are not required by law to maintain a permanent labour force and who do not enjoy economies of scale incur 1.5% wage increase for every 1% increase incurred by the larger planters;
- Efforts to foster voluntary negotiated cane cultivation agreements between planters and the corporate sector were thwarted by the Commission for the Democratisation of the Economy;
- On 5 December 2007, Government and the Mauritius Sugar Producers Association (MSPA) concluded an Agreement on the sugar reform envisioned in the MAAS. *Inter alia*, the Agreement made provision for a higher level of equity participation of partners of the sugar industry in the components of the sugar cluster within mutually agreed parameters; so far, little progress has been achieved, due to no engagement by Government, and benefits from such a venture have not accrued to the recipients;
- Recommended for implementation the reduction of costs of service-providing institutions as from 2007 has taken place in 2012;
- No service providing institutional re-engineering has taken place and overall costs of operation is still high in comparison to sugar prices, at some MUR700 per tonne of sugar in 2013 terms;

Environmental issues

In a context where measures to mitigate the impact of the enhanced greenhouse effect are of paramount importance, the analysis of the MAAS from the environment perspective will focus on the avoidance or otherwise of the emission of additional carbon dioxide.

In this regard, the following is relevant:

- Many environment-friendly measures recommended in the MAAS have either not been implemented or undertaken with considerable delay;
- Cane land harvested has come down from 68,750 hectares in 2005 to some 51,500 hectares in 2014, i.e., a drop of 25% in the carbon sink represented by cane plantations;
- Actual electricity production from bagasse is 350 GWh compared to projections of 600 GWh;
- Lower output from bagasse means that additional coal or high sulphur heavy fuel oil had to be used to the tune of 140,000 tonnes or 55,500 tonnes respectively; in the case of coal, this means the emission of nearly 300,000 tonnes of additional CO2;
- No new bagasse/coal plant project emerged during the lifetime of the MAAS; the Power Purchase Agreement for the 91MW plant at La Baraque was signed in 2004;
- Persistent controversy on Independent Power Plants, no release of high biomass canes, no policy on the use of abandoned land and, in the case of Omnicane, contractual limitations, have not been conducive to higher biomass use;
- Higher fossil fuel usage means higher additional carbon dioxide emission, higher sulphur dioxide emission (this gas is reported by the US Environment Protection Agency (EPA)[1] authorities to cause asthma and broncho constriction), and the presence of carcinogenic poly-naphthalenes in heavy fuel oil;
- No ethanol used in the transport sector. This implies, on one hand, imports of mogas, a fossil fuel whose use emits additional carbon dioxide, and the recourse to maritime transport, a high emitter of CO_2 and, on the other hand, the export of ethanol also using maritime transport;
- While the conversion of land from agricultural to a host of non-agricultural activities are exempted from the payment of land conversion tax, the land used to erect an ethanol cluster has been subjected to land conversion tax to the tune of €90,000 per hectare;
- Efforts to trade land conversion rights to allow a better land use as generally commercially viable land are marginal for agriculture and vice versa have been stifled;
- The recommendation of the MAAS in respect of difficult areas has not been implemented and no measure has been put in place to avoid abandoned land becoming an environmental hazard;
- Compressed Natural Gas (CNG) may in certain conditions be a substitute for coal, but no work has been undertaken thereon, the focus has instead been on Liquefied Natural Gas (LNG).

[1] http://www.epa.gov/oaqps001/sulfurdioxide/health.html

"*Green energy*" and environment friendly endeavours have also been affected by delays in decision making. The cases in point are the ethanol cluster, a coal burn-out project, an energy plant by Omnicane and the possibility to use ethanol in a dual firing mode in gas turbines.

Price negotiations between the Control Board and Omnicane started in September 2009 and the principles of price determination were adjudicated by the Control Board in December 2011. It is only in December 2014 that the MCIA has agreed to the methodology for price determination.

The delays have impacted negatively on a potassic fertiliser recycling project and a carbon dioxide capture plant, both being part of the ethanol cluster. Fertiliser recycling limits imports and reduces maritime transport. Captured carbon dioxide (CO_2) is processed and used in the carbonated soft drink industry and such a use avoids the use of diesel, a fossil fuel.

A new coal burn-out plant, firstly, avoids the disposal of coal ash in dedicated pits as per the terms and conditions of the EIA certificate; and, secondly and more importantly, allows the re-use of the ash to produce energy with the residue being used as an additive to cement. Higher energy from the same amount of coal and lower imports of cement, a high emitter of CO_2, mean lesser CO_2 emission.

Omnicane is still awaiting approval for what is termed an energy plant. This plant is expected to use wood chips, grasses such as the Giant King Grass, the tail and head ends of ethanol distillation, with all three being renewable forms of energy. Green energy will represent more than 50% of the exportable energy of the plant. This plant is a pioneer in that it will pave the way for the use of different forms of renewable sources of energy to produce firm reliable energy.

Investigations were conducted in early 2014 regarding the possibility of having dual-ethanol and kerosene-fired gas turbines. It is reported that the existing 1990s-installed gas turbines cannot accommodate such mixes; however, ethanol using plants exist in Brazil, a major producer of ethanol. There has been no follow-up action on the latter plants.

Part B.6.4 of the Mid Term Review of the MAAS is devoted to the issue of carbon credits. This Part recalls the efforts of Mauritius to secure carbon credits for the La Baraque project, destined to generate some 140 GWh from bagasse, and how the request was turned down in spite of the support of the World Bank.

This happened because of two elements, the scope of the relevant methodology in the Clean Development Mechanism (CDM) dealing with electricity production biomass residues could not cater for bagasse as a resource available only in the crop season; and more importantly, the absence of a cadre regarding special and differential treatment for Small Island Developing States (SIDS), the most vulnerable states regarding climate change.

Sales by EU companies are made mostly in the Eurozone and most supplies come from within the same zone. As a result, currency fluctuations do not affect these producers. In this regard, Mauritius is an exception, where a strong currency policy has disadvantaged export-oriented industries, including the sugar sector.

Findings and recommendations

There are two categories of findings, those stemming from the stocktaking exercise and those resulting from the study itself. The first ones have been listed in section above. In this part, the findings from the study, as well as the recommendations emanating from all findings, are regrouped by subject so as to facilitate understanding and implementation.

Projected low sugar prices represent the single most important threat to the medium and long term viability of the sugar industry. Accordingly, the key measures will concern the marketing strategy and its essential complement, the industrial set-up and its raw material supply. The contribution of the Sugar Insurance Fund Board is a measure that stands up in importance to marketing.

The last part of the TOR calls for a "bold and innovative plan "in respect of planters and the need for a framework to ensure that the sugar industry operates with the "maximum efficiency in the commercial set-up".

Accordingly, many of the key recommendations made go off beaten tracks and purport to eliminate the rigidities and costs, legacy of the past, and resolutely gear the industry to confidently face a highly competitive commercial global environment.

The boldness and comprehensiveness of the SSSP, carried forward in the MAAS, enabled the country to secure funds under the Accompanying Measures. The actions proposed, and the measures relating to carbon emissions and the protection of the environment, will now enable the country to call upon the EU for further Accompanying Measures and will also allow the tapping of global concessionary finance/grants dedicated to environment protection and preservation.

The predicament of the industry is such that measures are needed both for the cane and sugar sector and for all producers large and small. The measures concerning employees recognise their role, aim at fostering greater responsibilities and training but avoid a situation where "*voluntary schemes*" become compulsory and strike action is replaced by effective and expeditious arbitration.

The sugar industry is an essential public good

Findings

A few decades back, the sugar industry had a key social and rural stabilisation role. This has significantly dwindled, in that the sugar industry employs less than 2% of the labour force and small and medium planters have over the past 10 years decreased by nearly 40%.

The MAAS had lengthily elaborated on the positive role of cane cultivation in respect of the environment and has explained the risks of the disappearance of this crop. The MAAS also underscored the importance of the cane sector and its strong retention of land for the tourism industry in ensuring that the pristine lagoons are not tampered with and the maintenance of a soothing and appealing landscape.

From the environment perspective, including with reference to enhanced greenhouse gas, and other gas, emissions:

- The sugar cane plant is of all cultivated plants, the one that has the highest efficiency in the capture and use of solar energy and in so doing is a major carbon dioxide sink;
- Some 15% of the electricity production of the country, some 350 GWh, comes from bagasse; this avoids the import of some 200,000 tonnes of coal or some 80,000 tonnes of high sulphur heavy fuel oil, the latter also containing carcinogenic poly-naphthalenes;
- The share of biomass can go up through the use of more efficient power plants, reducing the moisture content of bagasse, the introduction of high biomass cane varieties and the recourse to other forms of renewables;

- The establishment of a mandatory framework for the blending of mogas and ethanol would allow the country to move to an E10 mode and thus allow it to move away from zero use of renewable energy in the transport sector;
- Oil economics and availability and additional carbon dioxide emission limitations may, as from the next decade, require a major shift in the transport sector from fossil to biofuels and a higher contribution of biomass in electricity production;
- It is worth noting that one tonne of cane can yield some 80 litres of ethanol if the juice is used for the production thereof;
- A renewable set-up may enable the country to produce at least 700 GWh of electricity;
- In this sense, the cane plant and the industrial set-up associated with it is a considerable resource for the future energy security of the country;
- The cane plant has a very deep and broad radicular system that protects the soil against erosion and this is of particular importance for the maintenance of the sanctity of the pristine lagoons of the country which are so vital for the tourism industry;
- Last but not least, the cane plant is a minimal user of pesticides due to varietal resistance and biological control; in fact, only herbicides are used in its cultivation while nearly all other crops need insecticides, fungicides in addition to herbicides; the low use of pesticides also means low run offs to the waterways and the lagoons.

Additionally for the tourism industry, the sugar cane plantations provide green and smoothing landscapes.

Electricity is produced from bagasse and low sulphur high quality coal from South Africa. The average price of the electricity by companies using these two combustibles is significantly lower than the cost of producing electricity by the Central Electricity Board (CEB). The product of the difference between the cost of the two suppliers and the amount of electricity produced from bagasse and coal is more or less equal to the subsidies granted by the CEB to the export manufacturing sector.

Recommendations

The maintenance of the sugar industry is vital now and will be so in the future from the economic, energy and environmental domains. Its multifunctional role confers upon it the role of the guardian of land and it is thus what is termed an essential public good which needs to be preserved.

In the heydays of the Sugar Protocol, transfers were made from the industry to the economy and society at large, low domestic sugar prices, cheaper energy. The current price drop, a foreteller of the post-2017 situation, calls for a different approach. Transfers are made in many countries to support agriculture and ensure that land remains under commercial production. It is time now for Mauritius to embark on such a venture.

- The new measures can range from energy pricing for biomass, tariff protection for locally produced and used white refined sugar and the possibility for sugar producers to call back and use their reserves at the level of the Sugar Insurance Fund Board.
- It is worthwhile noting that, in most countries, the price paid or received per kWh of a renewable source of energy is higher than that of fossil fuels and, even in Mauritius, solar and wind energy are priced higher than high sulphur heavy fuel oil. The reverse applies to bagasse energy; it is priced lower than fossil fuel energy and, in certain cases, price mechanisms act as deterrent to the higher use of biomass.

International Front

Findings

- Erosion of preference in the EU means that the industry must actively pursue new routes to maintain its income in the future:
  - Maximise value added through sales of special sugars and enhancing the value of its white refined sugars (WRS) through a filière approach, including branding (“Mauritius”, “cane sugar”, Fairtrade), logistics, avoidance of intermediaries, etc.
  - Seek out regional markets where the country has preferential access, such as East and Southern Africa, principally via COMESA, and over time develop appropriate filières to meet the needs of these markets.
- Implementation of these initiatives will be influenced by MSS’s current commitments to Südzucker (2014 crop) and the signature of new arrangements (2015-2018 crops).
- The end of the commonality of interests between EU beet producers and the ACP exporters dictates that the single large buyer approach, which prevailed from 1929 to 2008 with Tate & Lyle PLC and from 2009 to 2014 with Südzucker, is no longer warranted. MSS has therefore identified three buyers that are willing to engage for a period of four years (except for one buyer that is willing to buy bulk WRS for two crops only) under enhanced terms vis-à-vis the Südzucker contract. At the time of writing, agreement had been reached with two of the three parties.
- Although these contracts will not encompass the entirety of island output (after allowing for sales of special sugars), the focus of the industry’s sales strategy will continue to be the EU until 2018.

<u>*EU market prospects – pre and post-reform*</u>

At the time of writing, prices in the EU (as reported by the European Commission) had fallen to close to €400 per tonne. This compares with prices of more than €700 in 2012/13. This dramatic decline in values has been caused by high stock levels that are the result of a series of *exceptional measures* initiated by the Commission to supplement supplies in response to a period of unusual low stocks and high prices during the 2011 and 2012 marketing years.

The weight of current stocks combined with low world sugar and the looming prospect of quota abolition in 2017 points to a sustained period of depressed prices. This was highlighted in December 2014 when the Commission published its “Prospects for EU Agricultural Markets and Income 2014 to 2024”, which forecasts that prices will:

- Remain below €500-550 per tonne until 2017;
- And then return to current levels of close to €400 per tonne.

The basis for this weak long-term price outlook is the potential for beet sugar producers to expand sales within the EU following the abolition of quotas in 2017. This year, the sector has illustrated emphatically its ability to produce huge crops, with the 2014 beet crop estimated to yield some six million tonnes (or some 35%) more sugar than consumption. It is only quotas that are preventing this sugar from competing with imports in the internal market. As a result, abolition of quotas is expected to usher in an era when prices will be governed by the competitiveness of EU producers and the supply/demand situation, ensuring that prices remain uncertain and volatile.

Meanwhile, the beet industry has made huge strides in lowering its costs. Average costs of production in the EU when the sugar reform commenced in 2006 were more than double those in Brazil. Today, higher yields and improved energy efficiencies mean that gap with Brazil is much smaller. This is particularly important as Brazil is the world market price-setter. Said otherwise, it means that large parts of the EU will be competitive at world market prices.

When quotas are removed, EU sugar producers will be able to exploit their cost efficiency by expanding, driving prices down and displacing the vast majority of imports from the internal market. This suggests that Mauritius' earnings from the sale of white refined sugar in the EU will generate little, if any, premium over the world market price.

These projected prices imply MSS prices paid to producers that will be well below the viability price needed to maintain the sugar activity in Mauritius.

This challenge is compounded by the constraints regarding cost containment, notably remuneration rates and escalation within the sector and stagnant yields of sugar per hectare.

The task ahead warrants a new marketing strategy, new products and innovations to help to bridge the gap between the MSS price and the viability price. But, given the price projections in the EU and cost pressures, other measures need to be taken to ensure the full competitiveness of the sugar industry.

Focussing on marketing for now, the industry must act to maximise the value of its sugar through value addition over and above returns from bulk white refined sugar and seeking out new markets.

Value addition – the filière approach

Further value addition can only be obtained by the sales to the retail market, market innovation, the *filière* approach and development of a sugar-based agro-industry. The *filière* path has already been adopted by one sugar company, which has made the necessary investments.

The most important competitive edge of Mauritius resides in its full compliance with the stringent food standards prevailing in the EU and in its reliability as a supplier. The new sugar ventures would not only require innovation but just-in-time deliveries as the exporter gets closer and closer to the final consumer and the retail markets.

Value addition – special sugars

Mauritius was the pioneer of special sugars that commanded attractive premiums over white refined sugar.

However, entry of sugar into the EU from countries engaged in Free Trade Agreements (FTA) has brought in direct competition with Mauritius' special sugars. As a result, prices have come down, albeit not in the same proportions as for white sugar.

The FTA countries have raw sugar quotas and they use the fact that raw and special sugars have the same code under the HS Tariff Nomenclature to export "look alike" products at a discount. Additionally, there are no Intellectual Property rules protecting special sugars from Mauritius to the EU.

Value addition – new preferential markets

The erosion of preference on sales to the EU will increase the potential value of sales into regional deficit markets in which Mauritius has duty preference, notably within COMESA, where Mauritian sugar producers are gaining a footprint.

However, this will take time for two reasons. Firstly, MSS's commitments to buyers in the EU and, secondly, the need to develop a *filière* that is appropriate to meeting the needs of end-users in these markets.

Competing in a global market

In a globalised world, conditions of competition revolve around economies of scale, corporate structures and currency policies. With this in mind, it is worth mentioning that total sugar output of the island of Mauritius is now similar to, or less than, some individual sugar factories in countries as diverse as Brazil, the EU, Sudan, Thailand and Zambia.

Of the sugar majors in the EU, 7-8 companies process more than one million tonnes of sugar and some have interests in several countries of the EU and elsewhere. For instance, British Sugar owns Illovo Sugars, a large conglomerate in Southern Africa.

Recommendations

The severity of the challenge facing the industry calls for a major departure from the business-as-usual approach. Maintenance of this line of action is a sure recipe for disaster.

- Up until the 2018 crop, sales of special sugars and white refined sugar to the EU will remain the primary focus of Mauritian sugar exports. Thereafter, decisions may be taken to adopt a more *filière* and sugar-based agro-based industry approaches, as well as to shift the geographical focus of sales to embrace preferential markets in East Africa.
- An aggressive and innovative marketing strategy is strictly conditional upon the existence of a vibrant, viable and flexible industrial set-up that can produce goods of the required norms and standards and be a reliable and efficient just-in-time deliverer. This means that the industry should be able to respond to new markets and new market environments with efficacy and not be burdened by rules and regulations that prevailed when the Sugar Protocol was in force and sugar accounted for some 30% of employment and the GDP.
- At the same time the industry must defend as best as possible the market for special sugars, in which Mauritius is the market leader. This would imply, firstly, efforts to have a special tariff code for special sugars; and, secondly, work towards the establishment of Intellectual Property Rules, such as on patents and geographical indication, which would protect the innovations made in Mauritius.
- There is need to harmonise export and currency policies.

Timeframes

Findings

The Sugar Sector Strategic Plan 2001-2005 was a for a five year period, the MAAS spanned ten years. This period was chosen as it corresponded to the requirements for support under Accompanying Measures from the EU. This plan also will be used to seek support from the EU and other international instances. The MAAS had an inbuilt mid-term review which was conducted in 2010.

The events that would initially preside over the new plan are as follows:

- The new MSS marketing arrangements that would span the 2015 to 2018 crops;
- The time taken to optimise industrial capacity;
- The possible shift from the EU market to regional markets;
- The fund space offered by the funds available at the Sugar Insurance Fund;
- A new framework whereby millers and planters would collaborate to ensure adequacy of cane supply;
- The time span of the forthcoming collective agreement between employers and employees.

Recommendations

It is considered useful to have a further ten year plan, MAAS 2 with a mid-term review intervening in 2018.

- The mid-term review of 2018 would take stock of progress achieved in the implementation of the MAAS 2 and, taking account of market circumstances, advise on the date of entry of the full liberalisation of the sugar sector.
- This would include a review of the scope of the role of MSS and the full integration of the sugar sector into the overall economy.
- The mid-term review would also give a pronouncement on the need to shift away from sugar to energy or otherwise.

Non Originating Sugars

Findings

The industry currently imports and refines non-originating sugars (NOS) and this represents another source by which the ex-Syndicate price can be enhanced (and it also allows refiners to utilise their refineries more fully).

- Refining NOS for re-export requires the price of white sugar in the destination market to trade at a sufficient premium over world raw sugar prices to cover the costs associated with importing the raw sugar, refining it and transporting it to the final market.
- This activity is unlikely to be remunerative on re-export business owing to: (a) the loss of preference in the EU and (b) greater competition in the world white sugar market, where the EU is expected to become a larger exporter once quotas are lifted and which will have a depressing effect on the world white sugar premium.
- However, refining for the local market should be remunerative, because refiners do not incur the costs associated with re-exporting the sugar. The value added from refining for the local market could be enhanced by the government if it were to apply a modest – say, 10% – tariff on imports of white sugar but allowing raw sugar to be imported duty free. Currently there is no duty on sugar imported into Mauritius, unlike in most countries around the world. This would have only a small impact on local sugar prices, but would represent an important transfer to the industry and allow refiners to utilise their refineries more fully in the future.

- Moreover, refining NOS to use refined sugar in sugar-containing products that are exported may also be remunerative if the value added is sufficient. This will require a new approach by refiners that will require considerable flexibility in marketing to allow them to evaluate and respond to market opportunities and make the necessary investments to exploit them.

Recommendations

- Impose a modest tariff on imports of white sugar but not on raw sugar.

- Maintain the current tolerance level and endeavour to increase it if this proves necessary for the sugar-based agro-industry.

B.5 Employment

Findings

- Sugar industry employees enjoy the highest remuneration in comparison to those employed in other industrial and agricultural sectors. The voluntary retirement schemes applicable to sugar industry employees comprise cash and kind compensation and the aggregate monetary equivalent received amounts to well over three months of wages per year of service.

- These conditions have been worked out in the heydays of the Sugar Protocol or in times when sugar prices were remunerative or Accompanying Measures were available. Such conditions no longer exist.

- In cases of right sizing due to economic factors, employers in the sugar industry, contributors to the Workfare Programme , should be able to avail themselves of this Programme.

- The *full development and utilisation of machinery for voluntary negotiation* referred to Article 4 of Convention 98 of the International Labour Organisation is hampered by the use made of section 69(6) of the Employment Rights Act. The right to strike action is not at issue but the fact that strike action is at the end of the tunnel may act as a licence for unreasonableness in negotiations and in the CCM. This has unfortunately occurred on two occasions. The sugar industry which will have to compete in a world where just in time delivery is the norm cannot afford strike action. So do the hotel, BPO and energy sectors.

- Section 34 of the Employment Relations Act is critical in the realm of collective agreements. This section provides that *the principal aim of trade unions of workers is to promote their members' interests. They can do this only* ***if the undertakings in which their members are employed prosper****. They therefore have an interest in co-operating in measures taken to promote efficiency. They also share with management the responsibility for good employment relations.*

- Section 56 of the Employment Relations Act provides that payment systems shall be periodically reviewed to make sure that they suit current circumstances and take account of any substantial changes in the organisation of work or the requirements of the job.

- It is noted that Cabinet at its meeting of 27 March 2015 decided inter alia to streamline all conditions of employment prescribed in the various Remuneration Regulations in one piece of legislation; reinforce freedom of association and negotiating rights in line with ILO Conventions; and reinforce the dispute settling mechanism for a timely and more effective settlement of disputes.

- In times when the labour force was abundant and willing to work in cane fields, small planters were not required to maintain a permanent labour force. This provision of the law benefitted these planters in that their recruitment of labour matched the seasonality of cane cultivation. Nowadays, labour is scarce. Few, if any, of the unemployed wish to work in cane fields. As a result, small and medium planters are in a weak, to say the least, bargaining position in the labour market. Rates paid by them are 1.25 times those incurred by the corporate sector. In fact, whatever increase is applicable to the MSPA members more or less automatically applies to small planters.

- Entry of youngsters in the sugar sector is almost non-existent and the activity is serviced by an ageing, and often over-aged, labour force. In time, there is a serious risk of labour unavailability.

Recommendations

The new economic and in particular price and competitiveness landscapes call for a different employment set-up as follows:

- In a context of drastic price reductions and the absence of support measures as in 2001 and 2007/08, an employer should have the choice of opting for the Workfare Programme or having recourse to a voluntary retirement scheme;

- The maintenance of differential treatment for pension contribution;

- Multi-tasking and multi-skilling of employees and a corresponding salary grid that rewards skill and experience;

- More focused training schemes for workers in employment with clear job opportunities offered to them;

- Greater responsibilities offered to employees so that their contribution to the overall performance of the enterprise increases;

- New shares pursuant to the December 2007 Agreement between Government and the MSPA to accrue to active employees;

- The possibility for holders of SIT shares to redeem them;

- Mauritius should canvass for the link between its exports and compliance with environment and labour norms, as this confers a competitive edge and obviates the cost disadvantage of having to comply with such norms; the canvassing may be done at political level or at the level of buyers who could publicise the compliance — the model of Fairtrade could be viewed as an example;

- Greater efforts towards mechanisation and automation, wherever this is economically feasible in current circumstances;

- Collective bargaining at company level once the current collective agreement lapses;

- With due regard to section 56 of the Employment Relations Act , opportunity should be taken of the review to streamline remuneration orders to consolidate all terms and conditions of the sugar industry into one document;

- The type of Government intervention that occurred in 2010 and November 2014 should be avoided bearing in mind the fact that Government has a role as ultimate arbitrator;

- The situation whereby the compensation receivable , under a collective agreement and the COLA, substantially exceeds the compounded inflation rate without any quid pro quo purporting to enhance the viability and employability of an enterprise , has to be addressed; section 34 of the Employment Relations Act is pertinent in this context;

- No limits to the use of seasonal labour;

- Section 69(6) of the Employment Relations Act should be reviewed in the light of the forthcoming review undertaken by Government, as in the Cabinet Decision of 27 March 2015, so as to avoid endless disputes and strike action which the sugar industry cannot now, and even more in the future, afford given the new commercial set up;

- A seven-day week operation time for sugar factories, with a six-day week for employees; work on Sundays would be payable at the legal rate;

- Import of labour to alleviate the labour shortage of small planters by an institution capable of offering services at competitive rates. The institution could be the Mauritius Cooperative Agricultural Federation;

- The replacement of the existing MCIA Board by a lean board and a stakeholder Advisory Council as was the case with the MSA;

- The establishment in law of Trade Union Modernisation Fund with a yearly amount of MUR 3 million , obtained from sugar proceeds as from crop year 2015 till 2018, year when the Mid-Term Review of the new MAAS will be effected;

- When the crop season is extended to nearly seven months, crushing and non-crushing days, as in 2014, the five day intercrop season is reduced. The solution to this problem would that the production units operate on Sundays as well as a better cane allocation between sugar factories. This would require a re-definition of factory areas which it is understood the MCIA is planning to undertake shortly in collaboration with stakeholders and the establishment of Rules that a sugar crop in a given factory area should as far as possible be limited to 150 crushing days. This would optimise existing capacity and represent a win-win for all parties.

Small and medium planters

Findings

In addition to aspects described in earlier parts of this note, some elements stand out.

- In 2004, there were approximately 27,500 small and medium planters, the number has fallen below 17,000 in 2013, a drop of some 40%. This has occurred in spite of the fact that small and medium planters benefit from a high level of sugar and by-product entitlements, favourable tax regimes and concessionary finance. Moreover, Government has already injected some €70 million in the FORIP project and is likely to disburse a further €10 million in 2015.

- A survey conducted in 2010 by the SIFB has shed light on the reasons of cane abandonment, which can be regrouped in three categories:

    - Planters are ageing and the new generations are not willing to take over;

  - Labour and transport are major obstacles to overcome;
  - Investment in cane is not remunerative vis-à-vis other activities.

- The SIFB Report did not mention one important element, namely legislation on land conversion. In April 2005 and then in September 2005, the SIE Act was amended to allow planters growing not more than one hectare of land to convert that land without payment of land conversion tax and without having to submit an application to the Land Conversion Committee subject to the land being: (a) outside an irrigation zone and (b) in an area where development other than agriculture is permitted. The land conversion measure was extended in 2010, subject to development area and irrigation zone considerations, but the extent cultivated was increased from 1.0 to 4.2 hectares and the convertible extent from 1.0 to 2.0 hectares.

- These measures on land conversion and development – together with the relative unattractiveness of cane cultivation to many land owners – brought about a new way of thinking. Land was not considered from an agricultural perspective, but rather from its optimal use, including residential or commercial uses. Funds came in large quantities upfront as opposed to the trickles from cane cultivation. One hectare could yield MUR24,000 annually, while the sale could yield MUR5 million at one go.

- While sales values can go up, this is not going to happen in many cases and planters having abandoned their land may find themselves without any viable outlet. Additionally, they may be liable for penalties imposed by local authorities for non-clearance of land.

- Accordingly, the task in respect of the small and medium planter sector is complex.

- To date, the response has been to rely on special assistance and a reduction of the entitlements of millers. Such recipes have not prevented a steep decline in the number of small and medium planters. Moreover, there are no longer surpluses that can be transferred from within the sector without threatening the ability of the industrial set-up from taking initiatives and investing to secure its own future and the future of the sector as a whole.

- Notwithstanding the issue of cane abandonment, there are a few redeeming features that have emerged in the last decade, namely the Fairtrade Initiative, the FORIP, the Planters Harvest Scheme and cultivation agreements between planters and millers.

- The FORIP can be redeemed by new initiatives that focus on planter/corporate sector collaboration as opposed to the MCIA-driven process which has not met the objectives of the Project that is to foster regrouping, for economies of scale, and prepare land for full mechanisation.

- In this regard, cane cultivation agreements and the post-harvest scheme would be the most appropriate vehicles. In addition these schemes address the key constraints of ageing and harvesting.

- Fairtrade sales can increase from 22,000 tonnes now to some 40,000 tonnes in a few years, 2017 onwards.

- Participants in this Initiative have to comply with a *cahier des charges* and the compliance has been quite smooth and it has allowed planters to think in economic, as well as environmental terms. This is an excellent system whereby efforts are rewarded by a premium.

- The Fairtrade Initiative has also the effect of binding together groups of planters and this can be an important asset for the introduction of solar farms in the rural areas as will be explained in the part on energy.
- Land related measures have to be accompanied by revenue enhancing measures. One of these refers to the dividends payable by the Sugar Investment Trust (SIT).
- Currently, 35% of the SIT are held by those corporate entities that were underwriters of the various share issues of the Trust; 41% are held by employees and 24% by planters. As the number of planters and employees has significantly decreased since 1994 , the time when the SIT issued its shares, active planters and employees currently hold a small proportion of them shares, and thereby the dividend entitlements, of the Trust.
- This explains the lack of interest in the Trust and the reluctance of planters in particular when equity participation in sugar clusters is alluded to.
- The new planter/corporate sector implies a new type of relation and the SIT set-up should be judiciously used to foster the new era of collaboration.
- Numerous major incentives have been introduced in favour of small and medium planters as from 1988, the Sugar Industry Efficiency Act 1988, but most of them were open ended and did not call for any performance counterpart as in the case of the Fairtrade Initiative.
- The requirement for "*Bold and Innovative* " measures of the TOR has to be addressed by measures which depart from the conventional approach adopted since 1988, in particular on the SIT, the open-endedness of incentives and new relations between planters and the corporate sector.
- The FORIP scheme is due to come to an end in 2015 but urgent support is required to continue to re-group, irrigate and mechanise as many small farmers as feasible. Re-grouping allows farmers working small fragmented plots to take advantage of economies of scale and reduced costs of production, especially during harvesting periods. The Fairtrade initiative has also breathed new life and pride into the industry and needs continued support by the industry to further its positive impact on sustaining livelihoods of small planters. Further support is also required for initiatives such as the Planter's Harvest Scheme that promote assistance through the extension of credit or technical services to small farmers and which enable the industry to capitalise on the benefits of establishing closer working relationships with all parties in the cane production process.
- If the measures recommended are put in place, the small cane producers of Mauritius have an opportunity to take a unique place in the global market place by producing Fairtrade special cane sugars to extremely high social and environmental standards. They could set the benchmark for other sugar industry players. The structure of the industry in Mauritius favours the type of small farmer that is eligible for Fairtrade status which may not be the case in other sugar producing nations that are increasingly moving towards having predominantly large mechanised corporate producers who are not eligible for Fairtrade accreditation. This is a real opportunity for Mauritius to capitalise on its strengths of high social and environmental standards and a system that looks after the livelihoods and futures of its small planters.
- Structuring new voluntary agreements between planters and millers, in recognition of their mutual need to work together to address the challenges they both face could give another opportunity to lessen the potential social impacts of loss of livelihoods for small planters in the future.

- If the measures suggested for continued re-grouping and mechanisation of the harvest are implemented it will help to secure a liveable income for small farmers through reducing their costs of production. Continued modernisation and competitiveness of the cane industry will also begin to attract the younger generation to the cane sector if they see opportunities for growth and innovation rather than witnessing the steady decline of recent years.

Recommendations

The key measures going forward which have potential to secure the livelihoods of this group of farmers are therefore as follows.

Expansion of the Fairtrade (FT) initiative to include all small planters:

- Small farmer incentive schemes should be specifically targeted to FT planters. Incentive schemes should reward small farmers aiming to implement international environmental and social standards to their production activities, with a view to becoming Fairtrade certified;
- FT accreditation should work in concert with re-grouping schemes. Although Fairtrade is only open to small farmers, cooperatives are encouraged under FT and re-grouping does not detract from the fact that land is still owned by individual small farmers although it is worked collectively to achieve economies of scale;
- Investigate larger markets/trade contracts for FT sugar to enable an increase in FT sugar quotas therefore facilitating more cooperatives to join the scheme;
- Put measures in place (such as reserving a percentage of the FT premium) to ensure the FT scheme is self-sustaining and can pay the accreditation fees for new cooperatives that join in the future.

Continuation of regrouping and mechanisation schemes:

- Continue to prioritise re-grouping of small farmers to enable the possibility of mechanisation; and extend schemes such as the Planter Harvest Scheme to encourage this re-grouping;
- Continue and incentivise the scheme to match up those with land with those willing to work the land, with the aim of making it attractive for those with abandoned land to bring it back under cane.
- The Planters Harvest Scheme has to be broadened into a Planters Mechanisation Scheme with the involvement of both large operators and SMEs and appropriate incentives designed for both categories of actors.
- This measure holds the dual promise of increasing yields and reducing costs. Yields can be increased by better cultural practices, better varieties, shorter cane cycles and optimal harvest.

New cultivation agreements between planters and millers in recognition of the new relationships required to face the challenges still facing the industry:

- Investigate the feasibility of Millers/Sugar Cane Clusters taking over some of the services offered by FORIP after the end of the scheme in 2015;

- Devise a framework for direct contracts between planters and millers to cover all issues related to the cane cycle, such as planting, harvesting and transport;

- Extend credit services for replanting after conclusion of the cane cycle, this could be through cane clusters, commercial banks, or micro credit schemes.

Revenue enhancement

- Revenue would be enhanced at industry level and benefit small and medium planters as well through different marketing strategies, additional revenue from molasses and biomass.

- Value addition at local level by planters in the context of SMEs, in respect of sugar cubes, cane juice, addition of spices to sugar and sugar figurines.

- The SIT framework has to be revisited, the easier part being the additional shares which the SIT would acquire, distilleries for instance, whose dividends would accrue only to active partners of the industry. The further part would cater for the shares held by the corporate sector. This would also encompass the above-mentioned Agreement between Government and the MSPA of 5 December 2007.

Fairtrade, regrouping and cane cultivation agreements are the gateways to the future. Accordingly, incentives targeting small and medium planters should be linked to participation in these ventures. This would apply *inter alia* to tax incentives, SIT dividends and new bagasse transfer price payments. It is understood that there should be a transition period and that the conditionality would apply as from the 2017 crop so that planters, service suppliers and institutions have time to shift to new modes of operation.

Institutions

MCIA

Findings

- The operating costs of the MSS and the MCIA amounted to MUR340 million in 2013 or some MUR850 per tonne of sugar. In addition, the MCIA employs some 500 persons while some 40 persons are in the employ of the MSS.

- The FORIP activities and other operations related to field work would be best undertaken by planters and corporate sector and not by the MCIA. The port storage activities are more linked to the MSS than the MCIA.

- Research work would be best carried out in a regional context, and in any case the research station of Reunion is more prolific in developing and releasing cane varieties including those high biomass canes. It is noted that yields of EU beet producers increase by 2% yearly while in Mauritius yields have at best stagnated.

- The non-applicability by the MCIA of the equal milling capacity saturation rule enunciated in the MAAS in respect of the diversion of canes resulting from the closure of the Deep River Beau Champ sugar factory has led to a situation where canes have had to be diverted to the remaining three factories. In spite of that, the 2014 harvest season will extend till January 2015 for three out of four factories. This will impact negatively on sugar recovery and sugar production and shorten the growth season for the 2015 crop.

- Many small cane loading stations are no longer called for.

Recommendations

- Activities of the MSTC to be merged with BSSDC and fall under control of MSS.

- Winding up of the SPMPC and FSC to be replaced by commercial interactions between small planters and millers.

- Streamlining of CPMACB's activities. Closure of the smaller cane reception centres should play a key role in this, which would also lower the cost burden of cane reception centres to them. The principal remaining activity of CPMACB should concern matters of arbitration.

- We recommend there is a process of consultation among planters and millers to review MSIRI's functions and how best to partner with local institutions like the University of Mauritius and other research centres in the region, in particular Réunion. The objective should be to streamline MSIRI's operations and substantially review its costs allocation by:

  (a) focussing its efforts on areas where it has a comparative advantage over other research centres;

  (b) attracting and retaining talent; and

  (c) eliminating any duplication of effort with regional centres.

  The ultimate objective being a lean, efficient, up to date, producer-funded and led research centre. Additionally, in a context where the focus would also be on the optimal development of cane biomass, such a research centre would be an asset for the producers and the country.

- The new institution requires a different board structure and a different modus operandi significantly departing from the current MCIA led MSIRI.

<u>SIFB</u>

Findings

- Until now, the SIFB has been in the business of insuring against climatic events, cyclones, drought and excessive rainfall. However, in the absence of major events for many years, the Fund has accumulated huge reserves of MUR5.4 billion.

- These reserves provide a valuable resource that the industry can draw upon to assist with its restructuring to cope with the forthcoming reforms in the EU. The value of these reserves is all the greater as the EU will not be providing assistance similar to the Accompanying Measures provided as part of the 2006 reforms. However, if these reserves are to be drawn down to assist the industry adjust to its future, this will require a major change to the role that is performed by the SIFB.

- The recent actuarial review commissioned by the SIFB has recommended inter alia that SIFB grant at premium waiver for the 2014 and 2015 crops along with a payment of a special assistance of MUR2,000 per tonne of sugar accrued for these two crops. As there has been no climatic event in 2014, the payment for this crop is not subjected to compensation payment. This may or may not be the case for the 2015 crop.

- At rate of MUR2,000 per tonne of sugar that is envisaged for the 2014 and 2015 crop, special assistance for a crop of 410,000 tonnes represents some MUR820 million. If these amounts were to be paid out for the 2016 to 2018 crops, alongside premium waivers, it would require a further MUR2.46 billion to be drawn from the SIF. This would leave MUR1.2 billion, just enough to cater for the 2019 crop assuming a similar level of special assistance. Thereafter, the SIFB's reserves would have dried up and it would have to be wound up.

Recommendations

- Implement the recommendations of the Actuarial Review of the SIFB for the 2014 and 2015 crops.

- Given the scale and severity of the challenges that lie ahead, we recommend that the authorities review the current status of the SIFB with a view to using its reserves to assist with the process of adjustment. An actuarial assessment would define the contours of the new system.

<u>MSS</u>

Findings

- The MSS is at a crossroads. On the one hand, two members with a sugar accruing representing nearly 25% of originating WRS have given notice to leave the MSS and, the post 2018 context would require a high level of market flexibility that can only be attained at enterprise level. On the other hand, the MSS is committing sugar to three buyers for four crops 2015 to 2018 so as to secure the best possible terms of trade.

- Given the ramifications of potentially winding down the MSS' functions — including the critical issues of purchase of standing canes, different cane pricing structures at different mills and the possibility of canes moving between mill zones — this issue must be considered a priority.

- The direction of travel is clear: for the most part, millers (and the sugars they control along with their corporate farms) are looking to a world without the MSS. Ultimately, a decision to end the MSS will require not just the consent of its members, but also their support for, and trust in, those entities that will market their sugars in the future. For this reason, consultation and consensus are essential, even if they prove difficult to achieve.

- Industry must decide soon how best to market its sugars. Given that the target date for implementation of these new arrangements is 2019, it must act swiftly to discuss, agree and formulate any new arrangements.

Recommendations

- It is recommended that discussions be initiated soon regarding the future of the MSS. These discussions would be accompanied by other discussions, whereby Government and producers should also address the institutional arrangements that will be affected by this change in marketing arrangements.

- In the interim, we recommend that:

Just as other importers are allowed to import sugar and either sell it or incorporate it in other goods, the refineries should be allowed to import NOS and produce refined sugar for the local market at their own risk.

The MSS should have no exclusivity on finding markets for the so-called free sugars.

<u>*Re-engineering of institutions*</u>

Recommendations

- Ideally, the institutional set-up should be lean and should not exceed 2% of the take-home price of producers for all activities now undertaken by MCIA and MSS. The SIFB is not considered as it does not draw revenue from sugar proceeds.

- The ideal institutions would be as follows:

  – A lean MCIA dealing with, firstly, cane testing and arbitration activities and, secondly, facilitating the collaboration between planters and millers;

  – The SIFB insuring for price reduction only;

  – The MSS as a platform for common services with each mill undertaking its own marketing.

- Such an institution would at most cost MUR120 million in 2013 terms as opposed to MUR340 million for the same year. Savings would amount to MUR220 million or MUR550 additional per tonne of sugar for a production of 400,000 tonnes.

- The institutional reform implies a major staff and employee retrenchment and the attendant costs. As for the cess reform, the industry could seek a concessionary loan from Government to be serviced by savings due to lower costs. Effective additional revenue is expected as from the 2018 crop.

- The former Mauritius Sugar Authority (MSA) had a lean board made up of five members all of them in name and having wide experience and expertise in the sugar industry. Two of these members were from the private sector, two from the public sector and the PS of the Ministry of Agriculture/Agro-Industry as chairperson.

- This board functioned well and allowed the MSA to steer clear major reforms in the sugar sector, the Sugar Sector Package Deal, the Sugar Industry Efficiency Study, the Phasing out of Sugar Estate Camps, the Bagasse Energy Development Programme the sugar reforms of 2001 and 2007; as well as actively participate in the ACP and WTO negotiations.

- The current board of the MCIA is   interest based and would be totally inappropriate to implement the major measures needed to enable the sugar industry to withstand the formidable threats ahead.

- A new MSA type board is a sine qua non condition for success. The MSA was efficient and effective as it had the same board, operational flexibility and the remuneration structure as explained in the case of the MSIRI. The lean MCIA should be organised accordingly.

By-products

<u>*Molasses*</u>

Information available

- Molasses is currently the subject of a review that is independent of this one and which has recently been finalised by the Consultant of the MCIA after meeting the instances appointed to steer the Report.

- The recommendations of the Molasses Study Report comprise the following:

  - The choice of the option that privileges optimal value-addition and the cessation of exports;

  - Predictability in supply for distillers using molasses that refers to the equal starvation principle, reckons with force majeure situations and calls for the setting up of a joint MCIA/Distillers Allocation Committee;

  - Predictability in price: the linking of the price of fob Port Louis molasses to a Rotterdam based price for Rectified Ethanol Neutral Spirit at 96.4% initially and the derivation of the fob price using a model based on a targeted Return on Assets(ROA) at a later stage;

  - Predictability in timeframes for implementation so that all operators have the opportunity to adjust to changes;

  - Increasing overall revenue through the payment of the fob price for molasses used by Omnicane Ethanol, additional contribution by distiller-bottlers in respect of potable alcohol used for the domestic market, and dividends in the case of small and medium planters;

  - The Molasses Report adopts a similar line in respect of equity participation and dividends as this Report in that it calls for the payment of dividends to active planters only;

  - Fostering exports of processed products and new products, similar to the value addition and filière approaches recommended for the sugar sector;

  - The removal of the provision for planters to receive molasses in kind; Amendments to legislation.

- The Report also mentions the amendment to the Consumer Protection (Prices and Supplies Control) Act in case blending of mogas and ethanol and mogas becomes mandatory.

- An E10 mix would in the medium term require around 16 million litres of anhydrous ethanol. Such a production is available in the country.

- MTBE is a substance used as an octane enhancer in mogas. It has replaced the carcinogenic lead tetra butyl ether. Although there is no clear evidence of negative health impacts, many States in the USA recommend low levels of MTBE incorporation and the US Energy Policy Act allows the substitution thereof with ethanol a renewable fuel.

- It is understood that the MCIA has not approved the Report, nonetheless , there are several aspects thereof that have to be retained:

  (a) the cessation of exports of molasses;

  (b) the setting up of a joint MCIA/Distillers Allocation Committee;

  (c) additional contribution by distiller-bottlers in respect of potable alcohol used for the domestic market; MUR 10 represents MUR 130 / tonne sugar or MUR 350/ tonne molasses;

  (d) Dividend payment to active planters only;

  (e) Mandatory blending of ethanol and gasoline.

Recommendations

- The cessation of exports of molasses ;
- The setting up of a joint MCIA/Distillers Allocation Committee;
- Additional contribution of MUR 20 per litre by distiller-bottlers in respect of potable alcohol used for the domestic market;
- Dividend payment to active planters only with the possibility.

The introduction of mandatory blending goes in the direction of greening the economy and reducing emissions of additional carbon dioxide. It is also expected to have a positive health impact. However, the economics and logistic aspects have to be worked out taking into account oil prices and energy security considerations. There would also be merit in exploring any possible health hazards posed by MTBE. Ethanol is known to fulfil the same role without any health hazard.

<u>Bagasse and biomass</u>

- Bagasse in terms of studies is somewhat an unchartered territory; accordingly, this study has delved into the historic aspects with a view to better present the product and tender proposals thereon. Full details are in the main Report.
- The issue of payment for bagasse used for purposes other than sugar manufacture has been first addressed in 1984.
- There are two key milestones on this issue. Firstly, an Out of Supreme Court Settlement in 1999 between Government and the MSPA that allocated the proceeds of the bagasse transfer price, based on MUR100 per tonne of bagasse, between producers of electricity from bagasse, planters having interests in sugar factories and all other planters. The Settlement was published in the Government Gazette as Government Notice (GN) No. 175 of 1999 and subsequently incorporated in the Sugar Industry Efficiency (SIE) Act, section 13 and the Sixth Schedule.
- The second milestone is the Change in Law clause that features in the Power Purchase Agreements of the Independent Power Plants (IPP). This clause was first introduced at the behest of the European Investment Bank (EIB). In simple terms it implies that any reduction of the accrual of an IPP in respect of the bagasse transfer price brought about by a change in law would have to be made good by the CEB.
- However, any measure that is voluntarily agreed upon by an IPP, say in the context of a quid pro quo exercise, or the distribution mode for any amount exceeding MUR100, the

current price for bagasse, would not fall under the change in law clause or section 13 of the SIE Act respectively.

- The sales revenue of the CEB totals some MUR14 billion and the BTP standing at MUR62 million in 2013 accounts for some 0.44% thereof.
- Coal and high-sulphur heavy fuel oil prices have been significantly reduced over the last year and such reductions are expected to maintain themselves in 2015. Coal costs have reduced by some USD 30 per tonne or MUR 0.65 per KWh and high sulphur heavy fuel oil costs have come down by some USD 120 per tonne or MUR 0.9 per KWh. Overall this means savings of at least MUR 1.6 billion for each of years 2014 and 2015. This has a clear positive impact on the finances of the Central Electricity Board. Thus, the Board can accommodate higher prices for biomass.
- It is understood from the Ministry of Agro Industry that, as advised by the State Law Office, there cannot be a distinction between planters in terms of the Bagasse Transfer Price.
- The pricing mechanism of Alteo and CTBV stems from the recommendations of the BEDP, which were approved by the Government and the World Bank, and refer to the "avoided cost" concept. In these cases, there is merit in using as much bagasse as possible. Thus, the sugar factories associated with these two plants have every incentive to, say, reduce moisture in bagasse and increase the calorific capacity and the quantum of electricity exported.
- The pricing system of Omnicane is different, as it comprises a capacity and energy fee and, in its case, the cost of one unit of coal is higher than that of bagasse. Any benefit accruing through the more efficient use of bagasse and the consequential displacement of coal only benefits the CEB. Thus, the price mechanism is a disincentive to bagasse in the case of Omnicane.
- The contribution of higher efficiency in bagasse use and the recourse to new forms of biomass can significantly increase the contribution of renewables and the revenue of energy operators and biomass producers.
- Recommendations 19 and 20 of the National Energy Commission (NEC) Report of October 2013 respectively call for a "Review the price of bagasse for small and medium planters so that it encourages bagasse production, through consultations between the concerned parties" and for the need to "devise a price mechanism for bio-energy (biogas, biomass, biodiesel) that will encourage the development of bio-energy".
- While leaving the formulation of prices to an instance to be appointed, nonetheless the NEC Report mentions that "in the case of other biomass (graminae and wood chips, local and/or imported), where all cultivation to processing costs have to be met from the kWh price, a different pricing mechanism will have to be evolved. The costs involved have not yet been determined as ventures into these forms of biomass are only starting as from 2013/14. At this stage only a range of values can be mentioned using the fact that such energy, with nil or negligible emission of SO_2 and no additional emission of CO_2, will displace coal in spreader stoker boilers but also displace the highly polluting HFO used as base load on the grid. This gives a range starting with the coal price and ending at the HFO price."

- Burning of bagasse and biomass to produce electricity does not emit additional carbon dioxide nor any sulphur dioxide whereas both coal (0.4% sulphur content) and high sulphur heavy fuel oil (3.5% sulphur content) emit additional carbon dioxide and sulphur dioxide.

- Loss in cane production has two implications from the emission perspective. In Mauritius, on average, one hectare of cane yields some 80 tonne of millable cane. The carbon content of cane amounts to 15%. Using stoichiometric proportions one gram of carbon is equivalent to 44/12 grams of carbon dioxide. For one hectare this means the sequestration of 44 tonnes of carbon dioxide. Such a quantum is emitted when 21 tonnes of coal are burnt.

- Average electricity production amounts to 85 KWh per tonne of cane or 6800 KWh per hectare. Such a production of electricity would otherwise come from 3.8 tonnes of coal. Similarly, some 640 litres of ethanol can be obtained per hectare using cane molasses.

- Cane abandonment which results in loss of cane production is therefore a major environmental hazard impacting on the CO_2 and SO_2 footprint of the country.

- Payments effected for bagasse in Reunion have been mentioned by some stakeholders. The payments are made for specific purposes and accrue to planters and millers and the ultimate contributor is the consumer.

- The overall cost of production of the IPPs using bagasse and coal is lower by some Rs 1.00 on an average when compared to the corresponding cost of CEB produced Kilowatt hours. The savings made by the CEB in fact allow it to subsidise the export manufacturing sector.

- The export of electricity from bagasse has only been possible through investments made over time by sugar millers :

  (a) Introduction of diffusers in the milling house which allow savings of energy;

  (b) Replacement of steam drives by electric drives for mills which require less energy and avoid the extraction of steam at 20 bars;

  (c) Recourse to better mill performance and addition of new mills to reduce the moisture content of bagasse;

  (d) Movement from triple to quintuple evaporator systems which economise steam use;

  (e) Introducing falling film evaporators which further reduce steam use;

  (f) Replacement of batch centrifugals by continuous centrifugals saving on energy.

- Steam requirements have come down from 550 kg per tonne cane to 380 kg per tonne cane, this has permitted highly efficient power plants to produce up to 110 KWh per tonne cane for sale to the grid. Moisture contents of 42% and falling film evaporators can bring steam consumption to 320 Kg per tonne cane and electricity sales to 135KWh per tonne cane.

- For a sugar factory like Omnicane, additional 25 KWh per tonne cane over 1.35 million tonnes of cane means 34 GWh of electricity or the avoidance of the use of 18 000 tonnes of coal. However, the current price structure of Omnicane prevents such investments.

- The MAAS had recommended that the power house of FUEL, now Alteo, be replaced by new and modern installations. This did not take place from 2006 to 2015. It is time now to review the situation after the closure of Deep River Beau Champ that has increased the volume of millable cane at FUEL and progress made in trash and other biomass use. Matching the power needs of the country and the power and energy requirements of FUEL reasonably imply that there be a bagasse &biomass/coal plant of some 2x 50 MW. The exact decision depends on the requirements of the CEB and its procurement process.

Recommendations

The following is recommended:

- The total BTF be set at MUR210 million or 1.5% of the sales proceeds of the CEB. The additional MUR148 million would be distributed solely to planters, representing an extra MUR475 per tonne of sugar.
- Negotiations to be held with the IPPs in respect of a quid pro quo involving their share of the bagasse transfer price and their requirements; of fruitful could increase the accruals to small and medium planters by around Rs 500/ t sugar;
- Establish new price mechanisms to favour the use of forms of biomass other than bagasse.
- Review the PPA of Omnicane so that it can optimise the recovery efficiency of bagasse through inter alia reducing the moisture content from 50% to around 42% and use other biomass and cane trash. Additional amounts would enable Omnicane to remunerate additional investments and the cane planters appropriately.
- Give the green light to what is termed the energy plant at La Baraque.
- Focus on the development of high biomass canes that have been developed in Réunion.
- High biomass cane could benefit from start in tariffs.
- Encourage investments in mills to save energy.
- A 2x50 MW bagasse& biomass/coal plant is possible at FUEL subject to the decision and the procurement procedure of the CEB.

Other environmental issues

Findings

- Findings on CNG, carbon capture, further use of renewables other than bagasse, the Clean Development Mechanism, the nucleus role of the Fairtrade Initiative and the use of ethanol in gas turbines have already been explained earlier.

Recommendations

- The possibility of substituting coal by CNG in existing bagasse/coal IPPs should be explored and the impact on lesser CO_2 emissions worked out. Possibilities exist of importing CNG from Tanzania and Mozambique and may require Government to Government agreements.

- Waste into wealth. The Omnicane ethanol cluster is pioneering the carbon capture for industrial use venture and the association with Air Liquide, the largest world operator in this field, holds major promises for the future. Indeed, carbon capture for industrial use can be a major asset in a world framework where carbon capture and storage (CCS) becomes prominent.

- The energy plant of Omnicane requires approval in line with rules and regulations in force and taking into account its importance in the renewable sector.

- The CDM methodology has to be modified to take into account the specific needs of SIDS.

- In parallel to endeavours on biomass renewable energy, generating firm power, it is necessary to introduce solar energy in the rural areas. This would be in line with Recommendation 18 of the NEC.

- In this regard, it is recommended that the Fairtrade Cooperatives be equipped with solar farms of 0.5 to 1.0 MW, as the case may be. This may require investments at the level of the CEB. One MW can on average generate 2GWh of electricity.

- This measure would reduce overall additional CO_2 emissions, encourage the cooperatives to engage in energy activities, enhance SME activity, and maintain planters in activity through a diversification of activity and income.

- Support for such a venture would fully comply with initiatives in favour of vulnerable groups in SIDS and are expected to attract funds from donor/lender agencies.

- A thorough assessment of the possibility of using ethanol in dual fired gas turbines taking into account technical aspects and oil economics.

Land development and land abandonment

Findings

- Some issues such as administrative delays and the reasons thereof, as well as the impossibility to trade land conversion rights have been evoked in the part on stocktaking.

- The measures relating to molasses and bagasse are essentially in respect of the avoidance of the emission of additional carbon dioxide and sulphur dioxide. They also reduce risks associated with the carcinogenic poly naphthalenes found in heavy fuel oil and act as insurance against any possible risk posed by MTBE.

- Cane abandonment represents a change in use in terms in terms of the emission of carbon dioxide; a carbon sink is being replaced by bare land. Depending on the location, risks of erosion are possible.

- The aspirations of the country to attain the status of a high middle income economy and the need to generate intelligent jobs for a highly educated young population also involves a change in use of land and the elimination of a carbon sink.

- The sugar reform has entailed major costs and the compact between Government and sugar entities is that the latter be allowed to convert land to recoup costs incurred.

- Land development generates revenue for Government, firstly, prior to sale: morcellement tax, VAT on inputs, contributions to CEB and Central Water Authority; at sale: land transfer tax and registration duty and income tax; after sale: VAT on inputs. It also generates jobs and value. This has to be viewed against the backdrop of the 4 year continued recession in the building and construction sector.
- The most obvious example of advantages secured through a change in land use is the Ebene Cybercity, commenced in 2001. Some 15,000 intelligent jobs have been created over 60 hectares of land; formerly, the same extent employed 50 workers for manual agricultural tasks.
- The non-implementation of measures relating to what the MAAS termed difficult areas has been highlighted in the part devoted to stocktaking.
- The disadvantages of cane burning were highlighted in the MAAS and the EU Commission and Government agreed that limitation of cane burning be a performance indicator in the context of the Accompanying Measures.

Recommendations

- An aggressive scheme to encourage owners of abandoned land to rent their land to producers wishing to grow canes thereon; the scheme would be based on a minimal legal cadre and would be voluntary and commercially driven; this would maximise production efficiencies and reverse the fragmentation in agricultural land-holdings that has occurred;
- The cane cultivation agreements and the Fairtrade Initiative have already been mentioned as means to maintain land under cultivation and enable planters to derive a gainful income;
- Many measures described here and earlier represent potent means to limit cane abandonment and to bring back land under cultivation. Taking into account that cane abandonment can be an environmental hazard, and that measures in this regard can have social and political implications, Government should work out a bonus malus scheme to curb abandonment.
- The preparation of clear transparent guidelines in respect of land use to foster development in line with the aspirations and ambition of the country while ensuring that as much as possible agricultural land remains under cultivation;
- The possibility to trade land conversion rights so that the mix commercial/ marginal or moderate land is arrived at and the non-commercial/prime land mix is avoided;
- There is need to clarify the provisions of the SIE Act regarding the conversion of land by persons having acquired land in the context of agricultural parcelling;
- The implementation of the measures recommended in the MAAS on *difficult areas* with a commercial focus as far as possible ; this applies in particular to the South-West and South-East of the island; continued soil conservation in these areas is of paramount importance;
- In relation to cane burning, further re-grouping and mechanisation within the future industry should result in continued improvements as the industry's 2001 code of practice is enforced more widely among corporate and re-grouped farmers;

- Use of cane trash as boiler fuel will also contribute to minimise planned cane burning;
- However, action needs to be taken to severely curb those fires that lie between *accidental* and *criminal* ones.

With these measures and the existing planned activities under the MAAS 2 it is envisaged that the sugarcane industry can continue to provide a significant contribution to environmentally sustainable economic development in Mauritius.

Water availability

Findings

- Water resources are critical for the sugar industry and the future of what is termed an essential public good is dependent on the availability of this resource.
- Cane has, in the case of the holdings of small planters, moved away from the drier areas. The large planters and the corporate sector have invested in irrigation technology that is both water and energy efficient.
- Water usage per tonne of cane in sugar factories is among the lowest compared to international norms.

Recommendations

- Incentives need to be given to sugar entities to foster further water and energy efficient installations and encourage the use of computer aided equipment where there is an harmonisation between on the one hand, the water needs of the plant , and on the other hand, rain and irrigation water.
- Additionally, the industry needs to prepare itself for proposals within the Master Plan for the Development of Water Resources in Mauritius (2025-2050).

Implementation aspects

The impact and phasing in of the recommended measures can best be illustrated by the facts provided in Table 1. The period covers crop years 2015 to 2019, that is the four years when the MSS will be engaged in buying agreements with three EU based importers and 2019, the year when, in all likelihood, the full liberalisation of the sugar sector and its full integration into the economy would have been ushered in.

Table E1: Chronology of events

Items	2015 crop	2016 crop	2017 crop	2018 crop	2019 crop
New marketing agreements and additional revenue over and above a Südzucker type of contract	Yes	Yes	Yes	Yes + New negotiations for 2019 onwards and review of role of MSS	
New NOS tolerance and rules for specials				As from 2018	
Sugar based agro industry of importance				As from 2018	
COMESA/SADC exports on a large scale					Possible as from this year
Labour law revision	Yes	Applicable throughout			Full integration of sector in the economy
New planter/corporate sector agreements	Yes	Applicable throughout this period			
Fairtrade development	25, 000 t	30,000 t	35,000	40,000 t	Possibly 40,000 plus
Link between incentives and participation in schemes			As from the 2017 crop		
Cess reduction				Impact of savings felt from 2018 onwards	
Refining cost reduction				As from 2018 onwards	
New bagasse and biomass pricing	Yes	Yes	Yes	Yes	Yes
Fairtrade Initiative and solar power			Yes	Yes	Yes
SIFB financial assistance	Secured through actuarial review	New actuarial review needed on basis of a revised mandate of the SIFB and new source of revenue after comparing viability price with sugar price and all incentives			

- Up until crop 2018, the Mauritian sugar industry would have to be EU dependent with the SIFB being the fund provider of last resort. Thereafter, opportunities would be more diversified and constraints would be lesser, or lifted, and only commercial considerations would preside over the industry.

- Monitoring would have to be effected by the recommended lean, efficient and talented MCIA.

- A Mid-term Review is warranted in 2018.

Revenue streams

Table E3 at the end of this section contains a summary of revenue streams per category of producers arising from the recommendations discussed above.

Legislative Measures

The TOR of the Study requires the Consultant to propose the "*amendments to be effected to the regulatory framework governing the sugar industry to ensure that it operates with the maximum efficiency in the new commercial set up*".

This is not the first time that legislation is being enacted to establish a framework for the sugar industry. This was undertaken in 1988, following the Sugar Industry Efficiency Act; in 2001, following the Sugar Sector Strategic Plan; and in 2007, following the MAAS. In 1988, the Sugar Industry Efficiency Act in the form of an omnibus piece of legislation came into being and it was subsequently amended to follow up developments in the sugar industry.

- This legislation has on these three occasions amended various pieces of legislation and it is recommended that the same approach be adopted for the forthcoming 2015-2024 Reform Plan.

- The legislative measures are part and parcel of the overall package also comprising administrative, marketing and policy measures as well as international efforts to secure funds for the sugar industry and the country.

- Table E2 shows the amendments that have to be effected to establish the new Regulatory Framework with the objectives spelt out in the TOR.

Table E2: Recommended legislative framework

A. Institutional set up	**MCIA** a) Lean, efficient and talented organisation with mainly monitoring and arbitration roles; b) Lean five member Board; c) Establishment of an Advisory Council; d) Removal of departments and sections that are no longer called for, namely: FSC, SPMPC and MSIRI; e) Provision for cess of MCIA and MSS not to exceed 2% of ex-MSS price; f) VRS and savings clauses for rights and obligations of MCIA in particular towards its employees and the employees of the institutions taken over by the MCIA.
	MSS a) Modifications of constitutive Act once a decision is arrived on the future or otherwise of the MSS; b) Repeal of section 7 of the MCIA Act.

	SIFB a) Provision in the Sugar Insurance Fund Act for the payment of special assistance in all years where ex-MSS price is lower than the viability price (re Table E.2); b) Modification of the Sugar Insurance Fund Act in case an Actuarial Review tenders recommendations regarding a shift away from climate insurance system to either a price only insurance or a mixed price/climate insurance
B. Value addition	a) Amending the Investment Promotion Act, the Excise Act and the Income Tax Act to foster value addition, the filière approach, toll refining and the relocation of operations of the sugar based agro-industry in Mauritius; b) Introducing a tax on imported white sugar to encourage the imports of raw sugar for refining for the domestic market; **c) Adopting the SADC and COMESA phytosanitary codes with a view to facilitate the import of fruits and fruit preparations that would be needed in the context of the establishment of a robust** sugar based agro-industry in Mauritius.
C. By-products	**Bagasse and biomass** a) Amending the SIE Act in section 13 and the Sixth Schedule to provide for : i) The quid pro regarding the entitlements of IPPs should negotiations be concluded between the concerned parties; ii) The increase of the Bagasse Transfer Price to 1.5% of the overall sales price of the Central Electricity Board; b) Amending the SIE, Electricity and Investment Promotion Acts to encourage the use of biomass, in particular high biomass canes, for the production of electricity
	Molasses and ethanol: a) Amending the MCIA Act to: i) allow for the cessation of exports of molasses; ii) the setting up of a joint MCIA/Distillers Allocation Committee; b) Amending the MCIA Act in section 47 in respect of additional contribution of MUR 20 per litre by distiller-bottlers in respect of potable alcohol used for the domestic market; c) Amending the Consumer Protection (Prices and Supplies Control) Act to allow for the mandatory blending of ethanol and gasoline;

	d) Consequential amendments to the Excise Act to facilitate blending, more particularly in terms of Excise Duty concessions if needed. e) Amending the Investment Promotion Act, the Excise Act and the Income Tax Act to foster second generation products from ethanol, in particular in the medical, pharmaceutical and perfume sectors.
D. Small planters	a) Amending Sub-Part A of Part II of the SIE Act to enable the payment of dividends by the SIT to active planters and employees and for the possibility to redeem shares of the SIT; b) Amending the SIE Act and the Code Civil to facilitate voluntary cane cultivation agreements entered into by planters individually or jointly; c) Making provision in the SIE Act that as from 2017, entitlement to incentives would be conditional upon participation in schemes; d) Amending the Electricity Act to allow Fairtrade Cooperative Societies to become small independent power producers.
E. Employees	a) Amending the MCIA Act i) to provide for yearly funds for the Trade Union Modernisation Fund; ii) to limit the duration of a crop season so that the five day intercrop season is not unduly reduced; b) Amending the Employment Relations Act : i) to eliminate restrictions on the use of seasonal labour; ii) to allow the import of foreign labour for the sugar cane sector; iii) to amend section 69(6) and possible related sections to facilitate expeditious dispute resolution and avoid strike action in the sugar industry; iv) to have a single Remuneration Order for the economy.
F. Other environmental issues	a) Amending the Electricity and Investment Protection Acts to facilitate the use of natural gas in lieu of coal; b) Amending the Environment Protection Act and the Investment Protection Act to foster carbon dioxide capture; c) Amending the Environmental Protection Act to introduce a bonus /malus system to encourage owners of abandoned land to use such land or to lease it for agricultural/biomass purposes

G. Measures on land development over and above those incorporated in the Finance Bill 2015	a) Amending the SIE Act to allow for the possibility to trade land conversion rights so that the mix commercial/ marginal or moderate land is arrived at and the non-commercial/prime land mix is avoided; b) Amending the SIE Act to clarify the provisions regarding the conversion of land by persons having acquired land in the context of agricultural parcelling.

Financing Aspects

The TOR of the study requires the Consultant to provide:

"A financing plan that would justify the recourse to Accompanying Measures Support Program (AMSP) for Sugar Protocol Countries type measures and the tapping of global concessionary finance/grants dedicated to environment protection and preservation."

Over-riding factors

There are four over-riding factors regarding any request for AMSP type measures or global concessionary finance/grants.

First and foremost, is the viability of the sugar. The MAAS contained a cost curve compared to sweetener demand in the EU, which showed that it was, if all the measures of the MAAS were to be implemented, going to be a competitive exporter to the EU. This curve was a key element in the analysis of the sugar industry by fund donors.

Similarly, in Section 7, a cost curve is provided which shows that Mauritius will be a competitive exporter if the measures recommended for the second MAAS are implemented. Additionally, this time, the *filière*/branding/retail approach coupled with customer fidelity and the targeting of EU deficit regions are expected to secure a niche in the EU market for some 400,000 tonnes in a market requiring some 18 million tonnes of sweeteners. The Mauritian quantities which would have a distinct "*personality*" represent some 2.2% of the total.

Secondly, the multifunctional role of the sugar industry in Mauritius, which in broad terms can be characterised as follows:

- Vital role in the protection and preservation of the environment in an island State;
- This environmental role is a sine qua non for the tourism sector;
- Significant current contribution in ensuring a fair level of energy self-sufficiency of the country and its future enhanced contribution in a context of uncertainties on oil economics and availability, and limitations of carbon dioxide emissions;
- Sugar cane affords a great opportunity for the country to attain its goals of 35% renewable energy in electricity production in 2025 as recently specified in the 2015 Budget Speech;
- Ethanol from sugar cane, molasses or cane juice, depending on market circumstances, hold major promises in the third decade of the 21st century;

- The production of cheap electricity from sugar related units allows subsidies to be granted to the export manufacturing sector;
- The production of sugar involves minimal imported inputs and if the avoidance of imports due to an optimal use of by-products are taken into account, sugar is a major earner of foreign exchange;
- In a country beset by significant trade balance deficits and a major food import bill, due to inherent factors, the foreign earnings of the sugar industry are essential for the food procurement capacity of the country;
- Rural society stills rests to a large extent on the maintenance of the sugar activity;
- Sugar, which is a public good, has an importance which goes far beyond its assessment for purposes of the GDP.

Thirdly, the country is still burdened with the debt servicing relating to the expenditure incurred in the MAAS reform and can ill afford drastic price reductions as already experienced in 2014 and 2015. Additionally, further developments to become globally competitive require more funds.

Fourthly, Mauritius cannot, for a host of reasons, afford a demise of the sugar industry.

Accompanying Measures Support Programme (AMSP)

Regarding the AMSP, the Consultants were advised by the Ministry of International Trade that the ACP would be canvassing for assistance similar to the AMSP to make good losses to be incurred on account of the abolition of EU country sugar quotas. The below has been prepared on the assumption that negotiations are held for a second AMSP.

The preparation of the Mauritian case involves several elements:

(a) The extent of the loss incurred and compensation issues;

(b) The performance of Mauritius under the last AMSP;

Extent of loss incurred and compensation issues

When the Sugar Protocol (SP) was in existence, ACP exporters were entitled to the guaranteed price which amounted to €523.7 per tonne of raw sugar at 96° pol. The theoretical reduction in prices due to the reform process was easy to compute for the ACP over the totality of their quantities and over an agreed period of time. The overall theoretical loss was:

*price reduction percentage * guaranteed raw sugar price * SP quantities * number of years for the reform to take place*

Support to the ACP represented was equivalent to that obtained by beet producers that is some 65% of the estimated shortfall.

Cognizant that the reform meant losses in production, the EU Commission acceded to the request of Mauritius to allow the use 15% of non-originating sugars (NOS).

During the times of the Sugar Protocol, most of ACP sugar was exported as raw sugar for refining and the proportion in the case of Mauritius was 85%. After the end of the Sugar Protocol, Mauritius embarked on the production of white refined sugar whose price was determined by the EU market price for that type of sugar. Not all of the ACP moved in the same direction and most are still suppliers of raw sugar for refining.

None of the parameters used for the AMSP are relevant in the present context and new computation criteria must be devised. In this regard, the possible determination of the loss implies that the following be ascertained:

(a) The type of sugar chosen: white or raw;

(b) The baseline price to be used to compute losses per tonne of sugar;

(c) The estimated price after the abolition of EU country sugar quotas;

(d) The exporters entitled to support and the quantities concerned for computing losses;

(e) Disbursement aspects.

a) The type of sugar chosen: white or raw

The recommended approach would be to refer to white sugar equivalent (WSE), which incidentally was the term used in the Sugar Protocol, and convert all sales into WSE.

b) The baseline price to be used to compute losses per tonne of sugar

Two prices can qualify for the baseline price, the EU market price or the c.i.f. price in WSE terms received by individual ACP exporters. Based on Mauritian experience, the first option is more favourable to the ACP countries. The second one would have to reckon with the margin accruing to Südzucker, which, in the 2011 and 2012 crops amounted to €120 and €155 per tonne respectively. It should however be borne in mind that the yardstick of the EU would be different. *Pour mémoire*, Sugar Protocol prices were denominated in c.i.f. terms.

The step following the choice of the type of price is the determination of the average price. Three options crop up:

(a) The estimated average from 2009 to 2016, that is the years from the end of the Sugar Protocol until the year of the abolition of EU country sugar quotas; this option has the disadvantage of integrating the low years of 2014, 2015 and possibly 2016;

(b) The estimated average from 2010 to 2013, that is from the end of the Sugar Protocol to the year before the major drop in prices due to market oversupply;

(c) A mix of the two methods.

c) The estimated price after the abolition of EU country sugar quotas

In the context of negotiations with the EU, it is feasible to refer the EU Commission document entitled "***Prospects for EU Agricultural Markets and Income***".

d) The exporters entitled to support and the quantities concerned for computing losses

The first AMSP concerned only ACP signatories of the Sugar Protocol and not to LDC countries which exported over and above the Sugar Protocol quantities. Since the phasing out of the Sugar Protocol, the profile of suppliers to the EU has changed and new parameters and countries may have to be taken into account having due regard to the fact that the LDCs have unlimited access to the EU market.

The choice of exporters entitled to support would be used to determine the quantities that would qualify for assistance.

e) Disbursement aspects

The number of years over which the losses would be computed is a negotiated element and as in the case of the MAAS, it would be feasible that it be computed from 2017 to the end of the second MAAS that is 2024.

Front loading of assistance funds from 2017 to 2020 would be most appropriate for the Mauritian sugar industry.

f) Indicative losses

It is necessary for the Mauritian negotiators to have an order of magnitude of the losses to be incurred by Mauritius over eight years of the second MAAS as a consequence of the abolition of EU country sugar quotas.

To this end, indicative losses have been computed on the basis of the following assumptions for Mauritius:

(i) Sugar exports of 400 000 tonnes WSE, excluding NOS sugar;

(ii) Average 2010 to 2013 crop years EU market price: €630 per tonne WSE; (market price and not c.i.f.)

(iii) Average price 2017 to 2024: € 425 per tonne WSE; derived from "***Prospects for EU Agricultural Markets and Income***" 2014;

(iv) Loss per tonne WSE: € 205 188;

(v) Loss per year: € 82 million;

(vi) Loss in Rupees with one € @MUR 39: MUR 3.2 billion;

(vii) Loss over eight years: € 656 million;

(viii) Loss in Rupees over eight years: MUR 25.6 billion.

The losses are staggering to any reckoning and clearly warrant assistance.

The c.i.f. approach would lead to:

(i) Average c.i.f. price: € 517 per tonne WSE;

(ii) Losses per tonne: €92;

(iii) Loss per year: € 37 million;

(iv) Loss over 8 years: € 294 million.

The performance of Mauritius under the last AMSP

As indicated in the section on Stocktaking, the performance of Mauritius has been very good except for two items related to power plant procurement and the establishment of an ethanol framework. Draw down has attained 95% of funds earmarked.

Government has decided that the power plant which led to the loss of Accompanying Measures is not going ahead and the World Bank has been requested to conduct a study on the future power needs of the country and advise accordingly. Government has also underscored its firm commitment to open and transparent procurement procedures.

Government has vested the Ministry of Agro Industry with the mission of establishing a comprehensive framework for the mandatory blending of ethanol.

Pursuant to a decision prompted by Mauritius in the name of the ACP Sugar Protocol countries, the ACP/EU Joint Council of May 2006 in Port Moresby, Papua New Guinea, approved a concessionary line of credit for ACP Sugar Protocol countries. Mauritian sugar companies having satisfied all the conditionalities of the EIB, vested with the implementation of the financing plan, have been able to secure concessionary finance.

This MAAS and the compliance of Mauritian companies with EIB norms have been hailed in EU quarters as model for the other ACP. On the basis of past performance and the recent decisions of Government, Mauritius can claim the status of a performer that has judiciously used EU Accompanying Measures and complied with the jointly agreed key performance indices.

The future needs of the country

The TOR call for bold and innovative measures. The measures that can qualify for AMSP or Environment concessionary finance/grants comprise:

(i) A new approach towards small planters including regrouping, mechanisation and cane cultivation agreements;

(ii) The mandatory blending of ethanol and gasoline;

(iii) Energy saving at sugar factory level;

(iv) A major thrust in research including on high-cane biomass;

(v) The higher and optimal use of biomass through bringing back abandoned land under cultivation and a revision in the biomass electricity pricing system;

(vi) Solar farms at the level of Fairtrade Cooperative Societies;

(vii) The protection of what the MAAS termed "*difficult areas*".

a) A new approach towards small planters.

On average, Government grants some €10 -12 million yearly for the FORIP programme. A revised FORIP coupled with a major thrust in mechanisation would require some €20 million for years 2017 to 2020 and some €15 million thereafter, totalling some € 140M over the 8 years of the MAAS from 2017 to 2024.

So far Government was able to provide funds for the MAAS out of its receipts from the Accompanying Measures and the same funding is essential.

The risks of no funding are that there would be a lack of raw material, a lower production of renewable energy and land abandonment, which reduces carbon dioxide sequestration.

b) The mandatory blending of ethanol and gasoline.

As for the Brazilian pro-alcohol programme, subsidies are needed in the initial years of the blending. This is further warranted by the current reduction in oil prices.

- Certain taxes are raised on gasoline: Excise Duty and VAT. Incentives in this direction would assist the blending in its infant stage.
- For the first five years, starting in 2016, subsidies are expected to represent €12 million yearly or €60 million overall.

Risks of no incentives are that MTBE, with its attendant health hazards, would remain in use and the country would remain at zero level of energy self-sufficiency in the transport sector.

c) Energy saving at factory level

Significant gains can still be achieved through the reduction of the moisture content of bagasse and the reduction of steam consumption in the boiling house. Estimated expenditure amounts to €20 million.

Risks of no funding are that coal and high sulphur heavy fuel oil, high sulphur dioxide emitter and containing carcinogenic substances, will not be displaced and emissions of CO_2 and SO_2 will not be reduced.

d) Major thrust in research

Sine qua non condition for progress in the sugar and energy sectors. It is estimated that some €1million would be needed yearly over the eight years to ensure optimal results.

Risks of no funding are loss of competitiveness of sugar sector and major delays in introducing high biomass cane varieties.

e) Higher and optimal use of biomass

Two sub-components:

(i) Bringing back abandoned land to cultivation of biomass;

(ii) A new 2x50 MW power plant at Alteo.

Bringing back abandoned land is a complex and costly process as the land would have to be prepared for mechanisation and biomass cultivation. It is estimated that some €8 million would be required yearly from 2017 to 2024, totalling €64 million.

Risks of no funding are loss of carbon dioxide sinks and no displacement of coal and high sulphur heavy fuel oil.

A new 2x50 MW could be erected at FUEL, depending on the needs of the CEB and its procurement procedure. The plant would be using bagasse, biomass and coal. As this project depends on what the CEB decides, no cost estimates are provided.

The issue of biomass electricity pricing is not considered as the recommendation is for a price that would lie between the KWh price of coal and that of high sulphur heavy fuel oil.

f) Solar farms at the level of Fairtrade Cooperative Societies

This has to do with some 40 cooperative societies with the possibility of each coming up with projects of 0.5MW installed capacity. The cost estimate comes to €25 million.

Risks of no funding would mean no democratisation of energy sector, minimal progress in terms of solar renewable energy and no avoidance of coal and high sulphur heavy fuel oil.

g) Difficult Areas

Measures in favour of difficult areas were recommended in the MAAS but were never implemented. Based on the figures of the MAAS, it is estimated that some € 15 million would be needed over the life time of the project.

Risks of no funding are that significant expanses of land are open for erosion resulting in no environment protection and preservation.

Overall needs come to € 332 million, and including 10% contingencies, some € 360 million would be required.

Alternative Measures

- A review of Rules and Regulations of climate and environment based international agreements so as to facilitate access of funds to SIDS. This would avoid the failure of CTSav to secure CDM funds in spite of being, at its commissioning, the largest and most efficient biomass plant in the developing world.

- An increase in the NOS tolerance level. This would enable Mauritius to optimise its existing industrial capacity and establish a sugar based agro-industry for the benefit of all stakeholders.

Pre-requisites for the obtention of concessionary finance/grants

The MAAS in the form in which it was prepared satisfied the following criteria:

- Viability of industry;
- Environment friendliness;
- Pro-poor dimension;
- Effective enabling legislation; and
- Robust monitoring structure.

In all likelihood, the second MAAS would have to satisfy the same requirements.

- The viability aspect has already been covered earlier in this sub-Part.

- As indicated in the section on Stocktaking, there have been four major shortcomings in the implementation of the MAAS:

  (i) No scheme to foster the use of biomass;

  (ii) No ethanol framework;

  (iii) No measure in favour of difficult areas;

  (iv) No measure to contain or curb land abandonment.

- The second MAAS has numerous measures to properly and adequately address the environment issue, namely:

  (i) Several measures to increase the amount of biomass and to optimise its use for electricity production;

  (ii) The establishment of an ethanol framework as well as measures to encourage second generation projects;

  (iii) Measures to ensure the protection of the environment in difficult areas;

  (iv) A bonus/malus system to curb land abandonment as well as measures to ensure that small planters, those most abandoning land, have fair returns;

  (v) Change in land use due to developmental needs increases carbon dioxide emissions, however, the establishment of "*Smart Cities*" which would operate on a high level of energy self-sufficiency mode mitigates the impact of change in use of land.

  - The payment of cash compensation to employees having accepted an offer of voluntary retirement proceeded smoothly and expeditiously. However, the obtention of the land part of the compensation has been delayed due to administrative red tape.

Industrial relations have taken a bad turn which ended up with a strike implying the loss of 15 crushing days and posing a major threat to supplies of sugar.

The FORIP has covered a major extent of land but has not prepared the land of planters for mechanisation and this is today a shortcoming given labour unavailability. The Fairtrade Initiative has been a major success in increasing the revenue of planters and in instilling social, environmental and good governance principles.

The new MAAS in respect of employees proposes:

- The re-establishment of the Ministerial Committee overseeing the obtention of land by employees having accepted an offer of voluntary retirement;
- The choice between the voluntary retirement schemes and the workfare programme which comprises training and recycling components;
- More focused training schemes and greater responsibilities to employees;
- Dividends of the SIT from new equity ventures or increases to active employees and the possibility to redeem such shares;
- An expeditious dispute resolution system whilst fully respecting the country's ILO commitments;
- The re-establishment of fora where employees can dialogue with other stakeholders and the regulatory authority.

The new MAAS regarding planters proposes:

- The expansion of the Fairtrade Initiative to cover the maximum amount of small planters possible;

- The continuation of regrouping and mechanisation schemes albeit in a different way to ensure better mechanisation of cultural operations;
- New cultivation agreements;
- SME activities;
- Dividends of the SIT from new equity ventures or increases to active planters and the possibility to redeem such shares;
- The re-establishment of fora where employees can dialogue with other stakeholders and the regulatory authority.

The SIE Act has been constantly updated to reflect changes in the industry landscape. The proposals of the new MAAS will be translated into the SIE and other relevant Acts as specified in the sub-part on legislative amendments.

The numerous schemes, projects and reforms in the sugar industry were successfully implemented by the MSA which had operational and remuneration flexibility as well as talent. The MSA was pro-active and covered domains well beyond sugar, such as energy, international trade and land development. The MCIA which has replaced the MSA has much less flexibility and is introvert in its approach and is no longer active in domains outside sugar.

The new MAAS proposes a re-vitalised MCIA with a lean Board, an Advisory Council, optimal flexibility and the shedding off of many activities so that it can focus on its mission that is to steer the sugar industry in times of very rough seas to safe shores.

Concluding Remarks

- The measures recommended and their impacts have to be viewed in two stages. Firstly, the price gap between revenue obtained and the viability price without any special assistance from the SIFB; and, secondly, the gap after taking into account proceeds from the SIFB.
- The measures recommended for the industry have the potential to ensure its continued competitiveness but have to be implemented as from now on.
- Finally, the measures, including those relating to the SIFB, have to be implemented as a whole.

Table E3: Revenue stream per producer category for 2015 to 2018 period

	Millers	Corporate planters, including SIT, Rose Belle and SLDC	Medium to large planters	Small planters	Fairtrade planters
REVENUE ITEMS					
New marketing agreements between MSS and three EU buyers (a)	At least €30 per tonne of sugar	At least €30 per tonne of sugar	At least €30 per tonne of sugar	At least €30 per tonne of sugar	At least €30 per tonne of sugar
Currency harmonisation (b)	1% harmonisation amounts to MUR200 per tonne of sugar	1% harmonisation amounts to MUR200 per tonne of sugar	1% harmonisation amounts to MUR200 per tonne of sugar	1% harmonisation amounts to MUR200 per tonne of sugar	1% harmonisation amounts to MUR200 per tonne of sugar
Additional revenue from molasses	Not applicable (NA)	Yes but depends on world market for ethanol and MUR 270 per tonne sugar due to additional distiller-bottlers contribution	Yes but depends on world market for ethanol and MUR 270 per tonne sugar due to additional distiller-bottlers contribution	Yes but depends on world market for ethanol and MUR 270 per tonne sugar due to additional distiller-bottlers contribution	Yes but depends on world market for ethanol and MUR 270 per tonne sugar due to additional distiller-bottlers contribution
Shift of IPP bagasse transfer price to small planters	NA	NA	NA	MUR450 to 500 per tonne of sugar	MUR450 to 500 per tonne of sugar
Increase of bagasse transfer price to represent 1.5% of sales value of CEB	NA	MUR400 per tonne of sugar	MUR475 per tonne of sugar	MUR475 per tonne of sugar	MUR475 per tonne of sugar
Part of dividends of SIT paid in the ratio of 50% to active planters	NA	NA	NA	MUR7.15 per tonne of sugar for every MUR1 million dividends payable	MUR7.15 per tonne of sugar for every MUR1 million dividends payable
Fairtrade revenue	NA	NA	NA	NA	MUR2,340 per tonne of sugar
Increase of NOS tolerance and sugar based agro industry	Possible additional revenue	Possible additional revenue	Possible additional revenue	Possible additional revenue	Possible additional revenue
Cane cultivation agreements and planters mechanisation scheme	NA	NA	Lower costs and higher yields meaning higher take-home revenue	Lower costs and higher yields meaning higher take-home revenue	Lower costs and higher yields meaning higher take-home revenue
Baseline outcome and viability price					
MSS base price plus (a) and (b) MUR per tonne	P+a+b	P+a+b	P+a+b	P+a+b	P+a+b
Viability price MUR per tonne	V	V	V	V	V
Shortfall (V-(P+a+b)) MUR per tonne	S	S	S	S	S
SIFB special assistance in addition to premium waiver = SA	SA less than or equal to S as stipulated by Actuarial Consultant	SA less than or equal to S as stipulated by Actuarial Consultant	SA less than or equal to S as stipulated by Actuarial Consultant	SA less than or equal to S as stipulated by Actuarial Consultant	SA less than or equal to S as stipulated by Actuarial Consultant