

## PART II – POLICY ISSUES

### THE IMPORTANCE OF SPECIAL TRADING ARRANGEMENTS IN THE PROMOTION OF GROWTH AND STABILITY IN DEVELOPING COUNTRIES

*Address of Dr the Hon. Arvid Boolell, ACP Ministerial Spokesman on Sugar and Minister of Agriculture, Fisheries and Cooperatives*

Excellencies,

Ladies and Gentlemen,

It is indeed a great pleasure for me to have this opportunity to address this conference on an issue which is so vital not only for my country but also for a significant number of ACP countries signatory to the ACP Sugar Protocol.

Allow me, however, before proceeding further to express my sincere thanks to the Government and People of Fiji for their warm welcome and the excellent facilities put at our disposal to conduct deliberations. My thanks also go to the FAO who has agreed to co-sponsor this important reflection on the importance of sugar in the World economy.

Before I focus on the ACP-EU Sugar Protocol, I shall like to preface my presentation on the complexities of the emerging international environment that is shaping the new global trading system. We are by now all too familiar with the two concurrent processes that have taken place since the late eighties and which have provoked a complete paradigm-shift in our appreciation of the new international order.

The first one is, of course, a political phenomenon. I am referring here to the decline of Communism, the end of the East/West rivalry, the end of the Cold War and henceforth the declining importance of geostrategic considerations as the prime determinant of foreign policy. The histrionics of this process are of no concern to us here but for the corollary benefits we were made to believe would result therefrom. More particularly, this revolution was supposed to usher in an era of greater international security in terms of stalling the arms struggle and yielding a peace dividend whereby liberated resources would go towards development efforts. Likewise, the retreat of the ideological differences led to the convergence of political values in regard to respect for human rights, democracy, good governance and the rule of law. Almost all of us acquiesce to the virtues of such a vision and have repeated our attachment to such principles. But when we proclaim the need to sustain such a vision for the whole world but note simultaneously strong contradictory undercurrents in the world economy that work against such a vision, we have cause for concern on the coherence of such a discourse. We shall come later on to the importance of special trading arrangements and more particularly the Sugar Protocol in enhancing such principles and objectives.

The second process relates to globalisation and liberalisation which has been raised to the status of a new religion which holds the promise of salvation.

It is undeniable that liberalisation of trade and capital, technological innovations, the internationalisation of production along with the unprecedented revolution in information and communications technology have led to a more rapid integration of the economies of the developed world. Unfortunately, developing countries are faced with serious risks of marginalisation and social disruption. The WTO itself has acknowledged this dimension and the Singapore Ministerial Declaration has indeed adopted provisions to address this issue (and we are awaiting the implementation thereof). Likewise the conclusion of the Uruguay Round of Multilateral Trade Negotiations and the advent of the WTO on the world scene are engineering a new global economic system that is driven more by economic than political and socio-cultural considerations.

It would be pointless not to realise and take cognizance of such fundamental changes in the international economic system. It would also be pointless to deny the need for a rule-based trading order where unilateral and discriminatory actions could not hold sway. However, may I point out that rules are established by Governments and can, if they generate poverty and frustration, be modified by Governments. But this is only where agreement ends. When one tries to erect globalisation and liberalisation as universal absolutes independent of field realities at the level of countries and economies, we feel that such an approach is pregnant with intractable dangers that could compromise equity and fairness in the field of economic development.

Thus it is argued in some quarters that the forces of globalisation and liberalisation would create new opportunities which would benefit the entire human community in developed and developing countries alike. But the problems facing developing countries are so immense that, I am afraid, one can only view the so-called long-term universal gains as a "mirage".

The international community must therefore appreciate that a uniform approach cannot be in the interest of one and all. Timely words of caution were echoed in the recent declaration of the Director-General of UNCTAD in the recent plenary of the ECOSOC meeting in Geneva when he argued that the world economy was polarising rather than converging, that the resulting inequality could trigger a backlash, thus jeopardising the benefits of recent economic reforms and further marginalising the poor.

It is therefore, important to acknowledge, as I have emphasised time and again in my addresses to different audiences, that unbridled trade liberalization and the absolute reign of free market precepts are not a panacea to the problems of underdevelopment nor a solution to the disjunctures of the global trading system but would result in serious disruptions of the socio-economic fabric of our societies. Even more so, if one agrees that international security is contingent upon economic security, it is crucial to stall the disturbing trend towards the marginalisation of a large fraction of humanity.

It is crystal clear, therefore, that a novel approach is needed that takes account of the fact that there is no level playing field and that an indiscriminate application of global trading rules will be counter-productive. We, therefore, argue for a more realistic approach that will avoid the perversion for free trade absolutism. In this regard any examination of preferential trade accords should take into account the following elements:

- (a) the fragility and vulnerability of small economies, particularly of small island states and landlocked countries;
- (b) the development status of developing economies;
- (c) the historical facts regarding the genesis of commodity and sometimes single-commodity dependent countries;
- (d) the fact that numerous attempts to cultivate crops other than sugarcane on a commercial basis have failed and thus prevented effective agricultural diversification;
- (e) the exigencies of local markets and the constraints of distance that increase freight costs; and
- (f) the technological gap that has been sustained over time by an unfair international division of labour.

In such circumstances our request for special and differential treatment in the form of preferential trade accords vital for sustaining growth and stability in our countries is justified and warranted.

It is not my intention here to make a detailed plea for all special trading arrangements nor is it within my competence to attempt such a discourse. I shall therefore leave my call on that score to the general philosophical principles I have elaborated above. Instead, I shall now draw your attention to one such special arrangement which is of special importance to my country and to other ACP States, namely the ACP-EU Sugar Protocol which is of indefinite duration i.e. of a permanent nature.

Ladies and Gentlemen,

Let me now turn more specifically to the ACP-EU Sugar Protocol. The Sugar Protocol has been hailed as a unique instrument that combines developmental and commercial concerns between countries of the North, the EU on one side and the ACP countries signatory to the Protocol on the other. The Sugar Protocol was negotiated in distinct historical circumstances.

First, the accession of Great Britain to the European Economic Community included the need to devise a mechanism to take on board the interests of the developing countries of the Commonwealth sugar exporters. The Commonwealth states that were parties to the Commonwealth Sugar Agreement had guarantee of access to the UK market to supply the UK raw cane sugar refineries that on their part needed stable supplies. The Protocol also encompassed other ACP States which were not colonies of the UK and were supplying sugar to France.

Second, at the time of negotiating the Sugar Protocol, the prices of sugar had shot up to reach around 425 a tonne. When we were signing the Protocol, the world price had increased to some 625 a tonne. The Community and Commonwealth prices were much below that level and the prices negotiated on an annual basis were also below that level.

Indeed, the sugar market is of a highly speculative nature. It should be recalled that the world sugar market is a residual one. Only 20 percent of production is open to world market transactions and subject to very frequent fluctuations. Indeed numerous studies have demonstrated that sugar is by far the most volatile commodity.

Nonetheless, despite a favourable international conjecture the ACP states decided to take definite commitments to supply agreed quantities, more precisely 1.3 million tonnes. The Community convened to import from us those quantities at guaranteed prices but more importantly for an indefinite period. This guarantee of duration is vital to our countries which as I have explained earlier suffered from the hardship brought about by "free" trade. The ACP States agreed to forego lucrative export earnings because they thought of the long term perspective and the need for stability of earnings so important for the sustained and meaningful development of their economies.

It was in these circumstances that we signed in 1975 the Sugar Protocol which provided for a triple guarantee to ACP supplying states:

- Guarantee of access
- Guarantee of price
- Guarantee of an indefinite duration

It is imperative to note that the implementation of the Protocol has worked to the advantage of both parties and that there is no internal criticism against the Protocol as a mutually beneficial instrument. The Signatory ACP States have honoured their obligations at all times and even when there were shortfalls in supply from one country, the Protocol allows for complementing these shortfalls from the other supplying states. The Protocol has, therefore, never proved to be dysfunctional and has stood the test time.

Ladies and Gentlemen,

As you are aware, over the last ten years the EU has adopted in respect of sugar a restrictive price policy. You will appreciate that in our case the real take-home prices are further eroded by international inflation. According to the OECD, the index of producer prices for manufactured goods has increased by some 28.9 percent over the 1986-1994 period.

It must be borne in mind that the ACP Sugar Supplying States are not producers of chemical inputs; of fertilizers and pesticides; nor of agricultural and factory equipment and implements. These have to be imported. In comparison, many other sugar producing countries even in the developing world are more or less self-sufficient in terms of such inputs and equipment. In addition, the size and scale of their industry enable them, whenever they effect a procurement exercise, to benefit from discounts associated with bulk purchases.

Compounded to the erosion of the real prices the ACP are burdened by every increasing ocean and inland freight costs which on an average represent 15 percent of the negotiated price.

When we are experiencing such problems, we are indeed concerned to note the pressures that seek to question the validity of such trading arrangements. No doubt this approach ignores historical circumstances that led to their genesis, the undeniable functionality of these arrangements and their vital importance for the sustainable development of their stakeholders. Allow me here to briefly comment on the difference between our case and that of some of the adepts of free trade dogmatism. Our countries are fragile economies relying heavily on sugar cane which in addition is best suited to our conditions. In others:

- (a) vast expanses of land exist where they can develop their cane industry and optimise economies of scale;
- (b) sugar is but one of the agricultural commodities produced and traded and is by no means the most important one; and
- (c) mineral resources, gas/oil are to be found.

Our countries are not endowed with such natural advantages; instead they have their own specificities which must be taken into account when any comparison is made.

It is vital for me to indicate the importance of the Sugar Protocol in the development and survival of the ACP Sugar Supplying States. For it is precisely of survival that we are talking here when we realise the stock of human suffering, the regression in development efforts and the social and political chaos that the absence of special arrangements like the Sugar Protocol may entail.

In the case of ACP countries, the Sugar Protocol has been distinctly instrumental to socio-economic development and has in no small measure not only contributed to social harmony but upheld the principles of democracy, good governance and the rule of law. The contribution of the sugar industry to the social dimension cannot be understated. In the first instance, it has through revenue derived by Government enabled the establishment of strengthening of the system of social benefits. It has also ensured that funds, though not to the required level, were available for the essential investments in education and health. In developing countries, social benefits are by no means a privilege but mainly a source of income to the vulnerable so as to enable them to break the

shackles of dire private. Secondly, the sugar companies also participate in the social fields, through the provision of fringe benefits to the workers and the active amenities including housing estates and even in certain countries the establishment of educational institutions.

The vital role of the sugar industry in ACP Sugar Supplying States is evidenced by its contribution to nation building and development. The following relevant data underpins the prime role of the industry in ACP economies:

- (i) **Employment:** About 250 000 people are directly employed in ACP sugar industries. For example, 35 percent of the active population in Swaziland, 23 percent in Mauritius and over 12 percent in Fiji. The indirect employment which results from the industries backward and forward linkages and which are spread throughout these countries, is considerable;
- (ii) **Export Earnings:** Earnings from sugar account for a major proportion of total agricultural exports in many ACP countries (for example 95 percent in the case of Barbados; 79 percent for Fiji and 74 percent for Swaziland);
- (iii) **Contribution to Gross Domestic Product:** Sugar revenue is a vital contributor to ACP economies. In St Kitts it represents 60 percent, in Guyana 30 percent and in Swaziland 23 percent.
- (iv) **Social Impact:** The ACP industries play an important role in the provision of education and health services. In addition, housing and essential training in engineering and agricultural skills are also provided to the rural population employed by the industry. In most ACP countries the sugar industry had helped fix the rural population in a productive activity and prevented mass migration to the cities.

The above facts unambiguously show the link between the Protocol and development efforts as well as its importance in fostering the values of good international citizenship. While making our case, we, however, would like to dispel immediately any doubts that the ACP Sugar Supplying States want to bask in the comfortable complacency of immobilism and conservatism. We are the first to recognise that we would be doing a disservice to ourselves if that would be the case.

All of us have embarked on modernisation programmes which would enable:

- (i) cost reduction;
- (ii) the installation of modern, more efficient and larger-sized equipment which are geared towards energy saving and energy generation;
- (iii) the enhancement of the environment friendliness of the cane plant and of the sugar industry;
- (iv) the improvement of health and safety conditions through the installation or use of "worker friendly" equipment.

You would note our concern regarding the social and environmental aspects. In our factory modernisation programme the emphasis is on the optimal use of bagasse of energy generation so as to avoid the use of fossil fuels and more importantly to avoid the emission of greenhouse gases. In 2001, in Mauritius, use of bagasse will reduce coal imports by 250 000 tonnes and imply the avoidance of emission of some 675 000 tonnes of carbon dioxide. In this regard, I would like to refer you to the very first preambular paragraph of the Marrakech Agreement establishing the WTO:

*"Recognizing that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily going volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing for the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner*

*consistent with their respective needs and concerns at different levels of economic development,"*

The aim of the WTO is to improve the well being of people and not to pursue economic objectives for their own sake. This concern for standard of living and the environment is at the centre of our development strategy for the sugar industry. The fulfilment of such a strategy rests on the guarantee of stable levels of export earnings which only our preferential trade accords in sugar provide.

The emphasis on stable and sustained export earnings is precisely related to the efforts we have already undertaken to modernise our industries, to improve efficiency and competitiveness on the one hand and to enable genuine diversification to the extent possible on the other. The maintenance of such special arrangements will provide the necessary resources to enhance our global competitiveness and ensure our smooth integration in the world economy. Our economies are in a transitional stage that will need a longer lead time to enable them to compete on the level playing field. Many of our economies are presently under the grips of painful structural adjustment programmes while yet others are in the process of undertaking radical political and constitutional reforms to restructure their political systems. It would not be in the interests of the international community to compromise such efforts and jeopardise the results obtained so far.

In conclusion, therefore, I should stress that the ACP-EU Sugar Protocol should be understood in the context of the historical and economic realities which justified its existence more than twenty years ago. From the sixteenth century to the nineteenth century, millions of slaves and indentured labourers were brought from Africa, India and China to turn rock into white gold sugar. In some countries cotton was grown, in ours sugar best adapted to our ecosystem was developed.

Let us not forget the misery we endured in the 19<sup>th</sup> century when trade was made "free." Small countries beset by frequent cyclones and burdened by freight had to compete with giants with huge internal markets. Let alone education and social amenities, we were not even able to cope with regular epidemics which decimated our population by thousands. This is our experience of free trade, it meant for us the bondage of poverty and misery. Similarly, we bore the full brunt of the depression of the thirties. Light came at the end of the tunnel in 1951 when the Commonwealth Sugar Agreement was concluded. We should avoid the facile view that looks at this preferential trading arrangement from the narrow lenses of newly coined and superimposed concepts.

I thank you for your attention.

## THE WORLD SUGAR MARKET AND REFORM

*Prepared by Mr A.C. Hannah, Chief Economist, ISO for the Sugar and Beverages Group, Commodities and Trade Division. Tables and charts have been left out due to space limitation.*

### INTRODUCTION - THE MARKETS

While it is commonly perceived that the current world sugar market is more stable than it was the extent to which it has changed is not always appreciated. *Chart 1* shows the world raw sugar price from 1970 to 1996. It is clear that from 1988 the annual variation has been much less than the previous two decades, although the averages are rather similar: 11.22

cents/lb. for 1988 - 1996; 10.45 cents/lb. from 1979 to 1986; and 11.37 cents from 1970 to 1978. But if we look at deviations from the mean, the turnaround is even more dramatic. *Chart 2* shows deviations from the mean; expressed in percentages of the average, from 1922 to 1996. The percentage deviation from the mean from 1988 to 1996 was only 13.1 percent. Contrast this with 1979-86 at 52.3 percent, 1970-78 at 53.7 percent and 1961-69 at 47.8 percent. The deviations are less in the latest decade by a factor of 4. You have to go back 40 years to the immediate post-war period, 1952-1960, when there were two effective back-to-back ISAs (1953 and 1958) to find a comparable period of stability (13.2 percent) but it was also a special case - from the depression up to the war raw sugar prices were uniformly depressed, averaging just 1 cent/lb. from 1931 to 1939. But the decade 1922-30 also exhibited the "traditional" high variation at 29 percent. So, except for two decades of special circumstances - effective ISAs and depressed prices - sugar prices were, up to 1987, exceptionally volatile since 1922.

What has happened to change the characteristics of the sugar price formation process so dramatically? The answer lies in the change in the average price elasticity facing the market. In the 1970s and up to the early 1980s the import market was dominated by developed countries - largely US, Japan and Canada - which characteristically have very low or even zero price elasticities - that is, a change in the price does not produce a concomitant change in imports or consumption. In practical terms, when prices rose sharply in 1974 and 1980 these countries did not reduce the level of their imports, providing further impetus to the price rises and explaining why prices reached such unprecedented levels in those years. Why this lack of reaction? First and foremost, they are high income countries and sugar consumption represents only a tiny proportion of disposable income. Secondly, in both US and Japan 85 percent of sugar is used in products (dominated at that time by soft drinks) and the corporate buyers were more concerned about preserving market share for their products than they were about the price they paid for the raw material. In the 1970s the high income developed countries accounted for more than two thirds of the import market (*Chart 3*). By 1996 this situation had become almost reversed: the relative share of developing countries was almost 60 percent of the market (*Chart 3*).

Two reasons can be cited for this reversal: 1) The exceptionally high prices of 1974/75 led to the development of the HFCS industry in the US and to a lesser extent, Japan. This process was reinforced by the 1980 sugar price boom. US and Japan sugar consumption and imports were displaced by the growth in HFCS consumption. US net imports fell from 5 million tonnes in 1974 to 3 million tonnes in 1980 and to only 690 thousand tonnes in 1987. Japanese imports fell from 3.34 million tonnes in 1974 to 1.78 million tonnes by 1987. In absolute terms developed country imports fell from 14.229 million tonnes in 1974 to 12.788 million tonnes in 1980 and to 9.577 million tonnes in 1987. 2) At the same time developing country imports grew, triggered by the first oil price shock in 1973 and led by oil exporting sugar importing countries. The second oil price shock of 1980 reinforced this trend, and after 1981 sugar prices fell and developed country imports also fell so that the proportion of the market taken up by developing countries continued to grow (*Chart 3*).

The consequence of this gradual but inexorable change in the structure of the import market was that by the late 1980s the market was dominated by developing countries with, on average, higher price elasticities. Consequently, when prices rose, less was purchased, and vice versa, so that prices became, as we have seen, much more stable; in the average range of 9 to 13 cents/lb.

It might be wondered why I place so much importance on the achievement of reasonable price stability by the sugar market. The reason is simple: the massive price instability so characteristic of the sugar market in the past made rational planning in the industry

impossible and further contributed to instability. Sugar is a special agricultural product. It is highly capital intensive because it requires mills and factories for final processing. The capital intensity means that long-term planning is essential. This situation is exacerbated because sugar cane (accounting currently for 70 percent of world sugar production) is a multi-year crop, typically 5 to 7 years. It is therefore extremely difficult to match production with price conditions and there is an in-built tendency to overproduce, driving prices downwards in surplus years.

Therefore the attainment of stability, from 1988, has been a very important and historic development, making forward planning and coordination of supply and demand much easier, and contributing further to stability. This new found stability should not be compromised in any way.

There is another cogent reason why the new found stability of the sugar market should be maintained. Since the price booms of 1974 and 1980 sugar has had to live with a direct competitor - HFCS. And, HFCS substitutes for sugar directly in its most dynamic use sector, soft drinks. In the US, where HFCS has developed most, the cost of production of HFCS is currently estimated at between 8 and 12 cents/lb., depending on the age of the capital stock. So the present "cap" on world sugar prices at around 15 cents/lb. is vitally important. If prices were sustained above 15 cents/lb. for a long period, the scale of investment seen in HFCS after 1974 and 1980 would be in danger of being repeated, on a world scale, leading to a shrinking of the market for sugar at the same time as sugar production increased in response to the higher prices; leading inevitably to very low prices and a return to the historical instability sugar suffered before the established itself in 1988.

#### REFORM - ITS EFFECTS AND ITS LIMITS

When the Uruguay Round began in 1987 some arguments were made to show that the sugar sector, in particular, was in need of reform. I will discuss three of them.

a) **The sugar sector is distorted by protection, causing price instability and leading to dumping.** According to this argument, the removal of protection would induce stability into the sugar market. It is universally agreed that the Uruguay Round did practically nothing to change the sugar market. Although tariffication was achieved, the initial levels were set too high to achieve any meaningful reduction in protection. Yet, as I have argued in the first section of this article, the market **has** become radically more stable since 1988, irrespective of the GATT process. Furthermore, the process of stabilization was greatly aided by protectionism!

The imposition of import quotas by the US in 1981 was pure protectionism, making sure that the adjustment required by the rise of HFCS consumption and the fall in sugar consumption fell entirely on imports and not on domestic production. But, as we have seen, the decline in US imports was important in the attainment of the "new" stability seen since 1988. This is not an argument in favour of protection. It would have been much better for sugar had the 1974 and 1980 price booms not occurred, HFCS consumption not grown and US import quotas not been deemed necessary. But I am suggesting that arguments for reform should be well based and logical, taking into account the facts of the evolution of, and the complexity of, the sugar market.

b) **Since the world sugar market is a dumping market, the removal of protection would significantly raise**

**prices.** Price rises of 15 to 20 percent were promised by academic studies supporting the reform process. These studies betrayed an ignorance of the mechanics of the world sugar economy. Significant price rises would have two effects: (i) production and exports would rise (ii) investment in HFCS would be encouraged. The result, after 2 or 3 years, would be a shrinking market, oversupply, and prices lower than before the reform process started.

- c) **The consumer pays for protection and does not like it.** The first point is undoubtedly true in the US, EU and Japan. But for the final consumer of sugar, consumption is such a tiny part of disposable income that he or she is completely indifferent. It is the user, the big corporate buyers, that do not like it. And the public is cynical enough to know that they will not see 1 cent off a Mars bar or a can of coke if the users get their raw material at a lower price. The public is just not exercised about the cost of protection for sugar, which takes a lot of force out of the argument.

As mentioned before, it is universally agreed that the Uruguay Round did nothing to change the situation for sugar. I believe that this is a rather harsh judgement. It is true that the US avoided reform through a semantic trick (operating the quota system through very high and very low tariffs) and that Japan set very high initial tariffs, but it seems to me that the replacement of the variable levy of the EU by a reducible tariff was an immense breakthrough for the long term future. Over a **suitably lengthy** period of time it could lead to the removal of the EU from the export market.

The second round of GATT/WTO will begin in 1999 and it is said that sugar, having achieved little in the first round, will be targeted. This worries me greatly, since when politics and dogma take over a complex and delicate market, its stability can be compromised. We are all aware of the cautionary tale of BSE in the UK.

In the early 1980s politicians in the UK decided that regulations governing animal feeds were unnecessary and swept them away. Unscrupulous feed manufacturers introduced diseased animals into the food chain and the result was an upsurge of mad cow disease. Now the UK beef industry is in chaos. I don't of course suggest an exact parallel in the case of sugar, only that the consequences of reform should be studied and thought carefully about and nothing done to upset the balance of the market. Completely free markets sometimes have perverse consequences.

There are good arguments for maintaining **diversity of supply** for the world sugar market. A market which moves in the direction of being supplied mainly by three or four exporters is in danger of becoming too dependent. Sugar is particularly vulnerable to weather conditions - hurricanes and drought and now El Niño - and if a major supplier is affected and other suppliers have been suppressed by reform, there is the possibility that prices will be forced up into the danger zone above 15 cents/lb. where further substitution by HFCS could occur. Inevitably, a broad spectrum of suppliers will have a wide range of costs of production and some will be more dependent on preferential markets, like the ACP countries which also have legitimate socio-economic factors to take into consideration. But that is the market mechanism we have inherited, and it works, and it would be foolish to sacrifice stability to the good of low cost of production.

Currently, as well, there is room for all in the market. From 1982 until 1994 the market stagnated, averaging around 24 million tonnes. Then in 1995 the market rose by 4 million tonnes (17 percent) to 28 million tonnes. Preliminary figures for 1996 show that this improvement has been maintained. The growth has occurred largely through declines in production in some Asian countries, notably Indonesia and Philippines, and their situation is unlikely to improve dramatically in the next few years, so that there is every likelihood

that a market of 28 million tonnes will be maintained. While remembering to thank India for not exporting its surplus,<sup>1</sup> exporters should note that the current market is adequately but not over supplied, and that prices are reasonable for efficient producers. A stable market is a well supplied market. World net exports from 1982 to 1996 are shown in Chart 4.

There is another area that should not be neglected in the next WTO Round - the interests of developing importing countries. Sugar, because it has an industrial as well as an agricultural aspect, is a very useful engine of development, and sugar industries have been developed in many developing countries precisely to aid in development. In most cases these industries have a higher cost of production than the efficient exporters, and use border protection to allow their industries to survive in the face of cheaper imports. In many cases these countries have, under the current WTO Agreement, reduced the tariff on sugar to the minimum required to protect their industries. An example in Egypt. Egypt, has a well developed sugar industry producing about 1.1 million tonnes of sugar, mostly cane. The rest of its consumption requirements, around 750-800,000 tonnes are imported. Egypt has entered at Marrakech a bound tariff rate of 20 percent ad *valorem*, the absolute minimum required to protect the domestic industry. Any reduction would jeopardise the future of the domestic industry. The question has to be asked, do Egyptian farmers have to be bankrupted in order to make Australian, Brazilian and Thai farmers richer? Arguments for reform based purely on efficiency and consumer welfare suggest they do. But surely governments have a sovereign and a legitimate right to protect an industry that has an important role in their development and, if that industry fails, for which they would have to bear the social costs. Table 1 shows that many developing importing countries have substantial sugar industries, and in some cases policies aiming at self-sufficiency in order to save on valuable foreign exchange. In 1995, developing importing countries produced 19 million tonnes of sugar (16.2 percent of world production). If a substantial part of this production was put at risk by radical reform the efficient exporters would not be able to respond quickly with higher production, world prices would rise substantially and the world sugar market would be in the danger zone for HFCS substitution.<sup>2</sup>

There is another, overlapping, area where radical reform could have counterproductive consequences. According to Landell Mills, the average world cost of production for beet is 70 percent higher than for cane (*Chart 5*). If these figures are accurate, and they come from an authoritative source, little or no beet production could survive without protection. In 1995 world beet production was 35.9 million tonnes, 30.7 percent of

<sup>1</sup> Exporter critics of market regulation should note that India operated a de facto buffer stocks scheme after their massive 1995/96 surplus. The fact the surplus was essentially locked up in India meant that world prices did not fall below 10 cents/lb. (9 cents/lb. in real, 1990 terms) in spite of a world surplus in 1995/96 in excess of 5 mln tonnes. It may be noted that this is the third time in the last decade that exporters have had occasion to be grateful to the Indian sugar cycle. In the period 1984-87 India imported at total 4,165 million tonnes of sugar, not only absorbing a large part of the surplus stocks of the time but also helping to raise the world price from the average of 4.06 cents/lb. in 1985 to 10.20 cents/lb. in 1988. And, again, in 1994, after a world surplus production year, India imported 2.65 million tonnes at a time when the market was shrinking from the effects of the break up of the Soviet Union, helping significantly in maintaining an average price in excess of 12 cents/lb.

<sup>2</sup> Realistically, there are limits to further expansion in the "efficient" exporters (Australia, Brazil, Thailand). Without a major investment programme, the limit for the 3 countries taken together is around 5 million tonnes, and this would take some years to come on stream. During this period sugar would be in short supply and prices high, and HFCS substitution would occur.

total world production. Again, and obviously, it would be beyond the limits of exporters to replace this quantity of production.

**So the question becomes, not that protection could or should be removed, but by how much and how fast, without damaging the structure of the world sugar economy.**

#### CONCLUSION

To sum up the arguments of the previous section:

1) Protection is an integral part of the world sugar economy affecting a substantial part of world sugar production:

beet production	30.9	
preferential exports	2.275	
cane production in importers		15.675
	-----	
	48.85	
share of world production	41.75%	
(million tonnes raw value - 1995)		

2) Further expansion in efficient exporters is limited, perhaps to 5 million tonnes.

3) Developing importing countries have sugar industries which contribute to development, but which require protection. If social costs are taken into account, these countries have good arguments to preserve and even expand their industries.

4) The level and pace of reform should take account of the above 3 qualifications.

The impression may have been given that I am against reform. Far from it; I support the reform process as long as it does prejudice the "new" stability of the market and so long as all costs, including social costs, are taken into account. The world sugar economy is very delicately balanced, and it would be counterproductive to make reforms which in the medium term diminish the size of the market for sugar and depress prices.

My suggestion is that the breakthrough of the tariffication of the first round is built upon in further phased reductions, where feasible and justified, leaving adequate time for adjustments by the producing countries whose protection will be reduced and adequate time for suppliers to take compensating steps to fill the gap. The limits for expansion in exporting countries should be examined and this would represent a guide to the overall limit on the timing and end result of the reform.

#### A TRADE VIEW OF THE FUTURE OF SUGAR IN THE REGION

*Prepared by Mr Geoff Mitchell, Tate & Lyle Bundaberg Ltd Australia for the Sugar and Beverages Group, Commodities and Trade Division.*

Mr Chairman, Delegates

Before addressing my topic today, I must firstly seek your indulgence in a matter of definition. I have been asked to give a "trade" view but I make no claim to be a trader in the usual sense of the word.

This has been particularly so since I once heard a "trader" defined as someone who would sell you out in just one heartbeat. I am sure that was quite unfair but anyway, in other respects at least, I am not qualified to present a trade house view.

Rather my experience has been in the operational management of cane growing, milling, refining and distilling enterprises. This has been extended to include some direct knowledge of the global sweetener business as a result of being part of the Tate & Lyle Group. I have also been fortunate to have held Board positions in Australia with

responsibilities in the areas of sugar industry marketing, regulation and organisation.

Thus by definition I guess I could be described as a sugar businessman and the "Trade View" I have is from that business perspective.

What then is the future for the business of sugar in this Asia Pacific region?

Business and trade is about creating productive wealth and the potential for growth must feature largely in that. From that perspective then I can turn the question around into the statement that even global sugar's future is, in fact, this Asia Pacific region.

Clearly that observation derives from demographics. Asia has the people and the population growth. It also, in general, is building from a low per capita sugar consumption base as its economies develop. Together these factors add up to demand potential in the region - and a demand potential that is unique in a global sense.

This would seem to be an attractive scenario for those in the sugar business in Asia Pacific. At the very least it is a scenario which should be conducive to investment, development and expansion.

And indeed there is recent evidence of this. The two large regional producer/exporters Australia and Thailand have shown remarkable growth. Both have been increasing production and exports at rates of the order of five percent per annum.

But this situation is not characteristic of other sugar producing countries in Asia Pacific. For the most part production is either static or declining. We can observe this in the semi circle around the Pacific from Hawaii through Japan, China, Taiwan Province of China, Philippines, Malaysia, New Guinea and ultimately to this conference venue of Fiji. Even in that cradle of the cane sugar industry, Indonesia, production has been under pressure although it should increase with new investment outside Java.

There is a conundrum here. The expanders, Thailand and Australia, are also the industries most exposed to low world market prices. The other regional producers are static despite receiving income from a complex mix of domestic and international support mechanisms.

This is also the business conundrum in seeking to form a view of the future of sugar in this region .

Is there a factor "X" in sugar which can make it distinctively a different business?

By any trade definition sugar, raw or white, is clearly a commodity. But it is a commodity which has quite dramatically different values in different markets.

In the international free market which functions as a residual market a tonne of sugar commands about US\$ 300. It has a similar value in Australia.

But in the USA and throughout much of Asia Pacific it has a value around US\$ 500. In Europe the price is incongruously higher again at US\$ 700 and in Japan up yet another order of magnitude to US\$ 1000.

The factor "X" in the sugar business is agricultural politics. Further there are arguments which I will canvas later, why the commodity sugar is the most susceptible to government intervention and has the greatest immunity to reform.

Given that sugar remains the most political of all agricultural commodities, intervention factors outside supply, demand and cost can dictate a future which defies normal business analysis. However I will try to develop a trade view by considering these factors in turn and as they inter-relate.

Firstly, supply. Statistical data and low market prices in recent years have demonstrated that overall there has been adequate supply. This is due to increased production from Brazil, Thailand and Australia more than offsetting reduced output from Cuba. Production on the subcontinent India has also been high and increasing.

Secondly, demand - measured as consumption. In the past 30 years world consumption of sugar has doubled to reach about 120 million tonnes. Annual growth rates during the past two decades have slowed a little to the order of 1.5 to 2.0 percent. When compounded this still amounts to a lot of sugar - equivalent to Australia's total exports every two years.

But actual trade in sugar has not grown to anywhere near the same extent. Since 1980 the volume traded annually has remained relatively static at about 30 million tonnes.

Thus we have yet another business conundrum - growth in demand, low world prices and yet most of that new demand satisfied by domestic production.

However there is some evidence of the impact of real market forces. What has changed is that

- there is now a concentration of exports in the hands of the efficient exporters
- "free" market trade has increased from about 40% to 90% of exports

The question is will this be the end of the matter? Will increased demand continue to be met by more expensive domestic production while efficient exporters compete for a static world trade volume?

In seeking an answer to that question, I have looked for evidence of change in the pattern of world trade

- There is clear evidence of domestic market deregulation in many countries. Since 1980 some 25 nations of all economic persuasions and size, ranging from Singapore through the Russian Federation to Brazil have set out to systematically reduce or eliminate domestic sugar price support.
- There is also a growth in customs unions such as NAFTA, MERCOSUR and ASEAN. This will eventually promote freer trade and competition; at least within the union of countries which otherwise have not yet deregulated their sugar regimes.
- Further there is the important fact that the growth in sugar consumption is in manufactured food - often linked to global food companies. Such organisations are becoming increasingly interested in sourcing product at real world as opposed to domestic regulated prices.

Thus we have a clear pattern of "deregulation" of production support in various forms and a strengthening of global purchasing knowledge on the consumption side.

To form a trade or business view of whether these factors will overcome that factor "X" - agricultural politics - and lead to a liberalisation and growth of sugar trade I need to analyse the reason why sugar is so political.

In my view sugar is the most political of all agricultural commodities, not directly as a result of international politics in the sense that oil is political, but due to a concentration effect in local politics.

What happens in economic terms when someone builds a sugar mill is that all land holders within a short radius obtain - usually at no cost - one more option for use of that land. As the factory expands more and more of the local land is attracted to cane. The cane growers band together to negotiate with the mill. It is then a good negotiating tactic to accuse the mill of having monopoly power and demand of the local politician that there be regulation.

The local organisation of cane growers become a relatively large and effective lobby organisation in the small local area politics. It can influence (even direct) the local politician. Grower organisations then link at state and national level. The end effect is that a relatively small percentage of the population can have a disproportionate political power through high concentration in specific areas.

This pattern is evident in all sugar producing areas regardless of political persuasions. It derives from the fact that a mill and its cane supply are inextricably linked. The local concentration leads to national cane grower political power and the outcome is predictable - agricultural politics dictating international trade.

In the face of all this, does the pattern of change suggest a new future for the sugar trade in the Asia Pacific region?

I think it does. I suspect that while sugar politics will remain real everywhere, and even dominant in some countries, its influence will decline.

The fact is that it has already happened in many countries. Further, price support schemes are under real pressure even in those countries which can afford them e.g. EU, USA and Japan.

But the real factor which will open up trade will be the third factor in that supply/demand/cost trinity - cost.

Cost of production data is notoriously difficult to obtain and interpret. The Oxford based LMC International has undertaken a number of cost competitiveness studies and published trend data.

That data suggests that Australia, Thailand, Brazil, India and a group of Southern African units are the low cost sugar producers. All are continuing to improve their competitiveness *vis à vis* the rest of the world - albeit at a slowing rate of improvement.

It is important to note here in the Asia Pacific context that it is not overall industry size alone that dictates cost competitiveness. LMC has identified some small southern African nations as low cost producers. I can independently confirm that from other data.

What seems to be most important in the long run is the business framework in which the individual sugar producing enterprise is allowed to operate. Apart from the obvious natural advantages / constraints of geography, cost competitiveness of a sugar business seems to be most determined by its independence from what could be described as imposed social constraints.

There is ample statistical evidence that the "Real" world sugar price, in common with other agricultural commodities, has been trending down throughout the twentieth century. People like me who are in the business hope that trend will reverse. However we also know only too well that those who don't pay attention to history lessons get to do all the practical classes.

Dr James Fry of LMC has stated that

*"There is no doubt that the closeness of the production cost curve and the long run price trend is uncanny. At the least, it suggests that in the very long run, there IS feedback from production costs to world prices".*

This is the key factor.

I think it will become the slow tide that the "King Canute" price support regulatory systems cannot hold back.

Therefore, in summary, it is my view that there will be real opportunities for growth in the sugar business and for trade in sugar in the Asia Pacific region, because of the obvious facts that:

- consumption will grow,
  - supply will be available from efficient producers,
- and the less obvious:
- decline in relative political power of producers as economies grow and industrialise,
  - increasing domestic market deregulation,
  - manufacturing requirement and increasing interest in sourcing world priced sugar,
- and, most importantly:
- there is feedback from (efficient) producer costs to world prices.

However I am not going to predict when those opportunities will be realised. Experience has taught me that anything involving agricultural politics takes longer than a rational person would predict and is invariably preceded by a foul up. Nevertheless, as I said in my introduction, global sugar's future is, in fact, this Asia Pacific region.

In developing policy for the next round of Multilateral Negotiations, it will be important that there is due recognition of the evolutionary change occurring in the sugar trade pattern. The driving factor will not be regulatory price support mechanisms; rather it will be the cost competitiveness of efficient producers.

## THE JAPANESE SUGAR MARKET

*Prepared by Messrs. Takamasa Akiyama and Michael Corbin, The World Bank Group for the Sugar and Beverages Group, Commodities and Trade Division, FAO. Tables have been left out due to space limitation.*

### OVERVIEW

Japan produces two types of sugar - beet sugar and cane sugar. Beet sugar production is centered in Hokkaido while cane sugar production is located in Okinawa and the islands of Kagoshima. Domestically produced sugar meets about one quarter of domestic demand and the rest is imported. Although not significant in terms of exports or production, Japan is a highly visible country in the world sugar market because of its traditionally high demand for imported sugar.

**Production.** Japanese sugar production increased sharply in the 1970s, stagnated during the 1980s and declined in the 1990s (see Figure 1). In 1996, Japan produced 1 282 000 metric tonnes of cane sugar (see Table 2). This marked a decrease of approximately 20 percent from both 1995 and 1994 figures, which were slightly over 1.6 million tonnes respectively, and represents the lowest figure during the nineties. Specifically, Okinawa produced sugar decreased by 25 percent from 1995 to 1996 as compared to a 3.7 percent increase from 1994 to 1995. Since 1989, Okinawa's production has decreased by 7.6 percent p.a. Kagoshima produced sugar declined 13.3 percent from 1995 to 1996 following a 2.6 percent drop from 1994 to 1995. Since 1989, Kagoshima production has dropped 5.9 percent p.a.

Kagoshima accounted for 41 percent of all cane sugar production, while Okinawa cane comprised 59 percent. The share for Okinawa produced cane comprised about 60 percent in recent years; this figure is significantly lower than the 66.3 percent share it held in 1989.

In terms of Japan's total sugar production, Hokkaido's production has constituted between 75 and 80 percent. Hokkaido beet production has also decreased in recent years. It decreased 1.45 percent p.a. from 1989 to 1996. In 1996, Hokkaido recorded its lowest beet production over the period, down by about 25 percent in comparison with the most recent high established in 1991.

As Table 3 shows, Japanese production represents only a minor portion of total world production.

While Japanese production has steadily declined over the last eight years (-7.72 percent p.a.), total world production has increased at the rate of 3.29 percent p.a. during the corresponding period. In the short term, world production rose 7.1 percent from 1994 to 1995 and 2.1 percent from 1995 to 1996.

Two countries, Brazil and India, constitute nearly half of the world's cane sugar production. Total production between these two countries grew at an aggregate rate of 2.9 percent between 1995 and 1996 and 8.5 percent between 1994 and 1995. Over the longer term, 1989-96 period, they grew at 3.62 and 4.18 percent p.a., respectively. In contrast, aggregate growth among the bottom three producing countries has been erratic - up 18.0 percent from 1994 to 1995 and down 7.0 percent from 1995 to 1996. From 1989 to 1996 Thailand, China and Pakistan grew 6.98, 2.16 and 2.22 percent p.a., respectively.

Table 4 depicts the five leading producers of beet sugar along with figures for the world and Japan. The Table indicates that growth has been declining or sluggish for every country, including Japan. Japan's production decreased at a 1.54 percent p.a. rate from 1989 to 1996. Declines were also recorded for the world (-2.71 percent p.a.), Germany (-1.37 percent p.a.) and Ukraine (-5.60 percent p.a.). Although the remaining three countries in the Table show increases, their growth has been sluggish at less than one percent p.a.

**Imports.** Japan's total sugar imports have followed a gradual yet fluctuating decline since 1991 (see Table 5). Total imports for Japan from 1991 through 1996 declined 2.1 percent p.a. For the period 1995/96 imports decreased 5 percent year by year.

Both Tables 5 and 6 demonstrate the change in partner countries exporting to Japan. In 1991, South Africa and Cuba

accounted for an aggregate 38.8 percent of Japanese sugar imports. By 1996, they accounted for only 16.1 percent of total Japanese imports. The trade with these two countries has been replaced by increased shares from other Asian countries, particularly Australia and Thailand. This shift has increased the dominance of these two countries already held in 1991. In 1996, Australia and Thailand represented an aggregate 79.2 percent of all Japanese sugar imports. Fiji and the Philippines export small amounts of sugar to Japan; this amount varies indirectly with Australian and Thai supplies during a given year. Australian and Thai sugar imports have slowly increased by approximately two percent during the period, while Cuban imports decreased by over 17 percent p.a.

Japan was the world's third leading importer of sugar in 1995 (see Table 7). In 1994 and 1995 it accounted for 6.1 percent of total world imports. This marks a slight decline from the 6.5 percent it held in 1993. Japanese imports from 1989 to 1995 decreased at a slower annual rate than those for the world (-2.06 percent p.a.). The quickest rate of growth over the period (7.61 percent p.a.) was in China and ranks a close second behind the Russian Federation in terms of total imports.

**Consumption.** Figure 3 and Table 8 present consumption figures for sugar and sugar substitutes in Japan over a twenty year period. The first column shows that sugar consumption has steadily declined over the twenty year period. It is evident from Figure 2 that very high world sugar prices in 1980 caused a sharp decline in sugar consumption in Japan and the subsequent decline in world prices was not able to recover the demand. Also, demand for sugar substitutes has increased significantly since 1980. The lowest per capita consumption of sugar in the twenty years was recorded in 1995. These declining consumption levels correspond with similarly declining levels of both imports and domestic production.

In contrast, the demand for sugar substitutes has steadily increased over the period of discussion - rising 6.93 percent p.a. from 1975 to 1995 and 1.55 percent p.a. from 1985-95. The data in the third column show that aggregate demand for sugar and sugar substitutes has virtually remained constant over the twenty year period increasing by 0.35 percent p.a. and decreasing by 0.46 percent p.a. over the last ten years. Also, demand for sugar and sugar substitutes was higher in 1995 than in 1975, although not at the peaks attained during the late eighties and early nineties.

Likewise, per capita consumption of sugar and sugar substitutes has remained virtually the same as the level in 1975 (declining only 0.19 percent p.a.). Despite this fact, it is at its lowest level during the twenty year period and has been decreasing at a faster rate over the most recent decade (-0.79 percent p.a.).

**Prices.** Figure 4, Tables 9 and 10 show wholesale and retail sugar prices for Japan. Average annual wholesale prices have consistently declined since 1988 - from 186 ¥/kg to 153 ¥/kg. This represents a 2.32 percent p.a. decrease. Average annual retail prices, on the other hand, have decreased at a lower rate (1.42 percent p.a.) from 254 ¥/kg in 1988 to 220 ¥/kg in 1996.

Though both wholesale and retail prices have been declining over the last decade, the ratio of retail to wholesale prices has slowly been increasing. This indicates that Japanese consumers of retail sugar are not capturing the full effects of the decrease in retail prices, relative to wholesale prices. The cause probably is increased domestic marketing costs.

## SUGAR POLICIES

After liberalizing the import of sugar in 1963, Japanese domestic prices fluctuated widely with international prices. To protect domestic producers and consumers from wide price fluctuations, a policy measure

aimed at stabilizing sugar prices was introduced in 1965. Under this measure, a government agency would buy and sell imported and domestically produced sugar to keep domestic wholesale prices in a range between the low limit and high limit prices and to provide subsidies to domestic sugar producers.

This policy, which is still in effect, hinges on several administered prices which are determined annually by the government. The low and high limit prices define the price range the government considers appropriate within which to stabilize sugar prices. The domestic producer target price indicates whether adjustments on imported sugar price are necessary and also indicates the price at which producers should aim to produce. Producer prices of beets and cane are determined by the parity method. Under this method, cost of living in rural areas and farm input prices are taken into account.

The main focus of the policy is the establishment of minimum producer prices for beets and cane. Also the agency keeps the price of sugar it sells between the low and high limit through purchases and sales. Subsidies to domestic producers are financed by an adjustment charge on imported sugar and funds from the government. The adjustment charge collected by the agency is the difference between the target and import prices adjusted by a factor. The amount charged is according to the following formula:

$$(\text{Target price} - \text{average import price}) * \text{adjustment factor}$$

Adjustment factor is the share of domestic production to consumption.

Four situations of government intervention are possible, depending on the levels of the average sugar import price compared with the low and high limit and target prices (see Figure 5). These situations are: (i) the average import price is below the low limit price, (ii) the average import price is above the low limit price but below the target price, (iii) the average import price is below the high limit price, but above the target price and (iv) the average import price is above the high limit price.

In situation (i), the difference between the average import price and the low limit price will be collected and will be contributed to the sugar price stabilization fund. In addition, the adjustment charge will be imposed. Hence, the agency sale price will be the low limit price plus the adjustment levy, i.e.

$$\text{Agency sale price} = \text{i.e., low limit price} + \text{adjustment levy.}$$

In situation (ii), only the adjustment charge will be imposed and the domestic price will be the average import price plus the adjustment. In this case, the agency sale price will be higher than that under situation (i).

$$\text{Agency sale price} = \text{average import price} + \text{adjustment levy.}$$

There is no intervention by the government when the import price falls between the target price and the high limit price. Hence,

$$\text{Agency sale price} = \text{import price}$$

In situation (iv), the sugar price stabilization fund will be used to reduce the domestic price to the high limit price. Hence,

Agency sale price = high limit price

Prices paid to domestic producers are considerably higher than the agency sale price. The difference is adjusted by two elements: The adjustment charge fund for the difference between the agency sale price and the target price and the government pays the difference between the producer price and the target price.

As a result of government intervention, prices paid to domestic producers are considerably higher than import prices. This government protection is much higher for cane sugar producers in the prefectures of Kagoshima and Okinawa than for beet sugar producers in Hokkaido (see Table 11). This is probably because the cane producers are much more dependent on income from sugar than are the beet producers. Income from sugar constituted about 19 percent and 28 percent of the total income from agriculture in Okinawa and the southwestern islands of Kagoshima, respectively, in 1994 while the corresponding figure for Hokkaido is only about 5 percent. As Table 11 shows, domestic producer prices of cane and beet have been kept constant or have been reduced at nominal prices in recent years to reduce the differences between sugar prices that correspond to the beet and cane producer prices and international sugar prices and to encourage domestic producers to increase productivity.

The government intervention system described above is affected by the Uruguay Round Agreement, under which sum of the adjustment charge and the contribution to the stabilization fund was bound at 82.4 ¥/kg in 1995 is to decline to 71.8 ¥/kg by 2000. The figure in 2000 is 15 percent lower than the base rate of 84.5 ¥/kg. This change is likely to reduce domestic producer prices and domestic sale prices slightly.

Japan's sugar consumption is projected to decline by 1.2 percent p.a. for the period 1995-2010. Although income elasticity is positive (about 0.3 percent), declining population beyond 2005 and taste change work to depress the demand.

Japanese sugar imports are projected as the difference between the demand and domestic production. This is projected to decline at the rate of 1.2 percent p.a.

## FACTORS INFLUENCING DEVELOPMENT OF SUGAR EXPORTS AND POTENTIAL FOR GROWTH IN AUSTRALIA

*Prepared by Mr Kerry Mulherin for the Sugar and Beverages Group of the Commodities and Trade Division. Tables and charts have been removed due to space limitation.*

### INTRODUCTION:

This background paper attempts to provide a brief overview of the evolution of the Australian sugar industry, concentrating on the export sector and in particular, on the pronounced growth during the current decade. It attempts to give some indication of the factors which have influenced that growth and to make some assessment of potential for further expansion.

### GLOBAL PERSPECTIVE:

Australia currently ranks seventh among world sugar producers. It is well behind the European Union, China, India and Brazil and closely behind the United States and Thailand. Among exporters, Australia sells less than the EU and Brazil, competing with Thailand for third place. Since 1990 Australian production of sugar has risen by 44 percent a figure exceeded only by Brazil (70 percent). In the same period Australian exports have risen by over 60 percent, a growth rate also exceeded only by Brazil. At present Australia holds about 16 percent of world trade. Australia is highly dependent on the free

market export sector, and currently about 85 percent of production is exported, a figure likely to rise to about 90 percent by 2000.

Australia, Cuba and Thailand are by far the most export dependant among major sugar exporters and Australia is the only developed country where survival of the industry is linked overwhelmingly to the export sector.

### National Perspective

The sugar industry ranks fifth among the major primary industries of Australia after beef, wheat, wool and dairy and fourth in export value generating more than A\$2.0 billion of income mainly from exports.

Sugar cane is grown along the coastal strip of North Eastern Australia from Mossman and the Atherton Tablelands in North Queensland to Grafton in Northern New South Wales a distance of more than 2,000 kilometres. A new small-scale industry has now been established in the Ord River district of North-Western Australia. In Queensland and New South Wales, some 19,000 people are fully employed in cane-growing, harvesting, milling, storage and marketing and a further 26,000 in related and supporting industries. Sugar has played an important developmental role in North -Eastern Australia and its presence and infrastructure have provided the incentive and spring-board for many other industries and enterprises.

### History

Sugar was first cultivated experimentally as early as 1820 but was not cultivated commercially until the 1860's, when it spread rapidly from Northern NSW up the Queensland Coast. Originally a plantation industry relying upon indentured labour, it became a family based industry from the late 1890's. By the end of the nineteenth century, there were over 70 small sugar and juice mills operating in Queensland and New South Wales. Today there are 29 including the recently established small mills in the Ord River.

In its formative years the industry supplied the Australian domestic market, along with imports, but during the first world war, shortages encouraged stimulation of the industry by the state and federal governments and Australia became a net exporter of sugar in 1923. At the same time, an embargo was introduced on sugar imports into Australia which remained in effect until 1989..

In 1915 the Queensland government of Mr TJ Ryan introduced the Sugar Acquisition Act and regulation of Sugar Prices Act and these Acts effectively regulated sugar production in Queensland until 1991 when a new Sugar Industry Bill was introduced. NSW sugar was produced and marketed within this general framework arrangement and a Commonwealth/State agreement allowed the domestic price of refined sugar to be regulated.

From 1923, when Australia became a net exporter of sugar until 1990, there were only three planned substantial increases in the area assigned for cane growing. These took place in 1953-54 in response to new export market opportunities provided by the recently negotiated Commonwealth and International Sugar Agreements; in 1964/65 after a period of high world market prices and in 1990/91. There were smaller increases approved in 1975/76 and 1981/82, again in response to dramatically improved ( but not sustained) world market prices. Under the then prevailing regulatory arrangements, cane could only be grown on assigned areas and only on a fixed proportion (net) of the gross assignment. Mill peaks had been

established in 1929 in order to ensure that production was kept in line with domestic consumption requirements plus anticipated export outlets and were only increased in line with market growth. There were also corresponding farm peaks. There was a strong sentiment among sections of the industry which prevailed well into the seventies that regulation provided some assurance of security and this position was broadly supported by governments.

As long as a significant proportion of Australian exports was guaranteed under Commonwealth (CSA) and International (ISA) Agreement quotas, this position could be justified, particularly since a sizeable share of the CSA quota received a very favourable negotiated price. There were also long term price agreements with some countries, notably Japan and of course after 1960, the US Sugar quota. But these advantages collapsed, first with the entry of the United Kingdom into the EU and the subsequent ending of the ISA, and in the early eighties, with the cessation of ISAs with economic provisions, Australia was isolated. The industry then had to stagnate or re-position itself to compete essentially without preferences, in a highly volatile market against both low-cost developing country exporters as well as high cost, but highly protected supplies from developed countries. This has been the position which the Australian sugar industry has had to face since the early eighties and which is likely to prevail in the foreseeable future.

#### **Industry Structure**

Queensland produces 95 percent of Australian sugar and NSW the remaining 5 percent excluding the 50,000 tons currently being produced in Western Australia.

#### **Cane Growing**

At present there are 6,400 cane growers in Qld with an assigned area of 484,000 hectares and an average farm size of 77 hectares. The number of Qld growers declined from 7507 in 1970 to 5784 in 1990 but thereafter, in line with gradual market de-regulation, rose again to the present level. In the same time period average farm size increased from 40 hectares in 1970 to 77 in 1996.

NSW has 600 canegrowers with an average farm size of about 33 hectares. Farm sizes are smaller than in Qld, although there is a nucleus of larger farms. Area harvested and production has more than doubled since 1970.

The West Australian Industry which commenced operations only in 1995 has a target of 560,000 tons of cane from 22 farms covering 4,000 hectares.

#### **Harvesting**

All sugar cane grown in Australia is harvested mechanically, usually by independent operators or groups under contract. Australia pioneered mechanical harvesting and achieved 100 percent conversion to mechanical harvesting in 1979. Australia is a world leader in the manufacture and export of mechanical harvesters.

In areas of North Queensland and Northern New South Wales where heavy rainfall frequently interferes with harvesting, special wet-weather harvesting equipment has been developed including tracked harvesters and high flotation field transportation.

There are two methods of harvesting currently practised in Australia - burnt and green. Traditionally cane has been burnt before harvesting to remove weeds, leaves and other matters which can impede harvesting and milling operations. In the twenties, cane was also burnt as protection against Weil's disease spread by rats and other vermin residing in the canefields.

In the past decade or so green cane harvesting has spread, a process which allows the leafy stalks to fall to the ground and act as a protective trash blanket. This blanket, as an organic mulch,

considerably reduces the level of soil erosion and preserves soil nutrition for crop growth. It also helps to prevent weed germination. Fifty percent of the Australian crop is now harvested green and in the Herbert River district, near Ingham in North Queensland, the figure reaches 100 percent. However, green cane harvesting is not always possible or practical in all sugar growing areas, notably in cases where the mulch-like layer or residue can contribute to the water-logging of fields. In southern producing regions, the trash blanket has also been found to lower soil temperatures which can impede early plant growth.

Harvest-contractors are paid at a piece work (per ton rate) and large scale operations permit economics of scale in most regions, thus helping to achieve lower unit costs.

#### **Milling**

There were more than 70 sugar and juice mills in operation throughout Qld alone in 1892. By 1920 the number had increased to 34 and currently there are 25 plus 3 in NSW and one on the Ord River. The Ord River mill was the first new sugar mill built in Australia since Tully mill in North Queensland commenced operations in 1925. A new juice mill will also soon be operating on the Atherton Tableland.

Mill ownership became more concentrated during the 1980's and 1990's. In 1980, 19 companies operated 33 sugar mills. Currently 12 companies operate Australia's 29 mills and one of the 12, Bundaberg Sugar, will operate the new mill on the Atherton Tableland. The state-wide rationalisation of Queensland's sugar milling and transport operations in recent years resulted in the closure of 5 mills, QNABA ( Bundaberg), Goondi and Hambleton (North Queensland) and North Eton and Cattle Creek ( Mackay ) The cane lands assigned to these mills were re-assigned to adjoining mills.

Of the current 29 mills, 15 are owned by public companies, one by a private company and 13 are grower owned co-operatives. Co-operatives account for about 45 percent of Australian sugar production and public/private corporations 55 percent. The Colonial Sugar Refining Company (CSR) owns mills accounting for 38 percent of Australian raw sugar output, followed by Mackay Sugar Co-operative (20 percent) and Bundaberg Sugar (Tait and Lyle) 15 percent. The four northern co-operative mills Mossman, Mulgrave, South Johnstone and Tully formed "Sugar North Ltd" in 1993 as a network organisation to help to ensure the long-term viability of co-operative production in North Queensland. Together, their share of sugar output is 13 percent.

#### **Bulk-Handling**

Australian raw sugar has been handled entirely in bulk since 1964 with the Qld Sugar Corporation. (formerly the Qld Sugar Board) responsible for all storage and handling of Qld sugar. The Qld bulk-terminal capacity in excess of 2 million tons, is the largest integrated bulk sugar storage system in the world, with an annual output of more than 4.5 million tons. The system operates 7 terminals along the Qld coast from Cairns to Brisbane.

#### **Sugar Refining**

Sugar refineries produce a range of products for direct use by end-users and as ingredients in other manufactured food and drink products. All raw sugar used by refineries is obtained from Australian sources. Raw sugar is bought from the Qld Sugar Corporation (QSC) and the NSW Sugar Milling Co-op Ltd and potentially will be bought from the recently established West-Australian

industry. Approximately two-thirds of the raw sugar used by the refineries is purchased from QSC.

There are currently six refineries operating in Australia with a combined refining capacity of 1,300,000 tons. Australia's consumption of refined sugar is only about 900,000 tons with a very slow growth rate. New refineries were built in 1989 by NSW Sugar/Manildra Harwood NSW, and by Mackay Sugar/EDF Man at Mackay in 1993. These new ventures have dramatically affected the Australian market for refined sugar.

### Marketing

Under the 1915-1991 Sugar Acquisition Act all raw sugar was acquired by the Qld Sugar Board which was responsible for its sale and for raw sugar storage at ports. As will be explained in the next section, changes in 1991 led to replacement of the Sugar Board by the Qld Sugar Corporation (QSC) which assumed responsibility for the sale of all raw sugar produced in Queensland and for the management of the operations and maintenance of the 7 bulk-sugar terminals. Its activities cover four broad areas:

- Marketing and sale of raw sugar
- Storage and logistics
- Provision of industry services
- Financial management

The sale of raw sugar within Australia and New Zealand is handled directly by QSC. Outside, Australia and New Zealand, CSR Raw Sugar Marketing (as in the days of the Sugar Board) acts as an agent for the QSC in the sale of raw sugar to export customers. C Czarnickow & Co (London), in which CSR has a major interest, acts as the QSC's principal sugar broker, while shipping services are chartered by Austral Chartering. In recent years ED&F Man has also brokered Australian sugar.

As the single seller of Queensland raw sugar output, the QSC is responsible for administering the net proceeds to mill owners and to also ensure equitable distribution of proceeds between growers and millers.

The New South Wales sugar industry markets its production of refined sugar from the Herwood refinery and under present arrangements would also market any surplus raw or refined, it may have to place on the export market. Ord-River raw sugar is sold on the domestic market through the Perth Refinery.

### Industry Entities

A range of industry bodies exists to represent the interests of various industry participants. VIZ

The Australian Sugar Milling Council (ASMC), membership of which is voluntary, represents the interests of 28 mills (i.e. all except Ord-River).

Canegrowers is a Qld Statutory Organisation representing the interests of cane growers in Qld and NSW. For Qld growers, membership is compulsory.

The Australian Cane Farmers Association also represents interests of canegrowers from both Qld and NSW and membership is voluntary.

### Research and Development (R&D)

The Australian sugar industry has traditionally relied heavily on research and development and maintains an on-going commitment to support through funding the research and development sector, as a crucial element of overall industry development strategy. In combination with governments, over \$40 million is spent annually on sugar related research, development and extension. Five major R and D organisations are involved:

**Sugar Research Institute (SRI)** concentrates on mill owner needs. (Funded by mill owners).

**The Bureau of Sugar Experiment Stations (BSES)** serves mainly the agricultural sector (Funding approx 50% industry, 50% government).

**Sugar Industry Research and Development Corporation (SRDC)** is a statutory body established under the initiative of the Australian Federal Government to involve industry more closely in the determination of the objectives of R&D. The SRDC manages the distribution of funds for projects across a wide range of programme areas.

**The Co-operative Research Centre for Sustainable Sugar Productions (CRC)** is recently established with three themes- to protect the environment, to sustain soil and water resources and to enhance crop productivity in terms of bulk cane yields and commercial sugar content (CCS).

### Industry De-Regulation

As indicated in the historical overview, the Australian industry has been made to face the fact that it is overwhelmingly dependent on exports and on world market prices. The restrictive regulatory framework of the Qld industry made it very difficult to introduce changes, particularly economies of scale and there was a high degree of rigidity regarding assignments, mill peaks, new entry, acquisitions, and the embargo on imports, which appeared to act as a severe brake on effective rationalisation. Since the late 1970's, there have been pressures to de-regulate the industry; from 1977 until 1996, 11 major reviews of the sugar industry have been carried out, as well as several internal reviews. As far back as 1983, an Industries Assistance Commission Report recommended the abolition of the import embargo on sugar, the removal of assignment, the removal of the formula for setting prices and the removal of controls on acquisition. These findings were not accepted by the federal government although they indicated a new trend and an emerging consensus that the rigid regulatory arrangements had to be loosened to allow market forces to operate.

In 1988, the federal government decided to lift the embargo on sugar imported from July 1, 1989. The government decided the embargo should be replaced by first an *ad-valorem* tariff then a tariff of \$115 per ton reducing to \$55 by 1992 and that the Industry Commission should undertake a further review in 1991 to consider the need for import protection beyond 1992.

In June 1989 a report of a Qld government appointed Committee of Enquiry into sugar industry pooling systems recommended that the traditional formula for calculating No 1 and No 2 pool price differential should be discarded and substituted by a fixed differential of 12 percent. (No 1 pool covers up to Mill Peak and No 2 above-peak sugar produced from assigned land). This recommendation was adopted.

In 1991 after much consultation with the industry, the Qld government effectively repealed the 1915 Sugar Acquisition and Sugar Cane Prices Acts and introduced the Sugar Industry Act of 1991. This Act abolished the Cane Prices Board and the Sugar Board. Marketing and administrative functions were amalgamated and transferred to the Qld Sugar Corporation. The Act also established local boards and a streamlined appeals process through a Sugar Industry Tribunal. It approved area expansion over a five-year period of at least 2.5 percent per year, (approximately 10,000 hectares per mill area) and allowed a simplified and more flexible assignment system. The

abolition of the Central Cane Prices Board permitted decisions to be made at a local level, from ground-level up, rather than centrally from above.

Two further major industry inquiries were carried out in 1992 and 1993, first another Federal Industry Commission, and secondly a Sugar Industry Task Force.

The basic objective of the latter was to identify impediments to the sustainable growth and competitiveness of the Australian sugar industry and to recommend means of overcoming them. The second was to determine the appropriate level of future government funding for the industry, including the appropriate level of sugar tariffs.

In February 1993, as a result of the task force findings an “agreed sugar package” was announced by the Commonwealth and Qld governments which included:

- 40 million of infrastructure funding for approved industry projects
- Maintenance of the sugar tariff at \$55 per ton until 30 June, 1997
- A reduction of the Queensland raw sugar price differential between No1 and No2 Pools from 12 percent to 6 percent by 1996.
- An “in principle” agreement to the transfer of ownership of the bulk sugar terminals from government to Sugar Industry.
- The retention of unitary or “single-desk” selling arrangements, subject to review in 1996.
- Industry expansion decisions to be made at local levels.

The package also stated that while assignments would remain the basis for local agreements it would not be used as a constraint to growth.

#### **Vision 2000**

Representatives of the cane-growing and sugar milling sections have been closely associated with the evolving de-regulation process and during 1995 developed a concept of how they would wish the industry to develop over the next decade. They considered that as the industry’s major stockholders they were best placed to advise on which arrangements best suit the practical needs of their industry in terms of productivity, efficiency and sustainability.

Their joint approach, called “Vision 2000” which was determined at joint sessions of the full Canegrowers’ and Australian Sugar Milling Councils, is for the industry to be a sustainable competitive raw sugar industry, which is environmentally responsible, focused on improving productivity and the preferred supplier to all outlets.

#### **National Competition Policy and 1996 Sugar Industry Review Working Party**

The 1974 Commonwealth Trade Practices Act on the need for a national competition policy was based on the recognition that Australia had become a single market. Improvements in transport and communications meant that state boundaries were no longer impediments to the trade of goods and services within Australia. This agreement subsequently came to focus on the Commonwealth Government’s micro-economic reform process introduced during the 1980’s to focus on the internationalisation of the Australian economy. In October 1992, the Prime Minister set up a National Competition Policy Review Committee subsequently known as the Hilmer Committee (after its Chairman, Prof. Fred Hilmer) to conduct a thorough review of the scope and operations of the Trade Practices Act of 1974, in particular where the provisions of the Act needed to be extended to ensure competitive conduct was adhered to by all Australian corporations and individuals. In addition the Committee was requested to identify alternative means of ensuring competitive conduct outside the scope of the Trade Practices Act

The Hilmer Committee in effect drew up a blueprint for National Competition Policy (NCP) which was endorsed by all Australian governments during 1994 with implementation from July 1995. The guiding principle under NCP is that legislation should not restrict competition unless it can be demonstrated that:

- i. the benefits of the restriction to the community as a whole outweigh the costs; and
- ii. the objectives of the legislation can only be achieved by restricting competition.

#### **Review of Sugar Legislation and Tariff**

When the Qld Sugar Industry Act was introduced in 1991, it was publicly stated that the legislation would be subject to review within five years. Additionally when the Commonwealth and Qld governments adopted an “Agreed Sugar Package” in February 1993, it was specified that some elements of the package pooling price differentials and tariffs on sugar imports would be subject to review in 1996.

Accordingly, in 1996 the two governments announced a joint review of the Qld sugar industry regulatory arrangements and the sugar tariff.

A sugar Industry Review Working Party (SIRWP) which included representatives of Commonwealth and Qld governments, growers, millers, QSC and users commenced operations in October 1995.

After submissions by interested parties and public hearings the Working Party presented its final report in November, 1996 to the two governments who at time of writing (April 1997) were due to make their decisions on which recommendations to adopt.

The key terms of reference were two-fold:

- a) To review the need for a tariff on raw and refined sugar. In its assessment the Working Party was asked to focus primarily on benefits and costs to the general community of such actions.
- b) To review current legislative arrangements for the promotion and regulation of the sugar industry in Queensland and to investigate alternative arrangements. The objective of any new legislation should be to facilitate the sustainable development of an internationally competitive, export oriented industry, which benefits both the industry’s participation and the wider community.

#### **Major Recommendations of SIRWP**

##### *Tariffs*

- 1) Removal of sugar tariff combined with strengthening of anti-dumping laws to provide protection for industry producers. Removal of the tariff would ensure domestic refineries and industrial users access to sugar at world market prices. This would result in a decline of Qld raw sugar revenues of the order of \$26.7 m annually (and by implication to NSW of about \$8.0 million). On the other hand, other sectors of the economy would receive corresponding benefits.
- 2) Marketing and related arrangements:
  - a) Retention of current single-desk selling arrangements for Qld raw sugar. The Working party could not identify any significant monetary benefits which would accrue to the community through de-regulation and any alternate arrangements which would be more efficient.
  - b) QSC should continue to be the statutory body responsible for domestic marketing of Qld raw sugar

but in relation to domestic pricing, raw sugar prices should be set at export party levels.

- c) Pool differentials should be phased out. The current 6 percent differential should be maintained for the 1997 season, reduced to 4 percent for the 1998 season and then abolished.
- 3) Cane supply and processing arrangements. Increased local determination of cane supply and processing matters.

A local area negotiating process is proposed to provide more flexible, contractually oriented cane supply and processing arrangements. Matters impacting on season length and expansion will continue to be determined locally (i.e. mill area level).

Cane growers will retain the right to negotiate collectively with mill-owners, while also enabling the negotiation of individual agreements. Additionally through these agreements, mill owners should be assured of supplies. Individual agreements between growers and mill-owners should not disadvantage collectively negotiated agreements (assuming the latter will remain predominant).

#### 4) Ownership and Management of Bulk Terminals

The Working Party recommends these be owned and operated as a single entity and ownership be vested in QSC on behalf of the sugar industry.

#### 5) Production and marketing institutional arrangements

The Working Party supports the NCP principle that regulations functions be separated from commercial functions. Consequently the QSC should be divested of any regulatory functions, except those which are clearly ancillary to its marketing role. Its marketing regulatory functions should be maintained but production regulatory administrative functions be separated.

The Working Party recommends that these limited remaining centralised non-marketing regulatory arrangements be overseen by a newly created part-time "Sugar Industry Commissioner".

#### 6) Research development and extension arrangements

These would remain basically unchanged. The Working Party recognises the sugar industry's long term commitment to research and development and its critical contribution to the Australian sugar industry's international competitive edge.

### NSW Industry

The NSW industry was not covered or consulted in the SIRWP Review, a factor which appears, quite naturally to have caused some resentment. It has operated independently since 1989 - marketing virtually all its sugar domestically through its Harwood refinery. In 1996 it exported small exports of raw sugar to Singapore. It has however, under the import party domestic pricing arrangements had the benefit of the \$55 per ton tariff.

### General reaction to SIRWP Report

At time of writing, it seemed that most recommendations were widely accepted with the exception of the tariff removal which many growers (particularly in NSW) and country regions opposed. These groups emphasised that Australia was already more than meeting its GATT obligations. The current tariff is only about 15 percent while other major producers including EU, Thailand, US and Japan have tariffs well in excess of 100 percent. In fact the effective Australian tariff is only about 8 percent because of a 5 percent developing country preference. Perhaps more important, they are concerned about the impact on their own industries particularly in NSW of a loss of some \$35 m in revenue.

### Impact of de-regulation

Since the planned expansion of area began in Qld from 1988 onwards, there has been a growth in assignment for cane growing of 40 percent, an increase of over 143,000 hectares. In New South Wales, area harvested has also risen from 14,000 hectares to 18,500 an increase of

33 percent. There are also the 4,000 hectare plantings coming into full production in the Ord River. The decline in numbers of growers in Qld from 1980 to 1990 was reversed in 1991 and has since continued to rise. At the same time, average farm size has increased from 50 to 75 hectares. The natural attrition of growers had revealed some rationalisation in farm sizes and the average farm size is still increasing with the entry of new growers. The average tons of cane produced per farm has also risen from 3,500 tons in 1980 to 5,500 tons in 1995. Interestingly, despite the rise in numbers and scale, structurally there has been little change with the family farm still the dominant form of ownership.

### Harvesting

Harvesting of cane has also been further rationalised over the past 5-10 years with average harvester group size rising from 16,000 tons to 32,000 tons and numbers of harvesters declining. The expansion in the growing sector has been exceeded by increases in capacity of Queensland sugar mills. Average tons of cane crushed per mill have increased from 750,000 tons in 1980 to over 1.4 million tons in 1995. Average crushing rates have also risen from 350 tons per hour (TCPH) to over 500 tons in 1995. Raw sugar produced in Qld mills rose from 3 million tons in 1980 to more than 5 million tons in 1995 and in NSW from 180,000 tons to 248,000 (285,000 tons in 1996).

Australian cane yields have risen from 83 tons per hectare in 1990 to 98 tons per hectare in 1996 and sugar yields from 11.4 tons per hectare to 13.4 tons per hectare in 1996.

As indicated in the historical review, there has been significant rationalisation of mill groupings with Mackay Sugar emerging as Qld's largest private company and Australia's second largest sugar miller behind CSR. A major international sugar company Tait and Lyle has entered the scene with its take-over of Bundaberg Sugar.

Among the various regions the greatest expansion in area has occurred in Herbert River-Burdekin and in cane and sugar output in Herbert-Burdekin and Central. The average growth rates in NSW have compared very closely with those of Qld.

The above increases have come about as a result of massive investment in new area, land preparation, irrigation, farm improvements, cane transport and milling capacity, increased yields improved extraction rates in mills reflecting also in part, return on industry investment in R&D.

### Raw sugar exports

Raw sugar exports have risen by 42 percent from 1989-1996. In 1995 exports exceeded 4 million tons for the first time compared with 2.5 to 3.0 million tons during the eighties. This reflected the success of the industry expansion programmes which resulted in increased export availabilities, but also in the successful implementation by the Qld Sugar Corporation and its marketing agents of their marketing programmes. In 1996, some 64 percent of exports went to Asian markets followed in importance by Canada and New Zealand. However QSC has been remarkably successful in opening diverse new outlets in the Middle East and in Eastern Europe and countries of the former USSR.

The single desk selling arrangement allows QSC to co-ordinate the management of production, quality, storage and shipping to offer an 'integrated marketing package' on behalf of raw sugar producers. QSC also undertakes risk management for the

industry and has successfully implemented sugar price, foreign exchange and interest rate risk management programmes.

With its widely dispersed bulk terminals along the Queensland coast, QSC is able to meet supply commitments even if some producing regions might be experiencing production short falls, since it is unusual for the whole state to be effected in any given period. The Corporation is virtually able to supply its customers a guaranteed package of quantity, quality and type of sugar required on a regular basis.

Similarly it is able to place sugar on the most profitable markets concentrating on those areas where Australian sugar has a particular advantage, be it freight, season, or other. QSC and its principle marketing agent, CSR, continue to express confidence that there will be sufficient consumption growth to enable all available raw sugar supplies to be exported remuneratively in the foreseeable future.

#### Market for refined sugar

Changes in the domestic refined sugar industry have been dramatic in recent years. In 1989, when NSW Co-operative broke its connection with the Qld Sugar Board it, in equal partnership the Manildra Company built the Harwood/Mildara Refinery with a capacity of 280,000 tons. With a modern, efficient refinery, well placed to supply metropolitan markets, the operation was successful and profitable. However in 1992, Mackay Sugar announced its intention to build a refinery in joint partnership with ED&F Man with a capacity of 350,000 tons. CSR partly rationalised its refinery base by closing down its operations in Adelaide and Sydney but still retains a refinery capacity of 520,000 tons. Bundaberg sugar also developed further its refinery capacity to 150,000 tons.

As previously indicated this has resulted in an Australian domestic refining capacity of 1,300,000 tons compared with domestic consumption of 900,000 tons and the results have been disastrous for all parties.

In 1993 when the difficulties of entering the export market profitably on a large scale became apparent, Mackay Sugar/ED&F Man and CSR applied to merge their operations, which would have resulted in a significant reduction of CSR's older refining capacity and a rationalisation of the market. However this arrangement was rejected by the Trade Practices Committee on the grounds that it would be at variance with National Competition Policy. Consequently the price war continues and Mackay Refined Sugars actually commenced legal action in December 1994 against CSR alleging various contractual breeches, including misuse of market power.

The position has been at least theoretically aggravated by the SIRWP recommendation that cane sugar for domestic refining be priced at export or world parity rather than the existing import parity. This would remove the margin equivalent to the tariff, currently enjoyed by the Australian industry. In practice however, the margin has probably been discounted in the on-going price war.

In its 1995 report, Mackay Refined Sugars indicate that gains have been made in market share in Australia and New Zealand and that exports are also growing with the company now being seen as a major player in regional white markets with BIBO (Bulk in Bagged Out) sales to the Islamic Republic of Iran, China, Sri Lanka and Indonesia and container exports to India, Philippines, Fiji, China, Republic of Korea, Vietnam and China, Hong Kong Special Administrative Region.

Nevertheless Mackay Refined Sugars is still losing money, and under present conditions stands little chance of recuperating capital cost. It remains to be seen how long either partner in the venture will be willing or able to sustain such losses. The same problem, though

perhaps less severe, applies to the other refineries although they may not be in the position of having to recoup capital cost.

New South Wales Sugar Co-operative has indicated that if it loses its tariff protection, it will have to enter the export market on a regular basis and may even put pressure on state and federal governments to obtain a share of the US raw sugar quota.

The perilous state of the domestic refining industry is causing very considerable concern in sugar industry and government circles and at time of writing, there were firm reports that consideration might be given to re-considering the question of an amalgamation between Mackay Refined Sugars and CSR refineries. Similarly there have been statements in state and federal parliaments that the SIRWC recommendation on tariff removal should be held over.

#### FUTURE OUTLOOK

The raw sugar industry is united in its objective of continuing to expand to meet export market opportunities and is confident that it can continue to compete effectively with other low cost and protected suppliers.

It expects that over the next 5 years world sugar prices will remain under pressure. QSC will continue to refine its risk management techniques aimed at protecting producers against price falls.

The question is to what extent the high growth rates from 1990-1996 can continue. The industry modestly forecasts that with present capacity, production in 2000 would be about 6 million tons compared with the current 5 million tons.

#### Constraints

##### Queensland

The SIRWP looked at possibilities for growth over the period up to 2005 for Queensland and came out with the following "possible" expansion in land area:

Region	Possible Increase Hectares	Production Increase per 1 000 tons
Northern	27 000 - 53 500	297-580
Hobart-Burdekin	23 000 - 125 000	358-1950
Mackay-Proserpine	31 000 - 50 000	393-635
Southern	10 300 - 14 700	117-170
<b>Total Qld</b>	<b>91 300 - 243 200</b>	<b>1 165-3 335</b>

The figures for Mackay-Proserpine region have been raised to take account of a study by "Mackay Sugar" and "Canegrowers Mackay" which included likely production from areas external to traditional Mackay Sugar boundaries. That study indicated Mackay Sugar could be processing 8.3 million tons of cane from 97,000 hectares in the 2000 season and 9 million tons of cane from 100,000 hectares five years later.

These very rough indicative figures give some idea of land availability which if brought into production and assuming present yields (i.e. no productivity gains) would result in increased sugar output ranging from 1 to 3 million tons up to 2005. This would result in total Qld output of about 6-8 million tons. Actual output would be higher since further productivity gains could be anticipated.

Over the past few seasons Qld sugar mills have consistently demonstrated transport and crushing capacities in advance of rising cane supply. Capital investment by sugar mills in plant and equipment as well as transport infrastructure has been enormous. CSR has invested particularly intensely at Victoria, Macknade and Inkerman in new plant and at Plane Creek in transport, but co-operative and other mills have also invested heavily. Twenty of the twenty five Qld mills operate a continuous crushing mode.

In 1996/97 there is a reluctance among mills, particularly company mills to enter into a further round of new capital expenditure. Prevailing low world market prices and high loan capital interest do not provide a sufficiently attractive rate of return to shareholders on their investment. Farmers on the other hand are generally keen to continue expansion and to bring new land into production.

Co-operative mills are in an essentially different position since their shareholders are also their suppliers and there is less conflict of interest. Some such as Proserpine, are reported to be prepared to commit substantial funds for new investment. The same also applies to Mackay Sugar, although the co-operative's 50 percent share of refinery losses would have significantly reduced funds available for further investment in milling capacity.

Therefore unless some understanding can be reached between millers and growers re financing, there may be a significant slowing down in expansion of crushing capacity. There is of course a new Juice Mill (Tait & Lyle) coming into production on the Atherton Tableland which will handle about 800,000 tons of cane over the next five years in addition to the 400,000 tons currently produced in the region and supplied to existing mills. Furthermore there are reports that growers in the Burdekin region are beginning to urge the establishment of a new growers co-operative mill in that region. The Sugar Industry Act was amended to enable the granting of assignment to the Atherton Tableland mill, so that there are no longer any regulatory restrictions on the setting up of new mills. They are however an extremely expensive operation.

In the present climate, Qld millers are strong proponents of vertical integration at field and mill level to raise productivity through field improvement and higher milling extraction rates. Mills are particularly keen to extend the crushing season to use existing capacity more fully, but many growers oppose such an extension because sugar content of cane is low early in the season and falls off sharply late in the season so that unit returns to growers (based on commercial sugar content of cane, CCS) would decline. Average Qld crushing season is about 20-22 weeks and studies indicate an extended season of about 25 weeks would be optimum. This matter was examined at some length by SIRWP and it would appear that a compromise would need to be reached in each area between millers and growers, which would extend the season but provide adequate protection to growers for the associated decline in CCS.

#### **NSW**

Canegrowers in NSW are as committed to sugar cane cultivation as their Qld counterparts. Alternatives are limited, less remunerative and less reliable. Despite a nucleus of large holdings farms are smaller but growers are resilient and often earn off-farm additional income. The growers Co-operative is efficient and attuned to efficiency and innovation and the joint Sugar Co-op/ Manilda refinery seems to run smoothly.

NSW has certain advantages in proximity to domestic markets, abundant water which virtually eliminates the need for irrigation and low fertiliser usage. The smaller NSW mills are of course at a disadvantage but they operate as an integrated operation. The co-operative is confident it can face the future and compete if necessary

against its northern neighbour. The NSW crushing season currently operates up to 26 weeks and given its southern latitude, sugar content of cane does not fall off sharply late in the season as it does in Queensland.

The three NSW mills expect to process 2.4 million tons of cane in 1997 and there is moderate room for expansion. Management estimates that under current technology and farming methods and varieties, NSW sugar output could rise to 350,000 tons over the next five years, that is an increase of more than 20 percent over 1996 output.

#### **Western Australia - Ord River**

The new Ord River sugar mill crushed its first cane in November 1995 and it is planned for the region to grow about 500,000 tons of cane manufacturing about 75,000 tons of raw sugar. Production in 1996/97 was reportedly about 50,000 tons. The mill, owned by CSR, is reported to have struck problems. Planned costs of some \$30m are believed to have risen sharply as major modifications have had to be made and more conventional machinery installed. Also, yields have been lower than expected.

Furthermore, unlike Qld and NSW, there are alternatives to cane in the Ord, particularly cotton. The 22 registered growers are entrepreneurs, some with canegrowing experience obtained in Qld. Sceptics say that Ord growers are not family farmers committed for life to cane as most Qld and NSW growers appear to be, but rather, sizeable entrepreneurs who could move into other areas if deemed more profitable.

The writer is not in a position to assess this situation objectively. However, given the known problems regarding milling and yields, it would seem realistic to assume any expansion beyond the present phase would be fairly slow. For the present it is therefore assumed that Ord River sugar output would not exceed the planned 75,000 tons over the next five years or so.

In summary Australian sugar output could be of the order of 6 million tons by 2000 and 6.5 to possibly more than 8.0 million tons by 2005 which would leave an exportable surplus of 5.5 to 7 million tons, depending of course on domestic and world market developments in the interim.

#### **SUMMARY AND CONCLUSIONS**

The recommendations of the Sugar Industry Review Working Party seem likely to provide the framework in which the Queensland, and by implication, the Australian sugar industry will function over the next five years or so and certainly into the new century.

As a result of the de-regulation of the past decade, the regulatory system based on mill area assignments can no longer be regarded as hampering the industry's ability to expand, or to rationalize, as may be necessary to deal with changing market circumstances and opportunities. Nevertheless, it seems likely that the industry will continue to operate within an overall broadly integrated framework and continue to be overwhelmingly export-oriented. Indeed, it is expected that the present export dependency ratio of 85 percent will rise to 90 percent by 2000.

Indications are that Australian sugar output will continue to expand. ABARE has projected a figure of 6.4 million tonnes by 2001-2; indeed a figure of the order of 9 to 10 million tonnes implying an export surplus of 8 to 9 million tonnes would be technically feasible if market conditions and

economic returns justified the expansion in acreage and milling and hand-milling capacity.

Land is not a serious constraint and growers are keen to expand. In most sugar growing areas, especially Queensland and Northern New South Wales, sugarcane is still farmers' preferred option and there are few equivalent alternatives. Productivity is high and further gains are predicted as a greater proportion of cane is grown under irrigation and superior varieties of cane are developed. There will be further technological improvements at farm level and no doubt further application of economies of scale, although the family-farm unit is likely to remain dominant.

Factory capacity could be a constraint given the reluctance to contemplate a new round of expansion so soon after the dramatic capital investment undertaken in the past five years. The constraints imposed on capital borrowing by high interest rates and low prices received for sugar have been mentioned. Much will therefore depend on future developments in world market prices and ability to reduce further growing, milling and marketing costs. In the short-term every effort will be made to increase throughput and reduce costs with existing capacity through rationalization, application of improved technology and extended crushing seasons. Opportunities for season extension will be enhanced by allowing millers and growers to negotiate bonus payments to growers to offset increased risks and lower c.c.s.

In the longer-term, however, it will probably be necessary to enter into further investment in new capacity. Further rationalization may occur with re-grouping and ownership changes. Competition for ownership of mills and for supply of cane will undoubtedly intensify among the major players, namely CSR, Mackay Sugar and Bundaberg Sugar, which could lead to further mergers or take-over bids and the smaller cooperatives will need to remain vigilant to consolidate their position. But such developments are inevitable in any dynamic industry.

On the marketing side, the integrated packages of the Queensland Sugar Corporation have been successful in placing sugar on the most profitable markets where Australian sugar has a particular advantage and in enhancing its reputation for competitiveness, quality and reliability. Efforts will continue to provide an element of stability through price, foreign exchange and risk management programmes. There may in the future be some attempts to relax single-desk selling arrangements and accommodation may need to be made for New South Wales and the Ord River, should they become significant exporters. But this will involve tinkering rather than fundamental structural changes.

Detailed cost data are not published but Australian sugar industry spokesmen indicate that the industry would be sensitive towards investment if sugar prices fell below 10 US cents per lb for a sustained period, but could survive for some time at lower prices. Much depends therefore on future demand growth and demand/supply balance and on whether Australia can maintain and enhance its competitive position - also of course general economic developments, interest rates, etc.

In summary, it might be said that growers and millers are confident. The same can be said for the export-marketing sector. Indeed, both the Queensland Sugar Corporation and its principal marketing agent express confidence that there will be sufficient consumption growth to enable available supplies of Australian sugar to be exported remuneratively in the foreseeable future. I might add that latest reports also indicate that rationalization measures are being taken which may help to resolve the current hiatus in the refined sugar sector.

Australia has many natural advantages, not least that the location and spread of the industry from high tropics to temperate zone provide insurance against the impact of weather on production and enhance reliability of supply.

The family-based farming sector is knowledgeable, dedicated, self-reliant and confident, as indeed is the general work force on farm, factory and in the bulk-handling terminals. Productivity is high and all segments of the industry, including research, are geared towards furthering efforts to maintain and enhance Australia's competitive position.

The constructive programme of research, investment, growth and rationalization pursued over the last decade will be continued and given the confidence within the industry, which appears to be reflected also at government level, one must conclude that the Australian sugar industry seems to have established a sound platform to advance into the Twenty-first Century. If I may quote the sentiments of one industry official, any industry is as strong as its weakest link and the Australian sugar industry appears to have few weak links.

### IS THE PLANNED EXPORT POTENTIAL SUSTAINABLE IN THAILAND?

*Prepared by Mr Pichai Kanivichaporn for the Sugar and Beverages Group, Commodities and Trade Division . Tables have been omitted due to space limitations and could be made available upon request.*

#### INTRODUCTION

Thailand is a tropical country situated between latitude 5-21 N and longitude 97-106 E covering about 51.20 million hectares. The kingdom has total agricultural areas of 21.6 million hectares and cane occupies approximately 1.0 million hectares or 4.6% share. In the 1996/97 season, the Thai sugar industry produces 5.816 million tonnes of sugar from 56.192 million tonnes of cane. After put aside 1.670 million tonnes for domestic requirement, the exportable surplus is 4.146 million tonnes. The industry is expected to earn total gross proceeds of 49,000 million Baht, which consists of 18,700 million Baht from domestic sales and 30,300 million Baht from exports.

Sugar production in Thailand was first established as a cottage industry during the Sukhothai era (A.D. 1257-1350). The production was then gradually expanded and shifted to commercial scales. During 1930-1935, total sugar output was only 40,000 tonnes per year and approximately 25,000 tonnes of sugar was imported from Java, Indonesia. A new era began in 1937 when the first modern sugarmill with a milling capacity of 800 tonnes cane per day (tcpd) was launched. The initial objective was to develop an import substitution industry. Since then, sugar production has been increased as a consequence of growth, development and new technology. In 1960, Thailand became a net sugar exporter and the industry was found exporting white sugar for the first time in the following year. The exports during 1960-1974 were under 500,000 tonnes. The industry managed to export over one million tonnes for the first time in 1976.

Annual exports during 1976-1981 were slightly higher than one million tonnes except in 1980 when production and export surplus were badly hit by drought. However, due to bumper cane and sugar productions in the 1981/82 season, the 1982 exports leaped to almost two million tonnes.

#### SUGAR EXPORTS

##### Export growth

Beginning with a 1.535 million tonnes level in 1983, sugar exports slid down to 1.206 million tonnes in 1984 but rebounded to 1.697 million tonnes in 1985 and further increased to be almost two million tonnes in the 1986-1988

period. A dramatic surge was found in 1989 when it soared to a new record of almost 3.0 million tonnes in 1989. However, sugar exports of the next two years (1990-1991) turned out to be disappointingly low because they fell to 2.382 million tonnes in 1990 and slightly moved up to 2.715 million tonnes in the following year. Again, the industry managed to strike a new export record in 1992. The new record was 3.519 million tonnes, an enormous stride of a 0.804 million tonnes or about 30 % increase from the previous year's.

Sugar exports tumbled in 1993 to 2.297 million tonnes and slightly recovered in 1994 to 2.555 million tonnes. Export performances of the next two years were indeed spectacular. The export records have been successively broken in 1995 and 1996. First the new export record was registered in 1995 at 3.719 million tonnes. Then, the second new record was reported at 4.343 million tonnes in the following year. The 1997 export is forecast to be 4.146 million tonnes.

In sum, sugar exports during 1983-1996 have expanded from 1.5 million tonnes to 4.34 million tonnes, an average growth rate of 14.50% per year. As it is shown in Table 1, no one can deny that the industry has achieved remarkable export growth. However, that achievement is not all rosy because it goes by limps and leaps. Export falloffs were shown in 1984, 1990 and 1993. Drastic export surges were found in 1989, 1992, 1995 and 1996. The recent uptrend (1994-1997) seems to be enthusiastic until a pessimistic forecast of the 1997/98 cane production was released in July by the Office of the Cane and Sugar Board. Up to now, the 1997/98 export is estimated to be not more than 3 million tonnes.

#### **Export composition**

During 1983-1989, raw sugar occupied more than 85% of total exports. White sugar exports were marginal and accounted for less than 300,000 tonnes per year. During 1990-1992, the "white" volumes and relative shares have increased continuously, and it was more than one million tonnes in 1992, which were about 34 % of the total exports. Although white sugar exports in the following three years have declined to be less than one million tonnes, they rebounded in 1996 to be about 1.5 million tonnes and recaptured 34% of the total exports. It is forecast that the white sugar exports in 1997 would be about 1.3 million tonnes or 31.35 % of the total exports. All data are shown in Table 1. Traditionally, almost all of Thai sugar exports are raw sugar. The white sugar exports have recently emerged and likely to accelerate in the future. Unless production is undermined by unfavourable climate, white sugar exports would be increased in the future.

#### **Export market**

All sugar exports from Thailand, raw and white alike, are sold under the standard f.o.b. terms. This in effect allows flexibility in second hand trading of Thai origin sugar. It is quite usual that a cargo of Thai raw sugar is sold and resold several times prior to its final receivers. The same pattern is also found in white sugar but with a shorter string. The industry consequently has no direct control over its export destinations.

From Table 2, it shows that stable export outlets for raw sugar are Japan, Republic of Korea, Malaysia and China. Erratic outlets are the Philippines, Africa and the former USSR. Major outlets for white sugar export are Indonesia, Sri Lanka and the Middle East. Again, the Philippines, India, China and the former USSR are occasionally turned up as destinations of white sugar exports. Major markets for sugar exports, raw and white, are in the Asia region where Thailand is enjoying a geographical advantage. The Middle East is our main customer of white sugar during 1990-1995 but its relative market shares are likely to decline in the future.

The Asia region, which includes the Middle East, is one of the most important regions in the world sugar map. The net sugar trade position

of the region during 1982/83-1996/97 is shown in Table 3. Two conclusions can be drawn from this table. First, the Asia region is a net sugar importer both in raw and white sugar. The raw net import is generally larger than the white's. During 1994/95-1996/97, the region's raw net import is over 4 million tonnes per annum, while the white net import is declining to 3 million tonnes. Second, Thailand is fortunate to be situated at the proximity of this region and capable of reaping such advantage. The industry is enjoying its freight advantage over other sugar exporters.

Given the net import position of the region and the geographical advantage of Thailand, it is no wonder why almost all of the Thai sugar exports have been taken up by importers in the Asia region. It is also an indicator that all Thai exportable surplus are bound to be continuously bought up every year.

### **FACTORS AFFECTING PRODUCTION AND CONSUMPTION**

#### **The determinants of export availability**

Given the Asia region's net import demand and Thailand's freight advantage, the Thai sugar export growth is basically determined by its export availability. Sugar is one of the essential items in Thailand and it is under strict regulations. The industry is allowed to export only its annual surplus of production over domestic requirement. The export availability thus depends on how fast output grows compare to consumptions. Two important determinants of export availability are sugar production and domestic consumption.

The Cane and Sugar Act (1984) stipulates that the Cane and Sugar Board determines annual export quota by deducting domestic consumption figure from total production. Actual annual exports, however, include all sugar shipments in the January-December period. Hence it is possible that the actual figure is slightly deviated from the export quota which is based on the crop year (October-September). Two conclusions can be made from our comparison of sugar production to export figures during 1982/83-1996/97 in Table 4. First, differences between the export quota and annual export figures are very small. Second, export fluctuations are closely related to production changes. Sugar production is hence the most important determinant of export availability during the 1982/83-1995/96 period.

#### **The determinants of sugar production**

In general, sugar production is determined by cane production and its sugar yield, while changes in cane output is attributable to cane acreage and its yield per hectare. We compute percentage changes of basic production variables between the 1981/82 and 1995/96 seasons in Table 5. In the cane sector, cane yield's growth is only 11% while acreage and cane output grew about 71% and 91%, respectively. This means that during 1981/82-1995/96, acreage expansion accounted for 78% of cane output growth. When we compare growths in sugar production (125%) and sugar yield (18%) for the same period, cane production growth accounts for 73% of growth in sugar output and is the most important determinant. Such production growth can be ascribed to four important factors.

#### **The 70/30 revenue sharing system**

Prior to the 1982/83 season, cane prices were fixed by negotiations between growers' and millers' representatives under the state mediation. It was prolonged and difficult to reach agreement every year. Growers always claimed to be cheated by millers, while millers accused the government of taking sides. The most disputed variable was the expected proceed from exports. This lack of transparency had

undermined confidence and trust between growers and millers. At times, this led to grower strike, delay of milling commencement and mill stoppage during the milling periods that cost the industry as a whole dearly.

Under the 70/30 revenue sharing system installed in the 1982/83 season, the Cane and Sugar Board divides annual sugar output into 3 quotas, namely quota A for domestic sales, quota B for exports under the industry long term contracts and quota C for exports under individual export contracts. The industry agreement stipulates the following steps for cane payment determination. First, the gross industry proceed is calculated by adding up all sugar proceeds from domestic sales (quota A) and exports (quota B+quota C). Second, the net industry proceed is then derived by deducting all industrial expenses from the gross industry proceed. Third, the net industry proceed is allocated to growers and millers at the ratio of 70 to 30. Fourth, cane price equals a division of growers' share by total cane tonnage. Fifth, in each season, the average price of the quota B export contracts is the standard export price in the calculation of export proceeds. Given annual sugar output and its allocation, the gross industry proceed is determined by prices of domestic sales and exports. Since price of domestic sales is rather predictable and industrial expenses are predetermined, the net industry proceed is basically depend on the standard export price.

Given the above-mentioned cane payment formula, it contributes three important stimuli to production growth. First, the determination of export proceeds is much more transparent because the growers are responsible for the pricing of the quota B contract. The export proceed is in effect under the growers' decision. This installs more confidence and stability back to the industry. Second, the pricing term of the quota B contract is the seller executable order against the NY. No. 11 prices. The resulting export and cane prices are therefore truly reflecting the international sugar market's conditions. Third, the 70/30 system encourages competitions toward productivity upgrading among sugarmills. All variables are valued at the industry average levels. Hence, who ever manage to surpass the industry averages would be allowed to keep the margins as his windfall profits.

#### **The cane prices**

During 1982/83-1991/92, cane prices were determined by the formula under the 70/30 revenue sharing system. Prior to milling commencement of each season, a provisional cane price was calculated basing on estimated values of related variables and parameters. This is the price that sugarmills paid all cane deliveries during the milling period. In October, the cane price was recalculated by using actual values of relevant variables and parameters, i.e. domestic sales, export proceeds. The final cane price of the season was then officially announced by the Cane and Sugar Board and all sugarmills have to pay the difference to growers within 7 days.

Up to the 1991/92 season, cane price was determined and applicable to each and every tonne of cane regardless of its quality. A new system of cane payment based on cane quality was implemented in 1992 in order to stimulate productivity improvement. Cane quality is basically measured by its sugar content or c.c.s. unit. The standard cane price is referring to the price paid to cane with sugar content of 10 c.c.s. unit. Every additional c.c.s. unit will receive an extra payment at the rate of 6% of the standard price. Cane with sugar content less than 10 c.c.s. unit is penalized at the same rate as well. In practice, growers are always paid at minimum the standard cane price regardless of their cane quality. We list the provisional and final cane prices for the 1982/83-1996/97 seasons in Table 6 with the industry average c.c.s. data.

Cane production is strongly motivated by relatively profitable cane prices. The final cane price has been increased continuously from the 1990/91 season onwards. The 1992/93-1995/96 prices and the provisional price of the 1996/97 season are all exceeding the 550.00

Baht/tonne level. Hence, growers have received profitable returns since the 1992/93 season. This in effect leads to expansions in acreage. In addition, growers trust that scrambles among sugarmills for cane will continue in all regions. Consequently, growers would be offered an extra bonus of 50-100 Baht/tonne as it was done in the past. It should be noted that attractive cane price has also successfully converted land formerly cultivated other cash crops to canefield particularly those new acreage in the Northeastern region.

#### **The capacity expansion and relocation of sugarmills**

During 1982/83-1985/86 there were excess milling capacities in the Central and Eastern regions while milling periods in the Northeastern region were extraordinary long due to excess cane supplies. Several sugarmills in the Central and Eastern regions argued that existing policy of prohibiting new sugarmill and capacity expansion should be altered to realigned the imbalances. The government should allow sugarmill to relocate and expand capacity under certain criteria. The prerequisite is sugarmill must move out from the cane-deficited zone into the cane-surplus zone. Such a relocation would mitigate imbalances both in the deficited and surplus zones. At the same time, small sugarmills had jointly requested capacity expansions to lower their cost disadvantages. Eventually the government decided to allow sugarmill relocation and capacity expansion started in the 1998/89 season. Since then, several sugarmills have been granted the privileges.

In the 1988/89 season, the industry's total milling capacity was 400,466 tonne cane per day (tcpd), and the first relocated mill was approved in this season with a capacity increase of 4,800 tcpd. Up to the 1997/98 season, there are 16 sugarmills that have been granted relocation with total capacity increases of 84,235 tcpd. And the government has also granted 19 sugarmills to expand capacity of 143,225 tcpd. Altogether, the industry's milling capacity has been increased about 227,460 tcpd, and making the 1997/98 season registered capacity to be about 627,926 tcpd.

All relocated sugarmills listed in Table 7 share two common factors. First, they moved out from the Central or Eastern regions into the Northern or Northeastern regions. Second, they increased their milling capacities. The four relocated sugarmills during the 1995/96-1997/98 has increased its capacity either before or after the relocation. When a sugarmill decides to relocate its site with an option of capacity expansion, the most crucial criterion for its survival is an adequate cane delivery up to its new milling capacity. Cane can be drawn from existing supplies and newly cultivated canefields. However, competing for the formerly existing cane is a no-win war, and hence a more practical approach is to encourage new acreages. All sugarmills, new and old alike, must devote all efforts to securing growers' commitments by offering favourable terms, mainly financial assistance with free or very low credit cost.

The Northern region's shares in cane and sugar productions started to climb up since the 1990/91 season and they managed to maintain at the level exceeding the 20 % mark throughout the 1990/91-1996/97 period. The Northeastern region has also registered higher shares of cane and sugar from the 1990/91 season onwards and they are continuously increased. The conclusion is the sugarmill relocation and capacity expansion policy has induced fast growing cane and sugar productions in the two regions.

#### **The climate**

Climate is one of the most important factors affecting cane and sugar productions in Thailand. This is due to the fact that less than 10 % of cane acreage are sufficiently irrigated and almost all of the cane has to depend on rain as the sole source of water supply. When there is bad climate, all cane just stands defencelessly in the field. The severe droughts in the 1989/90, 1992/93, 1993/94 and 1997/98 seasons have inflicted sharp setbacks in production growth. These disruptions are abundant evidences of the climate's influences. At the same time, perfectly favourable climate helped producing record bumper crops in the 1994/95 and 1995/96 seasons. The climate in the 1994/95 season was very favourable to cane production. At the beginning of the planting season, drought was expected to prolong from the previous season. However, there was adequate rain in the second quarter of 1994 and since then the climate was very friendly to cane. The rains in the second and third quarters were perfect in terms of quantity and timing. The industry would not be able to establish its new production record this season without strong support from the favourable climate. In addition, normal climate played a significant role in uplifting cane and sugar productions in the 1995/96 season.

Given the existing irrigation facilities and its future developments, climate is going to play an important role in determining actual cane and sugar productions at least in the next ten years.

#### **The domestic consumption**

The Cane and Sugar Board is responsible for assigning the annual quota A sugar for domestic sales. There is a tendency to overestimate the requirement in order to avoid panics and speculative hoards. This is generally greeted with applause from the government agents, who always concern about sufficient supply for domestic needs, and growers who enjoy the higher cane price due to higher unit value of quota A compare to the exportable portions. The quota A sugar is sold under strict supervisions of the Sugar Committee to ensure adequate supply at all year round. The consumer welfare is further protected by a maximum price control for domestic sugar sales.

The annual domestic consumption of sugar in Thailand during 1982-1996 is shown in Table 10. Sugar consumption is determined by two important variables, namely population and national income. While a year-to-year comparison is showing a wide fluctuation of increase from more than 20% to as low as 0.3 %, the average growth rate is about 8.50 % per annum for the 1982-1996 period. This is a combined effect of growths in population (1-1.5 % per year) and general economic conditions (8-10 % per year). The average growth rate during 1988-1995 is more steady and higher (9.25 %). The additional growth is ascribed to strong demands from exporters who use sugar as raw materials. The industry started to grant price rebates to this buyer group in 1986. Since then the rebate programme has been expanding over the years.

It is anticipated that the recent currency woes in Thailand would eventually level off the country economic growth to a very un-tigerlike 2-4% a year in the next five years. The sluggish economic trend is attributable to high inflation caused by the Baht devaluation, a value added tax increase from 7% to 10%, an austere budget policy and tight credit conditions. This in turn will slowdown sugar consumption growth. Domestic sugar consumption is therefore expected to shudder to an average growth rate of 4% a year during 1998-2002. Given such a much lower growth rate and a 30% ratio of domestic consumption to total output, the impacts of domestic consumption in countering export availability is bound to be marginal. The most dominant factor in propelling export growth is the sugar production.

#### **EXPORT OUTLOOK**

The Thai sugar industry has done extremely well in the past decade, thanks to high cane prices, more stability and confidence in the industry, successful government initiatives in mill relocation and capacity expansion policy and good weather conditions. The industry is presently recognized as one of the five largest world sugar exporters

and indeed a very dynamic one. The question is whether its recent export growth is sustainable.

#### **The 1998 export outlook**

The 1998 export outlook is definitely going to be much bleaker than the previous year's, because severe drought in 1997 has caused a sharp falloff in cane output and the 1997/98 sugar production is estimated to be as low as 4.60 million tonnes. Due to the on going economic slowdown, the 1998 domestic consumption is forecast to be 1.70 million tonnes. This finally brings the 1998 export availability to a dwindling 2.90 million tonnes.

#### **The 2002 export outlook**

The 2002 export outlook is projected under three basic assumptions. First, it is assumed that all sugar self-sufficiency campaigns in various Asia countries have yet to materialize. Second, domestic consumption grows at lower rates (3-5 %) due to sluggish economic conditions in Thailand. The last but most important assumption is that the climate is normal.

Judging from the industry's track records of surviving under stormy weathers during the past years, the industry outlook in 2002 is still encouraging. Although the sugar output and exports in 1997/98 are expected to be disappointingly low, the industry is looking forward to healthy recovery in the near future. By 2002, the cane production should be no less than 70 million tonnes and the sugar production should be about 7.70 million tonnes. Given an anticipated slowdown in domestic demand due to economic recession in the 1998-2000 period, the domestic consumption should be 2.10 million tonnes in 2002. The 2002 export thus is forecast to be 5.00-5.50 million tonnes.

Our optimistic projection is based on three major factors.

(a) The industry's total milling capacity is now about 628,000 tcpd, and presently is under-utilized. Given an average milling period of 120 days per season, the 70.00 million tonne cane should be processed with adequate capacity. Unless output is undermined by the abnormal climate, producing 7.7 million tonnes of sugar is viewed to be within reach for the next five years.

(b) The industry's export sector is well equipped to handle such tonnages of exportation both in terms of storage and loading facilities. Our preliminary survey shows that the industry now has 13 units of export terminal with 7 units in Bangkok, 2 units in Choburi and 4 in Anghong. All together they have storage capacity of 770,000 tonnes for bulk sugar and 920,000 tonnes for bag sugar. They are capable of loading at the rates of 400-500 tonnes per hour for bulk and 100-150 tonnes per hour for bag sugar. Given normal shipment distribution of 500,000-600,000 tonnes per month, such an existing capacity should be sufficient in handling the 5.0-5.5 million tonne export.

(c) The Asia region is a net sugar importer of at least 6 million tonnes during the last four years. The world sugar demand expands at the annual rate of 1-2% during 1984/85-1994/95, while Asia's consumption growth is more than 4% per year. Given rapid industrialisation in several Asian countries, the Asia region is bound to become the most fast growing sugar consumption region. Additional export availability from Thailand should be easily absorbed by Asia's import demand.

When an export of 5.5 million tonnes by 2002 is projected, this is much easier to say than to achieve. The immediate task

is to rebound from its 1997/98 production slump which is not easy by all means. The industry then will have to make great strides to achieve the planned export by 2002. But much more needs to be done if it is aiming to surpass the 5.5 million tonne mark. The Thai sugar industry has to be a cost competitive producer by international standard. This is prerequisite because the industry must be able to effectively compete in the world market without any freight advantage. To achieve such an ambitious plan, the industry has to address and prescribe solutions to various problems related to cost ineffectiveness both in the canegrowing and sugarmilling sectors. The first and most crucial problem is how to uplift the cane yield per hectare which has been kept low by a host of factors. The next problem is that cane harvesting has to be mechanized with proper designs of machine and equipment. In addition, there is one more problems in the milling sector waiting to be genuinely tackled, that is the under-utilization of milling capacity. It generally worsens the scrambles among sugarmills for cane, and eventually costs the industry as a whole.

### CONCLUSION

When the first modern sugarmill was established in 1937, the initial aim was to develop an import substitution industry. At present, Thailand is one of the five largest world sugar exporters. Export growth is mainly propelled by caneaereage expansions and climatic conditions via annual production changes. In spite of an expected sharp setback in export for 1998, the industry's export outlook is forecast to be promising during the next five years. Given normal climate, the industry should be able to make available about 5.0-5.5 million tonnes of exportable surplus in 2002. However, faster growth is extremely uphill. The industry has to overcome various hurdles in the cane and sugar sectors to achieve higher productivity and a cost competitive producer by international standard. Canecost improvement is vital in this ambitious mission. Again, climate is the most important and uncontrollable factor. To get through it all, the industry may not need a miracle, but a little luck would not hurt.

## THE DEVELOPMENT IN THE INDUSTRIAL USE OF SUGAR IN CHINA FROM 1970-1996 AND ITS FUTURE PROSPECTS

*Prepared for the Sugar and Beverages Group, Commodities and Trade Division by Messrs. Jia Zhiren and Jiao Nianmin.*

### CURRENT SITUATION

Since the founding of the People's Republic of China, and especially since the reform and opening-up, the sugar industry in China has made rapid progress. The national sugar output (that of Taiwan Province of China province is not included) has developed from 260,000 tons at the early stage of her founding to 6,600,00 tons during 1996/97 campaign, the output had reached 7,910,000 tons in the highest year. China has entered the ranks of major sugar-producing countries. Through the development of over 40 years, the Chinese sugar industry has formed a fairly comprehensive sugar industrial complex from growing of sugar-bearing crops to sugar-producing and comprehensive utilization, from equipment manufacture, civil construction and equipment installation to production, education, scientific research, sales and marketing; the industry also has its completed specialized institutions and professional personnel with fairly high level.

Nowadays, China has 497 sugar factories, with processing capacity of 650,000 tons/day and sugar-producing capacity of 8,500,000 tons/year. Among them, cane sugar factories are 411 ones, with cane-pressing capacity of 560,000 tons/day and sugar-producing capacity of 7,000,000 tons/year; beet sugar factories are 86 ones, with beet processing capacity of 90,000 tons/day and sugar-producing capacity of 1,500,000 tons/year. The location of sugar industrial region nationwide is as follows: there are 23 sugar-producing provinces and autonomous regions, in which cane sugar is distributed mainly over the 7 southern provinces and autonomous regions of Guangdong, Guangxi,

Yunnan, Fujian, Hainan, Sichuan and Jiangxi, with the sugar output accounting for 98% of the national cane sugar output; beet sugar is dispersed over the 7 northern provinces and autonomous regions of Heilongjiang, Xinjiang, Inner Mongolia, Jilin, Gansu, Ningxia and Liaoning, with the sugar output amounting to 97% of the national beet sugar output.

The whole sector has 450,000 employees, in which technicians and engineers are more than 20,000 people, the farmers for growing sugar-bearing crops are over 3,000 people. At present, China has 25 scientific institutions of sugar-making and sugar-bearing crops, 9 designing institutes which set up sugar speciality, 15 universities and colleges and technical secondary schools putting up sugar-making speciality, 4 sugar beet seed companies, as well as 8 machinery plants manufacturing sugar machinery in addition to other machineries.

### PRODUCTION AND CONSUMPTION

Since 1970s, sugar production and consumption in China have undergone several different developing periods. Between 1970-1978, the sugar production all the time hesitated between 1,350,000 ~ 2,267,000 tons, in the same period the sugar consumption between 1,604,000 ~ 2,768,000 tons, and consumption per person between 1.0 ~ 2.9 kg, the consumption per person only grew 1 kg during those eight years.

Since 1978, China has practised the policy of reform and opening-up, her economy has developed rapidly, and the people's living standard has improved quickly. During the same period, the Chinese government has carried out the policy of rewarding grain for growing sugar-bearing crops, thus solving the contradictory issue of contending for farmland between grains and sugar, the development of Chinese sugar industry had been puzzled by this issue for a long period of time. In addition, our state had increased the investment in the sugar industry during the Seventh Five-Year Plan, developing 4 new sugar-producing bases of Guangxi, Yunnan, Xinjiang and Zhanjiang in Guangdong and increasing sugar-producing capacity, all these had made a rapid development of sugar production. The sugar output had hiked to 8,289,000 tons in 1992 from 2,267,000 tons in 1978, with 266% output increase in 14 years and averaging 19% of annual increase. During the same period of time, the total sugar consumption had also jumped from 2,768,000 tons in 1978 to 7,589,000 tons in 1992, with an increase of 235% in the 14 years and averaging 17% of annual growth. The consumption per person upgraded from 2.9 kg to 6.5 kg.

However, since 1992, because the reform of the production and marketing of grains and sugar brought new contradictions and problems which were not solved properly, and because the readjustment of grains price which made the price ratios between grains and sugar-bearing materials lose their balance, and made the sugar-bearing crops decrease in production, resulting in the drop of the national sugar production for 3 years running, and by 1995, it went down to 5,310,000 tons. But it rose again to 6,337,000 tons in 1996, and it is estimated that it will pick up to 6,650,000 tons in 1997. Since 1992, the sugar consumption has fluctuated for a time, the main reason is the increased utilization of the substitutes.

Over a long period of time, the sugar output in China is not enough for the sales, China imports sugar every year to supplement her domestic insufficiency, and it's one of major net sugar import countries (but China once became a net export country in 1992 and 1993).

### THE DEVELOPMENT IN THE INDUSTRIAL USE OF SUGAR

Before 1991, China carried out fairly strict planned management of sugar purchase and sales, and the sales flow direction was quite clear. Tables 3.1, 3.2 and 3.3 show the breakdown of sales of the industrial use of sugar. From the tables, it can be seen that the main fields in the industrial use of sugar in China are the sectors of confectionery, bakery products, cans and snacks etc. The percentage of industrial use of sugar makes up about 50% of the national sugar sales. In Table 3.2, this percentage was below 40% after 1983, but considering that sugar directly sold by the sugar factories besides the commercial sale was basically sold to the big sugar end user for industrial use, therefore the percentage of total consumption in the industrial use of sugar should be between 50% ~ 60%. Since 1991, the flow direction of sugar sales has been set free, so it is difficult to find the statistical figures of sales by breakdown, but the basic situation of the industrial use of sugar after 1991 can be calculated according to the development of sugar-use products. From Table 3.3, it can be seen that, at present, the industrial use of sugar in China still concentrates on the sectors of soft drinks, confectionery and bakery products etc., and the proportion of the industrial use of sugar in the total consumption escalated from 55% in 1991 to 66% in 1995. The biggest sugar-use provinces and municipalities are those fairly economy-developed ones along the southeastern coast, such as Guangdong, Shanghai, Jiangsu, Zhejiang, Beijing, Shandong and Fujian etc.

#### Industrial use of sugar by sectors

##### Confectionery industry

The confectionery industry is a conventional sugar-consuming industry in China, and used to be the sector consuming most sugar in history, the percentage in the industrial use of sugar had once reached as high as 40%. From the beginning of 1970s to the end of 1980s, its sugar consumption increased simultaneously with the development of our national economy. At the end of 1980s and in early 1990s, the confectionery demand had changed with the improvement of the people's living standard. The output and consumption of conventional and popular candies decreased, while the output and consumption of high-grade sweets and chocolate rose: the total sugar consumption showed slow increase. In the recent years, the confectionery industry has developed in a rapid speed, and its sugar consumption grows fairly fast. In 1991, the sugar consumption in the confectionery industry was 628,000 tons, and in 1995 the sugar consumption in the industry was 801,000 tons, accounting for 17% and 16% of the total sugar consumption in the industry use in that year respectively. It is estimated that the confectionery industry will still be the major sector in the industrial use of sugar in the future 10 years. The Chinese confectionery industry mainly concentrates on the economy-developed provinces and municipalities, such as Shanghai, Guangdong and Beijing etc.

##### Bakery industry

The bakery industry is both an ancient and a rapid developing sector, its sugar consumption has surpassed that in the confectionery industry, only behind that in soft drinks industry. The ends of 1970s and 1980s were the golden age of the industry, when its sugar consumption jumped. In the bakery industry, the production of biscuits and moon cakes consumes more sugar than that of other bakery products. In 1991, the biscuit segment consumed 173,000 tons of sugar, and moon cake segment consumed 200,000 tons of sugar. The total sugar consumption in bakery industry was 693,000 tons in 1991, 785,000 tons in 1995, amounting to 19% and 18% of the total sugar consumption in the industrial use respectively. It is estimated that the sugar consumption in this sector will reach 1,085,000 tons by the year of 2000.

##### Soft drinks industry

The soft drinks industry is a developing sugar-using industry, and develops most rapidly among the sugar-using sectors. According to the statistics done by the Ministry of Light Industry, at the end of 1970s,

the total production of the soft drinks industry was only 200,000 tons or so, with the sugar consumption of about 20,000 tons. Its output has shot up since entering 1980s, and up to 1996, its total production reached 6.5 million tons (the production having not counted up approximately made up 50%), with sugar consumption of about 1,050,000 tons. When breaking down into regions, the soft drinks production in Guangdong province reaches 2 million tons, accounting for 30% of the national total production; the production in the ten provinces of Liaoning, Zhejiang, Beijing, Shanghai, Fujian, Hubei, Jiangsu, Guangxi, Hainan and Sichuan, is between 100,000 ~ 400,000 tons respectively; the production in the 6 provinces of Shandong, Hebei, Tianjin, Heilongjiang, Henan and Jilin all surpasses 100,000 tons; the production of the above 17 provinces and municipalities amounts to over 93% of the total soft drinks production nation-wide.

The soft drinks output having not counted up is mostly produced by the small-sized enterprises in the small towns, with mainly using saccharin for their soft drinks production.

It is estimated that the future ten years will still be the highly developing 10 years of the soft drinks industry, and its annual sugar consumption will reach 1,500,000 tons. The soft drinks industry is a sector which uses more of synthetic sweeteners such as saccharin etc. The percentage of sugar substitution with sweeteners such as saccharin depends on the attitude our country takes towards to the utilization of saccharin.

### **Canning industry**

Among the canning industry, fruit cans and the convenience congee cans developed in the recent years are the main varieties using sugar. Since 1970s, the output of fruit cans has been steadily growing up to now, from 77,400 tons in 1970 to 1,050,000 tons in 1996, its sugar consumption has crept up from 10,000 tons to 160,000 tons in the same period of time. The main producing areas of fruit cans concentrate on the provinces and autonomous regions of Zhejiang, Sichuan, Hunan and Guangxi. The convenience Congee etc. are the new sugar-using segments suddenly coming to fore in the 1990s, their present consumption is about 50,000 ~ 60,000 tons/year.

### **Preserved fruits industry**

It is a traditional, sugar-consuming industry, its sugar consumption makes up about 70% of its product output. The highest year of sugar consumption once reached 100,000 tons. In the recent years, its output and sugar consumption have no big changes. However, according to the insiders, with the development of fruit planting, the fruit processing industry is sure to have a big development. Besides the varieties of fruit juice and fruit cans etc., the traditional fruit product — preserved fruits will have a certain development. It is estimated that the sugar consumption of preserved fruits will exceed 170,000 tons in the year of 2000.

### **Dairy products industry**

During the initial stage of the founding of the People's Republic of China, the output of dairy products in our country was only several hundred tons, it developed to 47,000 tons by 1978. Since 1978, it had been the most rapid developing period of the Chinese dairy products industry, the output had advanced from 47,000 tons in 1978 to 450,000 tons in 1995. Among the output of dairy products, 80% is milk powder, about 15% is condensed and evaporated milks and the others are yoghurt. Their total sugar consumption is 145,000 tons. The main producing areas of dairy products are: Heilongjiang (28.7%), Zhejiang (9.4%), Hebei (6.6%), Inner Mongolia (6.4%), and Shandong (6.0%). China is one of the countries the consumption per person is low, but at the same time China is one of the countries which develop dairy products fairly fast. With the improvement of the people's living standard, the dairy products will surely have a big development. The dairy products industry will be one of the sectors which sugar consumption grow fairly fast.

### **Alcoholic drinks industry**

China is a big alcoholic drinks producing and consuming country, the production of fruit wine, wine, rice wine and some spirit all need sugar. At present, their total sugar consumption is at about 138,000 tons. For a period of time in the future, the developing trend of alcoholic drinks in China is towards the low alcohol drinks, with the emphasis on developing fruit wine and rice wine. The sugar consumption in alcoholic drinks industry will show the rising tendency, and it is estimated that by 2000 the sugar consumption in alcoholic drinks will surpass 352,000 tons.

### **Ice cream industry**

Its main products are ice cream etc., its sugar consumption amounts to about 9% of the total sugar consumption in the industrial use. In the recent years, the ice cream industry witnesses rapid development, especially the establishment of large-sized joint ventures in Guangdong, Beijing and Shanghai etc. has promoted the development of ice cream industry.

### **Pharmaceutical industry**

The sugar consumption in the pharmaceutical industry is one of the most difficult figures to collect. In the planned economic period, the breakdown of sales showed that its sugar consumption was approximately 100,000 tons, mainly used for the Chinese medicine of bolus and concentrated drugs (*chongji*), the sugar coating of the western medicine as well as some fermented products. All kinds of oral liquid drugs etc. emerged in the recent year are one of the new sugar-using varieties. It is estimated that the sugar consumption in the pharmaceutical industry surpasses 150,000 tons at present.

### **MAIN FACTORS INFLUENCING ON THE DEVELOPMENT IN THE INDUSTRIAL USE OF SUGAR**

Generally speaking, the development in the industrial use of sugar in China follows the development of the Chinese national economy and the natural growth of the population. Before 1978, both sugar production and consumption were at a low level. The 20 years since the reform and opening-up have been the quickest developing period of the Chinese economy, and the quickest developing period of the industrial use of sugar, as well. Tables 5.1 and 5.2 show GNP and the population growth in China between 1978 ~ 1995, and Table 5.3 shows sugar price and consumer indices

#### **The influence of substitutes**

The main non-sugar sweeteners nowadays used in China are those several kinds: saccharin, stevioside, cyclamates, aspartame as well as polyhydric alcohols and starch sweeteners.

*Saccharin* is a kind of sweeteners with largest amount of and the longest history of use, its price is the lowest, too. In 1996, the market price of saccharin was RMB 35,000 yuan/t, or RMB 100 yuan/t.s.e., it is the biggest substitute for sugar. Since 1992, our government has taken measures to limit the production and use of saccharin: its production is limited within 12,000 tons, its use is limited within 6,000 tons. The measure had played its role for a time. However, because of a great disparity of price between saccharin and sugar and not effectively enforcing the measure by some departments, saccharin production and use have gained ground at the expense of sugar in the recent years. However, its production and use are often underground. It is very difficult to do the official statistics for those figures. It is estimated that in 1996 its production surpassed 20,000 tons and its use exceeded 10,000 tons, or exceeded tons s.e..

*Stevioside*. China has started to plant and produce stevioide since 1980s, its output is about 300,000 tons s.e., but its use is not so big. In the recent years, China has been exporting stevia leaves and raw stevioside, and her domestic use is equivalent to about 100,000 tons s.e.. Since its production cost is relatively high, the substitution of stevioside for sugar is not obvious.

*Cyclamates*. China has started her production since the end of 1980s, and has developed fairly rapidly in the recent year. Its output in 1988 was several hundred tons, and reached 1,500 tons in 1990, and 4,600 tons in 1996, or 230,000 tons s.e.. Cyclamates is one of the limited-use sweeteners like saccharin. Its price is about RMB 36,000 yuan/ton, or equivalent to RMB 720 yuan/ton s.e..

*Aspartame* and other new-type sweeteners. Since early 1990s, aspartame has been started the production in the cities along the southeastern coast. Its development is not fast because of its fairly high cost. However, the imported aspartame enters the Chinese market with its strong propaganda offensive in the recent years, its consumption begins to rise. It is estimated that the consumption had reached 100,000 tons s.e. in 1996.

In addition, the productions of *polyhydric alcohols* and *starch sweeteners* have developed slowly, since their prices have no competitive advantages compared with sugar. The output of polyhydric alcohols is about 45,000 tons s.e.. In addition to export, it is mainly used for the special food for the special group of people (such as diabetics). The production of starch sweeteners has started since the early 1980s. Its production scale is small, its cost is high, and transport and use conditions have also limited its development. Its output is approximately 300,000 tons of commercial quantity. Its future development will depend on the degree of self-sufficiency in grain and grain price in China.

Among all the non-sugar sweeteners, the production costs and selling prices of polyhydric alcohols and starch sweeteners are all higher than those of sucrose. However, the using prices of saccharin, stevioside, cyclamates and aspartame etc. are all lower or far lower than that of sucrose, the degree of their substitution for sugar will depend on the product properties itself, the consuming consciousness of the consumers and the attitude to which the country takes.

#### **FUTURE PROSPECTS**

In the last few years of this century and at the beginning of next century, the economy in China will develop with a fairly high speed, and the average growth rate of her GNP will reach 7%, in which the developing speeds in the industrial use of sugar in foodstuff, beverage sectors etc. will be higher than the average growth rate of GNP. The following factors will influence on the development in the industrial use of sugar:

- The population growth and the growth of proportion of city population nation-wide;
- The change of diet structure;
- The improvement of the people's living standard, the increase of health consciousness,
- the selection of the consumers will turn to sucrose all the more; and
- The government will pay even more attention to the development of sugar industry, and
- will strengthen the limitation of production and
- use of chemically synthetic sweeteners such as saccharin etc.

It is estimated that by the year of 2010, the sugar consumption in China will be over 11 million tons, in which the proportion of the industrial use of sugar will rise to 70% from about 65% at present, reaching 7.7 million tons. Its main application fields will be the sectors of beverages, confectionery, bakery products and dairy products etc.

S

### **THE NORTH AMERICAN SUGAR MARKET: RECENT TRENDS AND PROSPECTS BEYOND 2000**

*This was prepared by Mr Peter Buzzanell for the Sugar and Beverages Group, Commodities and Trade Division, FAO. Tables have been omitted due to space limitations and could be made available upon request.*

#### **INTRODUCTION AND OVERVIEW**

Ladies and gentlemen it is an honor to be invited to speak at this important international conference focusing on sugar markets in Asia and the Pacific. The Fiji/FAO Organizing Committee has asked me to present my analysis of the North American market. Developments in North American both contrast and parallel emerging trends in production, consumption, trade patterns and regional trade arrangements in Asia and the Pacific. Of particular interest to you, I believe, is the North American Free Trade Agreement (NAFTA) and its sugar provisions. NAFTA provides a model of how sugar provisions can be worked into a regional trade agreement among three countries with very different sugar regimes. The Canadian-U.S. Free Trade Agreement provides a model of a bilateral trade arrangement. Special

attention is also given to Mexico's large labor intensive cane sugar industry and how it is emerging from its privatization initiative.

The North American region consists of three countries, Canada, Mexico and the United States of America, (U.S.), with a combined population of just over 400 million. The region, as a whole, has been consistently a sugar deficit area, requiring more imports than exports to meet growing consumption needs. However, changes in the region's sugar industries are causing new trends to emerge. For example, Mexico has been a deficit sugar producer, but in recent years has shifted to surplus producer status. The U.S. produces a significant share of its sugar needs, but remains a major importer and at a higher level than expected a decade ago. In contrast, Canada produces only a small share of its needs, depending largely on imports. For 1997/98, Sparks Companies Inc.(SCI) forecasts total North American production at 11.95 million tons and consumption at 14.49 million with per capita use averaging 34 kilograms. Trade is expected to total 3.46 million tons of imports, with over 2 million tons going to the U.S. and over 1 million tons going to Canada, while exports are estimated at 1 million tons, the bulk of which will come from Mexico. Both sugar production and consumption for the region has been trending up over the last decade.

Trade, both imports and exports, however, has shown considerable year-to-year variation. Sugar trade among the countries of North America is currently relatively small, but this is expected to change under NAFTA in terms of exchanges between Mexico and the U.S. For related sugar containing products and sugar substitutes such as high fructose corn syrup, the trade is currently also relatively small but highly continuous.

In order to project where the region is headed beyond 2000, it is important to understand the changing structures and forces underpinning the emerging trends in the sugar industries in the region. With this accomplished, the implications of NAFTA among the countries of the region and prospects beyond 2000 can be better assessed.

#### **UNITED STATES OF AMERICA (U.S.)**

##### **Introduction**

The U.S. sugar market continues to be dynamic in size and structure. U.S. sugar is an important part not only of the U.S. agricultural sector, but also of the global sugar economy in terms of production, consumption and trade. Like most countries, there is considerable Government intervention in the U.S. sugar market - - a loan program and tariff-rate import quota system - - which affects domestic prices as well as U.S. producers, consumers and foreign suppliers.

##### **Sugar Production: Recent Trends and Industry Structure**

U.S. sugar production (including Puerto Rico) for fiscal year 1997/98 (October-September) is forecast by SCI at a record 6.87 million metric tons, raw value. Only the expected output in the combined European Union (EU) countries, India, and Brazil are forecast higher. U.S. sugar production, with major components of sugarbeet and sugarcane, outranks the only other major dual producer, China, by 40 percent.

##### **Beet Sugar**

Sugarbeets are grown as a rotation crop in 17 of the 50 U.S. states by an estimated 2,000 sugarbeet farmers. There are currently 10 sugarbeet processing companies with 30 processing facilities near growing areas. For 1997/98, SCI forecasts beet sugar production at 3.88 million metric tons,

accounting for 56 percent of total production. Only beet sugar production in France is consistently higher.

Beet sugar production has expanded from around 2.7 million tons annually in the early 1980s when new U.S. sugar policies were implemented to an average 3.7 million in the early 1990s, up by over one-third. The beet sugar production growth trend is 100,700 metric tons per year over fiscal 1983-1996. Sugarbeet harvested area has expanded by over 80,000 hectares from 485,000 in the early 1980s to 567,000 hectares this year, with some year-to-year variations. While some areas have experienced a decline, notably the state of California, this has been more than offset by expansion in the Upper Midwest states of Minnesota and North Dakota.

To accommodate the expanded area, U.S. beet processing firms have increased slicing capacity (tons of beets per day) to an average of 4,875 metric tons per factory, up by one-third from the early 1980s. In contrast to increased area in sugarbeets and capacity, sugarbeet yields have not trended upward, but vary widely from year to year due to weather. However, sugar per hectare has been rising, reflecting the growing of beet seeds bred for high sugar content, improved management techniques by farmers, and improved processing technology. For example processors have provided incentives to growers to raise crop quality (sugar versus tonnage). The improved management of nitrogen has been pivotal to this effort. Too much nitrogen costs growers twice-extra cost for unneeded inputs and lower extractable sucrose which reduces crop returns.

In addition, the beet sugar industry has benefited from investment in ion-exchange chromatographic separator technology which facilitates the desugaring of beet molasses high in sugar content. Beet sugar production from the desugaring of molasses (included in the total forecast) is expected to total 227,000 tons in 1997/98 from six facilities now in operation, compared with under 50,000 tons from one facility in the late 1980s.

Sugarbeets, while expensive to grow, are generally more profitable than alternative crops in most areas where they are grown and, under the current U.S. government sugar program, sugarbeets are expected to remain more profitable. The goals of sugar policy are to support U.S. beet and cane sugar producer returns and stabilize supplies. This is accomplished by supporting producer prices for domestic sugarcane and beets above international prices, but at no Federal budget cost. This approach means that, except in years when the world price is usually high, consumer prices are above what they would be without the program.

The U.S. sugar program involve a series of regulations including price support loans and limits on U.S. sugar imports. Unlike most price-supported crops, price support loans for sugar are made available from the U.S. Department of Agriculture (USDA) to processors rather than directly to farmers. Raw cane sugar is supported at 18 cents per pound and refined beet sugar at 23.90 cents per pound for the 1997 crop. These loan rates are national levels and vary among regions of the country.

Processors who receive loans are obligated to repay the principle and interest before they sell the sugar. But if market prices are below the loan level, processors may transfer the sugar (pledged as collateral for the loan) to the USDA as full payment for the loan. Processors who choose to participate in the loan program are obligated to pay specified minimum prices to producers of beets and sugarcane that correspond with the loan rates for beet and cane sugar.

To insure that foreign sugar does not enter the U.S. market in such quantities that would potentially undermine the domestic support system, import quotas are imposed on foreign sugar. USDA sets the size of the import quota for each marketing year. The Office of the

U.S. Trade Representative is responsible for allocating shares of the quota among countries eligible to export sugar to the U.S. A group of about 40 countries has access to the U.S. quota, and each one's share has been largely unchanged since 1982.

### **Cane Sugar**

Sugarcane is grown in only 4 of the U.S. 50 states as well as Puerto Rico. The structure of the industry is characterized by a relatively small number of producing and processing firms with large scale operations, this has been especially true in the states of Hawaii and Florida. In contrast, Louisiana's industry is characterized by a relatively large number of small growers and a sizable cooperative ownership of the raw cane milling sector. Cane sugar production grew at a trend rate of only 17,237 metric tons during 1983-96 as growth in Florida and Louisiana was largely offset by the sharp contraction of Hawaii's sugar industry. Over this period, national area in sugarcane has expanded by over 80,000 hectares, led by Florida and Louisiana. In contrast, area planted to sugarcane in Hawaii and Puerto Rico has declined sharply.

Florida has displayed strong production growth, underpinned by expanded area and generally improved yields and recovery rates. Production rose from 1.0 million metric tons in the early 1980s to around 1.6 million in recent years. Louisiana has experienced freezes, hurricanes, and periodic poor growing and harvesting weather, but area in sugarcane has been trending up and the state has enjoyed 1.0+-million-ton sugar production in each of the last four years. Texas has made incremental improvements in its field and factory efficiency and also has had production at record levels in recent years, though this year it is being affected by drought.

SCI's cane sugar production forecast for Hawaii is unchanged at 295,000 metric tons, which would be down 6 percent from the 1996/97 production. A decade ago, Hawaii was regularly producing a near 1 million tons per year. Costs for labor, transportation of sugar to the U.S. mainland, and environmental compliance are some of the leading causes for contraction of the industry. Since 1992, six out of 12 mills have closed with two of those closings occurring in 1996. Some of the currently operating mills also have been losing money in recent years and some additional contraction of the industry is expected. According to a leading spokesman for the Hawaiian industry, if there is no additional mill closures, production in calendar year 1998 is forecast to decline only modestly, ending a decade of rapid contraction of the industry.

Currently, the U.S. cane sugar industry has 34 raw cane mills distributed in the growing areas: Florida, 7; Louisiana, 19; Texas, 1; Hawaii, 6; and Puerto Rico 1. These facilities vary in capacity with the mills in Florida having an average daily crush capacity of 20,000 tons per day versus the mills in Hawaii which average under 10,000 tons. Moreover, the general trend in the industry is to have fewer but larger mills. For example, Louisiana's industry 20 years ago had over 40 mills and now it has only 19, with the expectation that the state will have only 10 super mills in a few years, but will be producing sugar at record levels..

Unlike many areas in Asia and Latin America, cane sugar refineries in the U.S. have been largely stand alone operations located at port facilities. The melting capacity of U.S. cane sugar refineries at 12 plants is approximately 20,360 metric tons per day which equates to the ability to produce 6.0 million metric tons of refined sugar on a 270-day per year schedule.

A new trend in the U.S. is for cane producing and milling companies to invest in capacity to produce refined sugar at their existing raw mills. For example, U.S. Sugar Corporation in Florida, is currently putting on capacity to refine sugar for the first time. Other mill ownership groups are considering integrating their capacity in order to maximize use of their facilities, reduce costs and capture the refined sugar price premium in the U.S. market.

In another emerging trend in the industry, cane refining companies have been merging with beet sugar companies (for example, the merger of Imperial Holly with Savannah-Michigan). Also, multi-nationals have been investing in the U.S. industry with Tate and Lyle purchasing Domino (a cane sugar refiner), Western (a beet processor) and Staley (a corn wet-miller and producer of HFCS). (Tate and Lyle also has invested in the sweetener industries of Canada and Mexico.)

#### **Sugar Consumption: Recent Trends Industry Structure**

U.S. sugar consumption ranks third in the world behind India and the EU. The U.S. has the world's third largest population of 274 million and the largest and most diverse food processing industry. Despite a trend toward greater self-sufficiency in sugar production, the U. S. remains one of the world's largest net sugar importers - - only the Russian Federation and Japan are higher.

During the first half of the 1980s, sugar lost 2 million tons of the beverage market to lower-cost high fructose corn syrup (HFCS). Since 1986/87, with maturity of the HFCS market, sugar use has rebounded. For the decade of 1985/86 to 1995/96, U.S. sugar consumption growth was 1.9 percent per year. For the first five years (1985/86-1990/91) of the decade, the annual growth was 2.3 percent, while the second five years (1990/91-1995/96) has a growth of 1.4 percent. This resurgence largely reflects population growth (0.9% per annum), increases in the population of immigrants (many of their traditional diets are high in sugar), expansion of away-from-home food consumption, and increases in use by food processors.

The structure of demand in the U.S. differs from many countries. Only about 30 percent of demand is in the direct retail business while 70 percent is in the industrial processing sector. Leading sugar containing product manufacturers in the U.S. are the cereal/bakery product manufacturers and confectionery, ice cream and dairy product manufacturers. Under 200,000 tons of sugar are now used annually by the U.S. beverage industry - - the bulk of that market is now sweetened by either high fructose corn syrup in nutritive or regular soft drinks or by aspartame in diet drinks.

#### **Corn Sweeteners - Alternative to Sugar**

Separate attention needs to be given to corn sweeteners, an important substitute for sugar in the U.S. due to its competitive pricing and product characteristics. The U.S. has the world's largest corn sweetener production capacity and it is the largest market for the industry's dominant product, high fructose corn syrup (HFCS). The U.S. corn wet-milling or refining industry currently consists of 28 facilities in 15 states. HFCS production capacity for 1997 is estimated at about 24.1 billion pounds, dry weight, up from 19.6 billion in 1995 and 11.9 billion pounds a decade earlier.

The recent expansion in capacity temporarily has outpaced strong growth in HFCS demand, resulting in a fall off in plant utilization. HFCS capacity utilization is currently running at about 70 percent, down from over 90 percent earlier in the 1990s.

HFCS deliveries in 1997 are expected to total 16.7 billion pounds, or 4.1 percent greater than 1996. Using deliveries as an indicator of consumption, this would equate to over 60 pounds per capita, up from 49.6 pounds in 1990 and 19 pounds in 1980. Total HFCS consumption is driven largely by HFCS-55 use in the soft drink beverage industry which normally accounts for 90 percent of its consumption. For 1997, deliveries of HFCS-55 are estimated at 10.0 billion pounds while HFCS-

42 deliveries are estimated at 6.7 billion pounds. Low priced HFCS-42 continues to grow in demand, taking some additional markets from sugar whose price has been particularly strong this year. For 1998, deliveries are expected to continue their upward trend advancing a projected 4.5 percent to total 17.5 billion pounds.

U.S. trade in corn sweeteners has been relatively small compared with domestic production and utilization and has been largely confined to border trade with Canada and Mexico. Trade with Mexico has been generating considerable recent attention, particularly due to the prospect that Mexico's soft drink industry might switch from sugar to fructose as its sweetener of choice.

#### **Sugar Trade: Recent Trends and Structure**

The U.S. remains one of the world's largest sugar importers, importing annually over 2 million tons of quota sugar and several hundred thousand tons of non-quota sugar for refining and re-export. In mid-September 1997, USDA announced the fiscal 1997/98 (October-September) tariff rate import quotas (TRQ) for raw, cane, refined and specialty sugar. The combined TRQ for 1997/98 totalled 1.825 million metric tons (2.012 million short tons), down 27 percent from the TRQ announced in September 1996. The sharp downturn in the combined quota reflects an increase in old-crop stocks and late arriving 1996/97 TRQ sugar carrying stocks coupled with a 5.3 percent increase in expected U.S. beet and cane sugar production for 1997/98.

As was the method last year, USDA is initially making 1.200 million metric tons (1.323 million short tons) of the raw cane sugar quota available to the market. The Office of the United States Trade Representative (USTR) has allocated the quota among 40 countries based on historic shares of the U.S. sugar import market using the base period of 1974-1981 with the high and low years taken out.

As the year progresses, USDA will allocate an additional quota tranche in January 1998 of 200,000 metric tons. This allocation will pivot on USDA's January World Agricultural Supply and Demand Estimates (WASDE) report for sugar. If the sugar stocks-to-use ratio in the WASDE report is less than or equal to 15.5 percent, the additional allocation will be released and the Office of the Special Trade Representative will allocate by country. If the ratio is greater than 15.5 percent, the allocation will be cancelled. The same process will occur with the March and May WASDE reports.

The current import quota system allows entry at the rate of 0.625 cents per pound, raw value basis. The duty is waived for sugar from beneficiary countries including Caribbean Basin Initiative (CBI), Andean Preference, and most Generalized System of Preferences (GSP) countries. During 1997 above quota raw sugar entering the United States for consumption is subject to a duty of 16.72 cents per pound and refined sugar 17.65 cents per pound. Under NAFTA, the duty for Mexican sugar entering the U.S. under the TRQ is zero. For 1996/97 and 1997/98, Mexico was determined to be a net surplus producer and can ship 25,000 tons of either raw or refined sugar to the U.S. Above quota duties for Mexico are on a declining scale, but still are high - - for 1997 they are 14.4 cents for raw sugar and 15.3 cents for refined sugar.

The North American Free Trade Agreement (NAFTA), implemented on January 1, 1994, does not affect the overall trade forecast. However, if Mexico is designated as a net surplus producer, it will receive an annual quota starting in

2000/01 of 250,000 tons per year. After year 2008, all barriers to sugar trade between the United States and Mexico are to be ended.

The implementation of the Uruguay Round General Agreement on Tariffs and Trade (GATT) has not changed the basic features of U.S. sugar import or export regimes. The two-tiered TRQ system remained in place, and the low duty applicable to in-quota imports is unchanged. However under the Uruguay Round GATT Agreement, the United States agreed to maintain (bound) a minimum low-duty import level of 1.139 million metric tons, raw value (1.256 million short tons, raw value, annually, comprised of 24,000 tons of refined sugar, raw value, and 1.232 million tons of raw sugar.)

#### **Sugar Prices: Recent Trends and Structure**

U.S. sugar prices have been well above world prices since 1982. The main mechanism for maintaining U.S. sugar prices has been a restrictive import quota. The two key sugar prices in the United States are the raw cane sugar price and the refined beet sugar price. The raw cane sugar price is based on sugar delivered to New York, and is quoted on the New York Coffee, Sugar and Cocoa Exchange. There is no futures market for U.S. refined sugar, but a price for wholesale Midwest refined beet sugar, f.o.b. factory, is quoted each week in the trade publication *Milling and Baking News*.

Over the last decade (1987-1996), the U.S. raw sugar price averaged annually 22.2 cents per pound, ranging from a low of 21.3 cents in 1992 to a high of 23.3 cents in 1990, a spread of only two cents. For the first eight months of 1997 raw sugar prices averaged 21.9 cents per pound.

In contrast to raw sugar, refined beet sugar prices have been more variable. Refined beet sugar prices tend to drop when there is a large beet sugar crop and rise when beet sugar production declines. For example drought and other weather problems reduced the beet crops in 1988 and 1989, contributing to high refined sugar prices in those years. Over the last decade annual refined beet sugar prices averaged 26.5 cents, but ranged from a low of 23.6 cents in 1987 to 30.0 cents in 1990, a spread of 6.4 cents. For 1997, January-August prices have averaged 28.4 cents.

Weather has much less influence on raw cane sugar prices, since weather-induced shocks to domestic supply can be accommodated by changing the raw cane sugar import quota.

The margin between refined and raw sugar prices has also varied. When this margin is low, cane refiners pay almost as much for raw sugar as they charge for refined sugar and are not able to cover their costs.

The HFCS product that is most substitutable for sugar, HFCS-55 (55 percent fructose, a liquid), is typically priced about 10 percent below the price of refined sugar. In addition to the price advantage HFCS has gained a reputation as a very consistent, quality, product reflecting its high-tech production techniques and specialized handling from plant to end user (i.e. use of temperature controlled rail cars). As a result, HFCS rapidly replaced sugar in a wide range of products, particularly soft drinks. HFCS-42 can also be substituted for sugar in a number of products. With very weak HFCS-42 prices in 1997 due to over-capacity in the industry coupled with high sugar prices, industrial users of sugar have been trying to search for way to increase their use of HFCS without adversely affecting the taste of their products.

The level of U.S. sugar prices will continue to be tied to the U.S. sugar program. Under the Federal Agricultural Improvement and Reform (FAIR) Act of 1996 the raw sugar loan rate is fixed at 18.00 cents per pound and the beet sugar loan rate is fixed at 22.90 cents per pound. The FAIR Act authorizes a 7-year sugar program.

#### **U.S. Beyond 2000**

The U.S. sugar sector is foreseen evolving into a much more consolidated, cost efficient, and productive industry in the years ahead. Area harvested for sugarbeets is projected to rise modestly to 611,000 hectares by 2005, up about 2,833 hectares per year, according to the USDA's sugar baseline. Sugarbeet yields are projected stable, while the beet sugar recovery rate is expected to rise gradually on trend. Sugarbeets for processing, which totalled 20.4 million tons in 1985 and 28.8 million in 1995, are projected to total 27.8 million in 2005. But with higher sugar recovery rates, beet sugar production has increased from 2.72 million tons in 1985 and 4.07 million metric tons in 1995, to a projected 4.24 million in 2005.

The beet sugar industry would expand even more rapidly, but investment is likely to be constrained somewhat by the risk of program elimination. Under USDA assumptions, beet sugar's share of total domestic sugar production continues to grow from 49 percent in 1985, to 56 percent in 1995, and then to 58 percent in 2005. This assessment is underpinned by recent reports of significant expansion programs planned by beet producer-processor cooperatives in the Red River Valley of Minnesota and North Dakota.

Nationally, U.S. sugarcane area is projected to decline slightly from 1995 to 2000, then increase somewhat to 2005. National average cane yields, which have been falling due to loss of high-yielding Hawaiian area in cane, may increase slowly as research and development of better varieties proceeds and Hawaiian area stabilizes. The cane sugar recovery rate should rise on trend. For Texas, Louisiana and Florida, cane sugar production is expected to remain stable or grow slowly with Texas production projected at 136,000 tons by 2005, Louisiana production projected at 1.09 million tons, and Florida is expected to increase production to 1.59 million metric tons by 2005. Hawaii's sugar production is expected to stabilize at near 272,000 tons by 2005, with Puerto Rico expected to cease its sugar production by 2005.

U.S. cane sugar production is expected to total 2.88 million metric tons in 2000, and increase to 3.08 million by 2005, comprising 42 percent of total domestic production. This compares with 2.94 million in 1990 and 2.84 million in 1985.

The projected growth rate of U.S. sugar consumption through 2005 is about 1.5 percent per year, down from the recent 2 percent average due to constraints on the ability of sugar to continue to displace other foods and some additional loss of market grown potential due to HFCS competition. However, sugar continues to benefit from increased U.S. public emphasis on the negative nutritional aspects of fats. Total sugar use (including transfers to sugar containing products for export) is likely to reach 9.54 million metric tons in 2000 and 10.16 million in 2005, up from 8.62 million in 1990 and 7.82 million metric tons achieved in 1985.

The gap between U.S. domestic sugar consumption and production are projected to widen gradually through 2005. If the TRQ is managed the same way as in the past, quota sugar imports are expected to total 2.32 million tons in 2000 and 2.48 million by 2005. Quota-exempt imports are expected to remain at around 410,000 tons with re-exports of refined sugar and sugar in sugar-containing products mirroring the level of non-quota imports for re-export.

It should be mentioned that there is increasing discussion in the U.S. of changing the sugar quota allocation system. This

system was set up in the early 1980s, based on a country's shipping performance to the U.S. market during the 1976-1981 base period. Several of the countries that received quota allocations are no longer net exporters. One solution being mentioned that could be administratively adopted by USDA would be to globalize the raw sugar quota above the GATT-WTO minimum.

Proponents of globalization argue that the change would achieve a more reliable supply of imported raw sugar and preserve U.S. cane sugar refining capacity which has been contracting. Cane sugar refining capacity acts as an important safety value which can compensate for variability in domestic beet sugar production and thereby, reduces the potential need for large volume imports of refined sugar. Moreover, to increase the financial viability of the U.S. refining industry - - one-half of the refiners in the U.S. have closed since the early 1980s - - USDA could give U.S. cane sugar refiners the right to import the globalized portion of the overall import quota. This would have the effect of keeping some of the quota premium with U.S. refiners rather than giving all of it to foreign suppliers. In addition, it would reduce the average cost of raw sugar without undermining the sugar price support program.

## MEXICO

### Introduction

The sugarcane-based sugar industry is Mexico's largest agri-industry, with an estimated 300,000 families depending on it as producers and mill workers. The milling sector spreads across 15 of Mexico's 23 states and is a key component of economic and social development in many rural areas in the country. The sugar industry provides a basic input into the growing Mexican beverage and food processing industry. Mexico's per capita consumption is traditionally high by world standards, both in the form of direct consumption and in processed food products, particularly beverages.

Over the years, the Mexican sugar industry has oscillated between periods of production surpluses relative to demand and production deficits. As recently as the early 1990s, Mexico was in a deficit situation as the largely government-run industry could not keep pace with the rise in demand caused by the rapidly growing Mexican economy. This situation led to Mexico's importation of record sugar imports. Most recently, the now privatized industry has been producing a surplus of sugar, reflecting some technical and administrative improvements in the industry coupled with good weather. Concurrently, the Mexican economy contracted sharply following the December 1994 peso devaluation. This contraction in the economy coupled with higher sugar prices, the new role of sugar companies in marketing sugar and the emerging substitution of corn sweeteners for sugar has caused a fall off in sugar consumption.

The resulting surplus production has been largely exported. But these exports have been undertaken largely at a financial loss and were done mainly to relieve the country of burdensome stocks that could have depressed domestic prices. Currently, the Mexican industry is now in a much stronger position to produce sugar than in the early 1990s, but, owing to competitively priced corn sweeteners, they face potentially stiff competition in domestic markets. As a result, the Mexican industry and government is increasingly looking to the sugar provisions provided by the North American Free Trade Agreement (NAFTA) with the U.S. to market its sugar at prices comparable to those enjoyed in the U.S. market.

### Sugar Production: Recent Trends and Industry Structure

Sugarcane is one of Mexico's most widely grown crops with production in 15 out of the country's 23 states. Nearly two-thirds of the total production is concentrated in five states (Veracruz, Jalisco, Oaxaca, Michoacan and San Luis Potosi) that form an arc that stretches across Central Mexico. Veracruz alone accounted for an average of 38 percent of the country's total sugarcane production for the period 1993/94-1995/96, with the crop processed at the state's 22 sugar mills.

While the milling sector with its 30,000 workers is at the core of the industry, mill companies in the various states do not own land for sugarcane production. Instead, they depend on independent growers to service the mills with cane. Currently, there are approximately 140,000 cane growers in Mexico and they are represented by two politically influential groups. The large cane growers, numbering about 60,000, are represented by the National Union of Cane Growers (Union Nacional de Caneros). The second group, representing some 80,000 small "ejido" growers (growers using communal lands), is the National Sugarcane Growers (Nacional Caneros de Azucarera). Typically, each Mexican mill has about 2,500 growers cultivating sugarcane on 16,000 hectares (average of 6.4 hectares per grower), which seasonally grinds around 850,000 tons.

Sugarcane harvested area totalled 223,515 hectares in Veracruz in 1995/96, up 15 percent from 1993/94 and accounting for nearly two-fifths of the national total. Veracruz is the only state with more than 100,000 hectares harvested in 1995/96; the next highest were San Luis Potosi at 61,775 hectares and Jalisco at 56,831 hectares. In these pivotal sugarcane producing states, the expansion in area in cane has been encouraged by higher cane prices and aggressive expansion by some of Mexico's stronger mill ownership groups: Escorpion, Machado, Beta San Miguel, and Grupo Azucarero Mexico (GAM).

Sugarcane yields in Mexico vary considerably from year to year and between regions. About two-thirds of the growing areas, including nearly all of Veracruz, is rainfed, about 25 percent is irrigated mainly in January-May, and 10 percent is irrigated only on an emergency basis two or three times a year. Over the last three seasons (1993/94-1995/96), national cane yields per hectare averaged 72.6 tons, but oscillated between a low of 69.3 tons in 1993/94 to a high of 78.0 tons in 1994/95. Over the last five crop years, yields averaged 74 tons versus 69 tons for the preceding five crop years.

On a state level, rainfed dependent Veracruz averaged 70 tons per hectare. Jalisco and San Luis Potosi, both with some irrigation, averaged 86 and 59 tons, respectively. Sharply contrasting yields were those of Morelos (107 tons per hectares), and Puebla (116 tons) versus Quintana Roo (57 tons) and Campeche (42 tons). Morelos and Puebla benefit from good growing weather, highly fertile soils and irrigation. In contrast, Quintana Roo and Campeche have less favorable climates and soil condition for sugarcane cultivation and little irrigation.

On the quality side, Mexico's sugar recovery rates the last three years have averaged 10.6 percent and sugar per hectare of 7.7 tons. The significant differences for the seven states in terms of sugarcane yields per hectare also show up in quality indicators. The average sugar recovery and sugar per hectare for the seven selected states are as follows: Veracruz, 10.8 percent and 7.6 tons, respectively; Jalisco, 11.5 percent and 9.9 tons; San Luis, 11.3 percent and 6.7 tons; Morelos, 10.9 percent and 11.7 tons; Puebla, 11.0 percent and 12.8 tons; Quintana Roo, 9.4 percent and 5.4 tons; and Campeche, 9.5 percent and 4.1 tons.

For 1996/97, SCI estimates Mexico's cane yields, recovery rates, and sugar per hectare for the crop harvested November 1996 through June 1997 at 69.7 tons of cane per hectare, its recovery rate at 11.6 percent, and its sugar produced per hectare at 8.12 tons. These estimates indicate another

outstanding crop, revealing an industry that is generally productive by world standards and improving.

Reflecting an upturn in cane production the last three years, Mexico's sugar production averaged 4.6 million tons, raw value. For the preceding five years, production shifted from a low of 3.1 million tons in 1989/90 to a high of 4.3 million in 1992/93 and averaged 3.7 million tons - 900,000 tons below output of the last three years.

Mexico's sugar industry produces several types of sugar. Because its sugar refining is integrated with its cane mills, refined sugar is produced at many of the country's cane mills. For the last three seasons, the Mexican industry produced between 1.7 and 1.8 million tons of refined sugar (99.9 pol.), which is 42 percent of the total production. This compares with 1.2 million and 34 percent of the total in both 1986/87-1988/89. Over one-half of Mexico's annual production in recent years has been "standard sugar" (estandar) (99.6 pol.). In recent years, very little raw sugar (mascabado) (96 pol.) has been produced in Mexico.

Mexico currently has 61 mills spread across the 15 producing states. Veracruz alone has 22 mills; Jalisco has 7; Michoacan, 5; and San Luis Potosi, 4. Three mills have closed since the early 1980s.

The cane milling industry currently has a 333,000-ton per day grinding capacity. The total national capacity has changed little since the late 1980s, but a number of mills have increased capacity as others have declined or closed.

The Mexican industry is characterized by a relatively large number of medium- to small-sized mills. Thirty-eight mills are between 4,000 and 8,000 tons of grinding capacity, 17 below 4,000 tons, and four are between 8,000 and 12,000 tons, and only two are above 12,000 tons daily grinding capacity.

Mexican milling industry production data for the period 1993/94-1995/96 reveals that nearly 60 percent of the mills produced between 25,000 and 75,000 tons and one-third produced about 75,000 tons. Compared with the earlier time period (1986/87-1992/93), there has been a general trend toward higher annual production in a larger number of mills.

In the late 1980s and early 1990s, Mexico's cane sugar milling sector passed from largely government control to private ownership through a government approved privatization program. Mills were sold in groups and a pattern of mill ownership emerged.

As of mid 1997, there were 17 groups of owners, the largest among them were as follows: Escorpion with nine mills, followed by Machado and Mexicano with seven each, and Beta San Miguel and Grupo Azucarero Mexico (GAM) with five each.

In addition to these numbers, some of the groups dominate the production of refined sugar. In 1996/97, for example, the Escorpion group produced 43 percent of Mexico's refined sugar (753,500 tons out of a national total refined production of 1.77 million tons, standard basis). The five largest groups produced a combined 2.62 million tons in 1996/97, 58 percent of total production.

Early in 1997, there were several sales of mills reported. The Santos Group bought the Plan de Ayala and Cosamaloapan mills and the Grupo Azucarero Mexico (GAM) bought the Grupo Multiple mills San Pedro and San Francisco mills. According to industry sources, over the next several years, the wave of ownership consolidations is likely to increase as more financially viable mill groups take over the weaker ones.

It is apparent from examining the capacity by mills that several key groups have been investing capital in mills to expand capacity. Most of

these investment funds have come from within Mexico. The only significant foreign investor is the British-based Tate and Lyle Company that has a 49 percent interest in the Saenz Group that owns the Aaron Saenz and El Monte mills in Tamaulipas and the Tamazula mill in Jalisco.

#### **Sugar Demand: Recent Trends and Structure**

Sugar consumption growth was strong in the early 1990s but has trended downward over the last several years. The recent contraction in domestic sugar use reflects a combination of factors including the general economic downturn caused by the peso devaluation of December 1994, an upturn in sugar prices, and the growing substitution of fructose for sugar in the beverage market. For 1996/97, SCI forecasts Mexico's sugar consumption at 4.2 million tons (raw value). With production forecast at 4.6 million tons and consumption at 4.2 million, the implied 1996/97 surplus is 500,000 tons. This situation is forcing the sugar industry into policy decisions that aim to reduce price-depressing stocks in the country.

The composition of sugar consumption can be divided into household use (47 percent) and industrial use (53 percent). The major industrial user of sugar in Mexico is the soft drink industry. Currently, well over 1.0 million tons of refined and standard grade sugar is used by the industry annually. While continued growth of the soft drink industry is a certainty, the industry's choice of sweetener-sugar or corn sweeteners is an increasingly topical issue.

Mexico's soft drink industry produces about 3.5 billion gallons of soft drinks or (39 gallons per capita). According to beverage industry sources, Mexico ranks second only to the United States in per capita soft drink consumption.

A key reason for the traditionally high soft drink consumption in Mexico is its young population. More than one-half of the population is under 21 years old, the largest consumer sector. Other factors favoring growing consumption are climate, the potable water problem and nutritional factors, particularly the importance of the calorie contribution from nutritive soft drinks to the average consumer's diet.

The marketing of consumer packaged sugar and sugar-containing beverage and food products is concentrated in Central Mexico where about 50 percent of the population resides. Before privatization, the Government's marketing arm, Azucar S.A., marketed all the sugar within Mexico. Since privatization, various milling and refining groups market the sugar with the aid of international firms such as E.D. & F Man, Louis Dreyfus, and Czarnikow-Rionda as well as domestic food distributors such as Ortega.

#### **Sugar Trade: Recent Trends and Structure**

Mexico's trade in sugar has shown significant long-term variations between net exports and imports:

In the 1960s and 1970s, Mexico imported no sugar, while it exported several hundred thousand tons per year.

Stagnant production and growing consumption reduced exports in the late 1970s. In the first half of the 1980s, Mexico exported in one year out of five while imports grew.

Mexico did not import sugar in 1985-88, exporting a record 1 million tons in 1988 due to reduced consumption reflecting a slow down in the domestic economy.

A reversal of the supply-demand situation caused substantial import volumes in 1989, 1990 and 1991. In the early 1990s, trade in both imports and exports was reduced to minimal amounts as Mexico became relatively self-sufficient in sugar.

In the last three years 1994/95-1996/97, Mexico's sugar balance shifted to a net exporter status. Large amounts of exports have been shipped under the Mexican Government's Temporary Export Program (TEP) which was announced in April 1995. The program waived an export tax of \$260 per ton (11.8 cents per pound) if exporters pledged to re-import an equivalent amount of sugar within six months. The re-import requirement is waived if the Government of Mexico determines that the sugar will not be needed domestically.

Mexico's Sugar and Alcohol Chamber has encouraged its members to take advantage of TEP. The aim has been to reduce the price-depressing surplus of sugar in Mexico even though many of the groups export at a loss. However, these losses are offset by higher domestic prices, reduced costs and interest payments for domestically stocked sugar, and the availability of increased operating revenue.

On the import side, Mexico is estimated to have imported small volumes of sugar in recent years. Key suppliers were Guatemala, Costa Rica and Columbia, reflecting recent trade agreements between the Mexican Government and these countries which provide for limited duty free access for their sugar into Mexico. Much of this and other world price sugar is used in Mexico's re-export program for products - PITEX (Program for Temporary Imports for Export in Products). This program is similar to the U.S. re-export program for products. PITEX imports are exempt from paying the current import duty of \$395 per ton (17.9 cents per pound).

For 1996/97, SCI forecasts net exports of 450,000 tons (exports of 550,000 tons and imports of 100,000 tons). A share of the exports are regular exports while the rest will again go out under the TEP, with the aim being to reduce the level of price-depressing stocks in Mexico. A small volume, 25,000 tons, will enter the U.S. under Mexico's NAFTA quota.

#### **U.S. Mexico Corn Sweetener Trade and Trade Issues**

U.S. trade in corn sweeteners has been relatively small compared with domestic production and utilization and has been largely confined to border trade with Canada and Mexico. Trade with Mexico has been generating considerable attention, particularly due to the prospect that Mexico's large soft drink industry might switch from sugar to fructose as its sweetener of choice.

Mexico's soft drink industry is one of the world's largest and the country's per capita use of soft drinks is the second highest in the world after the U.S. The Mexican soft drink industry utilizes about 1.6 million tons of sugar annually. Corn sweeteners provide a viable alternative sweetener to sugar owing to the increasingly high price of sugar in Mexico. Corn sweeteners are available to the Mexican soft drink industry either through trade with the U.S. or, more recently, from domestic sources.

U.S. corn sweetener exports to Mexico have been rising every year since 1990/1991, and in 1995/96 reached 89,200 metric tons, dry basis. The largest corn sweetener export to Mexico has been HFCS-55 at 47,273 tons in 1995/96. For the first nine months of 1996/97 (October 1996 to June 1997), HFCS-55 exports to Mexico had already reached 112,007 tons, more than double the total for last year. Some of the expansion of U.S. HFCS capacity in the last few years reportedly was intended to be earmarked for the expanding Mexican market. Moreover, the annual growth in trade has been facilitated by a 1.5 percent annual decline in Mexico's tariff on HFCS resulting from NAFTA.

However, potential growth in exports was stymied by the maxi-devaluation of the Mexican peso in December 1994 and the subsequent contraction in the Mexican economy. More recently, the future of U.S. HFCS exports has been clouded by trade disputes between the U.S. and Mexico. In December 1996, Mexico raised the tariff on HFCS from 10.5 percent to 12.5 percent in partial retaliation over a U.S. decision to raise import duties on Mexican-made corn brooms shipped to the U.S. Under the NAFTA schedule, the HFCS tariff on imports from the U.S. would have fallen to 9 percent in 1997. In early 1997, the Mexican Government initiated an anti-dumping investigation against HFCS imports from the U.S. at the request of the Mexican sugar industry. On June 25, Mexico imposed provisional dumping tariffs on U.S. imports ranging from 3 to 6 cents per pound for HFCS-42 and 3 to 8 cents per pound for HFCS-55. Hearings on the case were the week of August 25 at Mexico's Trade and Commerce Ministry (SECOFI). The Mexico Trade Secretariat is expected to decide whether to make the tariffs permanent by December 1997.

If the tariffs are sustained, the U.S. corn sweetener industry is expected to take the dispute to a WTO or NAFTA trade dispute panel. The U.S. Senate has already passed a resolution calling for Mexico to review its anti-dumping case against U.S. HFCS in the context of WTO trade rules. Also in early September, the Office of the U.S. Trade Representative announced that the U.S. had requested WTO dispute settlement consultations regarding actions by Mexico in its anti-dumping investigation on HFCS.

Mexico also has capacity to produce corn sweeteners domestically. Currently, two facilities are producing HFCS from imported U.S. corn which also have benefited from increased access to the Mexican market under NAFTA. These two facilities, with a combined annual capacity of between 250 and 350 million pounds or 125,000 - 175,000 short tons, dry basis, are the result of recent foreign and Mexican investment. The first facility to begin HFCS production in Mexico was ALMEX in Guadalajara in 1995. The facility is owned by Tate and Lyle, A.E. Staley, and Archer Daniels Midland (ADM). The second facility is the Arancia/CPC plant located in San Juan del Ray near Mexico City which began HFCS production in late 1996. Both facilities are dependent on imports of U.S. No. 2 yellow corn to run their operations (Mexico produces mainly white corn for human consumption). The Mexican Government currently provides quarterly import permits to these companies for access to U.S. corn. Until last year, the permits were granted on an annual basis.

In an agreement that was made public on September 9, the Mexican sugar industry has apparently successfully lobbied the soft drink industry to cap the use of HFCS. According to press reports, the soft drink bottlers have agreed to limit the use of HFCS to 350,000 tons per year, of both domestic and imported HFCS, for a three-year period. The U.S. corn sweetener industry is expected to protest the legality of the pact.

#### **Sugar Prices: Recent Trends and Structure**

Historically, the Government of Mexico controlled the internal wholesale and retail prices of sugar. These prices were calculated and published by the Secretariat of Commerce and Industrial Development (SECOFI). In August 1995, the government announced a price liberalization program for sugar. It was agreed, together with the sugar industry, wholesalers and retailers, that prices would increase on a monthly basis until early 1996, at which time prices would be determined solely by market forces.

In August 1995, the wholesale price of standard sugar, f.o.b. mill, was 2,397 pesos per ton or 17.55 cents per pound (exchange rate 6.191 pesos = 1 US\$); in January 1996, it was 2,966 pesos per ton (exchange rate 7.4730), equal to 18 cents per pound; and in September 1996 it was 3,525 pesos per ton (exchange rate 7.5330), or 20 cents per pound. The most recent announcement by the government for 1996/97 pegged the wholesale sugar price at 3,340 pesos per ton (exchange rate 7.815), equal to 19.4 cents per pound. By government decree, wholesale sugar prices are linked to the sugarcane price for the duration of the season, but refined sugar prices are allowed to float freely. According to Mexican industry data, the price of refined sugar as of January 1997 was 22.2 cents per pound, f.o.b. mill and 24.5 in September 1997. As a result, Mexico's prices currently are somewhat below the United States, but well above the world price.

Under the current Government scheme, sugarcane prices to growers are determined monthly, based on a percent of the monthly wholesale price of standard sugar times KARBE, kilograms of standard quality sugar recovered at the mill. KARBE data includes sucrose content, juice quality of cane, and efficiency of the mill. In the 1993/94 season, the cane price as a percent of standard sugar was 53 percent; in 1994/95, 54 percent; and in 1995/96, 56 percent. For the 1996/97 crop year, producers received 57 percent.

In January 1997, sugarcane growers and processors agreed to raise the sugarcane price for the 1996/97 season by about 26 percent to 1,903 pesos. This was equivalent to U.S. \$243.50 per ton at current exchange rates, or 11 cents per pound. The cane price is 57 percent of the new wholesale sugar price of 3,340 pesos per ton (U.S. \$464.86 tons per ton or 21 cents per pound). Growers had originally asked for an increase of 30 percent while the processors offered 21 percent. The final agreement leans more toward the grower-side and the price was retroactive, applying to all cane cut for the harvest that began in November. The 26 percent increase is 9 percent above the 15 percent inflation level projected by the Mexican Government for 1997.

The long-standing issue of paying individual growers on the basis of quality (i.e., percent sucrose in cane) remains unresolved. In the early 1990s, implementation of this method of payment was being encouraged as a means, as demonstrated in other countries such as Australia, South Africa, and the United States, to provide growers with an economic incentive to raise the quality of their cane (i.e., manage the crop to maximize sucrose content not just weight). Demonstrations of U.S. "core sampling technology" were provided to the industry with test models set up at key mills. The plan was to have the technology in place within two years. Despite this planing, the project has gone nowhere due to differences between growers and mill owners. Grower groups say that mill companies have complained of logistical problems with the new payment system because there are so many small growers, but the growers believe the real reason mills balked at installing the system was because the "mill processing loss issue" has not been resolved. In contrast, millers say that growers do not want the system because it will identify good growers versus poor growers. Without the system, however, good growers will continue to subsidize poorer ones and neither good nor poor growers will have incentives to improve the quality of cane provided to mills.

#### **IMPLICATIONS OF NAFTA**

The North American Free Trade Agreement (NAFTA) became effective on January 1, 1994, and will eliminate most trade barriers between Canada, Mexico and the U.S. over the next 15 years. NAFTA does not address sugar trade between the U.S. and Canada which is largely covered by the Canadian-U.S. Free Trade Agreement signed in 1989.

For purposes relating to access of the other country's sugar market, a formula defines Mexico or U.S. net surplus production at roughly equal

to projected sugar production minus projected domestic consumption. If this formula yields a positive number, the country is a net surplus producer. According to a late revision in the original NAFTA text (termed "side letter"), the two governments agreed that HFCS would be included in the formula, but on the consumption side only. Thus, a country would have to produce sugar in excess of its consumption of both sugar and HFCS in order to attain net surplus producer status.

As part of the NAFTA consultation process related to sugar, representatives of the two governments meet annually to exchange information related to each other's net surplus producer status. At these meetings, Mexico has been designated as a net surplus sugar producer for 1996/97 and 1997/98 (Oct-Sept). Accordingly, Mexico can ship 25,000 tons of duty-free to the U.S., either as raw or refined sugar. As the NAFTA sugar provisions are reciprocal, the U.S. has been designated a deficit producer in 1996/97 and 1997/98.

The chronological provisions of NAFTA in terms of Mexican access to the U.S. market are as follows:

In years 1-6, Mexico will have duty-free access for sugar exports to the U.S. in the amount of its net surplus production, up to a maximum of 25,000 metric tons, raw value. If Mexico is not a net surplus producer, however, it will have duty-free access for 7,258 metric tons, or the "minimum boatload" amount authorized under the U.S. tariff-rate quota.

In years 7-15, Mexico will have duty-free access to the U.S. sugar market for the amount of its net surplus production, up to a maximum of 250,000 metric tons, with minimum duty-free access still at the "boat load" amount.

Sugar tariffs between the United States and Mexico are scheduled to decline by 15 percent over the first six years and to zero by year 15. By the end of year six, Mexico is committed to install a tariff-rate quota system, with a second-tier tariff applicable to all other countries that is equal to the U.S. second-tier tariff.

Given that NAFTA is reciprocal, the same barriers for Mexican sugar access to the U.S. market also apply to U.S. sugar access into the Mexican market. Since the U.S. is not likely to attain net surplus producer status, especially with a GATT-bound minimum import level, U.S. sugar will not have duty-free access (except for a boat load quantity) to the Mexican market until the year 2008. Without these trade barriers, more U.S. sugar would be sold into Mexico. For example, there might be cross-border trade from U.S. production facilities near the border. Also, sugar quality is important to many buyers, and the U.S. has a comparative advantage in high-quality types of sugar.

There is also a provision in NAFTA that allows U.S. sugar refiners to import raw Mexican sugar, outside the TRQ, for refining and re-export back to Mexico. This allows U.S. refiners to utilize their excess capacity and Mexican companies to receive quality refined sugar for targeted export markets in northern Mexico.

#### **Mexico Beyond 2000**

The direction of Mexico's sugar and HFCS supply and demand balance in the coming years is extremely difficult to forecast. Many factors could push production to either expand or contract. For example, Mexico has additional sugarcane land that could be brought into production. More remunerative prices could raise the use of yield increasing inputs. Modifications in the land tenure system are likely to foster

amalgamation of land units, leading to greater efficiencies. All of these factors would combine to spur production advances. In contrast, sugar production could stagnate or decline due to producer prices below expectations, which would foster a shift to more remunerative crops.

Concurrently, the sweetener of choice for Mexico's large soft drink industry appears to be in transition and this evolution will significantly affect the level of sugar and HFCS consumption. If the current effort to cap the use of HFCS is successful, by 2000/01, SCI foresees Mexico's production at a maximum growth of 5.2 million tons and sugar consumption at a moderate growth rate to 4.5 million tons. Production of HFCS in Mexico would be 300,000 tons from the recently installed capacity, while HFCS imports would be negligible, reflecting efforts to cap total HFCS growth. This scenario would result in a sugar surplus of 700,000 tons and a NAFTA-based surplus of 400,000 tons. Under this scenario, Mexico would be eligible to ship 250,000 tons of sugar annually duty-free to the U.S.

Beyond 2000/01, the direction of sugar consumption will continue to depend on the mix between HFCS and sugar in the beverage market. However, with a rapidly increasing population and assuming a healthy economy, Mexico's off-take of sugar in other use categories besides beverages should grow substantially. This is what has happened in the U.S. as sugar has many functional characteristics which make it the sweetener of choice independent of price. On the production side, the Mexican industry clearly will need substantial investments to make itself more cost efficient and like the U.S. and Canada, there is likely to be some segments of the industry that will contract. Assuming that there is no change in the U.S. price structure, Mexico's increased trade access under NAFTA to the higher priced U.S. market after 2000 should also help the long-term financial viability of the Mexican industry and encourage both Mexican and foreign investment in the sugar industry.

## CANADA

### Introduction

In contrast to the U.S. and Mexico, Canada has a small domestic sugar production base. Most of the country's demand needs are met by raw sugar imports that are processed by Canada's refineries. Canadian - U.S. border trade in sugar, corn sweeteners and sugar containing products is relatively small in volume but important to the industries in both countries. This trade has not always gone smoothly and there have been a number of recent bilateral trade disputes. Trade is also influenced by the Canada-U.S. Free Trade Agreement signed in 1989 and the NAFTA signed in 1994.

### Sugar Production: Recent Trends and Industry Structure

Canada's domestic sugar production is based on sugarbeets. Production takes place in the provinces of Alberta and Manitoba. For 1997/98, Canadian beet sugar production is estimated at 110,000 from 750,000 million tons of beets expected to be harvested from 6,100 hectares. Since 1980/81, Canada's beet sugar production has ranged from a low of 92,000 tons to a high of 171,000 tons. Production is concentrated in the province of Alberta this season due to the recent closure of the sugarbeet processing plant in Manitoba.

As with the U.S. and Mexico, the structure of the Canadian sugar industry has been changing. Until recently, the Canadian sugar industry consisted of two beet sugar factories and four cane sugar refineries, with ownership in the hands of two companies. The vast majority of industry capacity is controlled by BC Sugar, which owns the country's two beet sugar factories in Alberta and Manitoba, which serve the Canadian Prairie market, and three of Canada's four cane sugar refineries. In 1995, the company united its cane and beet sugar operations in western Canada under a single brand and operating name, Rogers Sugar. Meanwhile, BC Sugar's refineries at Montreal and St. John continue to operate under its Lantic Sugar Division. Until recently, the BC Sugar Company also owned the Refined Sugars Inc.(RSI) refinery in Yonkers, New York. Canada's fourth sugar cane

refinery, at Toronto, is owned by Tate and Lyle, through its Redpath Sugars subsidiary.

This past winter, Rogers Sugar Ltd. announced that it would permanently close its Winnipeg, Manitoba, beet sugar processing operation. The Winnipeg operation was termed not economically viable as a result of the loss of the U.S. market that absorbed 60 percent of the plant's output. In 1994, the U.S. switched to a global quota for refined sugar and Canada lost its allocation. In addition, the closure was apparently also caused by general over capacity in the Canadian industry due to significant expansion of the Redpath refinery.

Because of the closure of the Winnipeg, Manitoba plant, no sugarbeets were planted in Manitoba this year. Sugar beet growers in Alberta this season planted an estimated 5,500 hectares. In an interesting new development, in Ontario province, farmers are growing sugarbeets, about 1,200 hectares this season, to be processed in the U.S. in the neighboring state of Michigan for the U.S. company, Michigan Sugar.

Over the last decade, the Canadian government has supported sugar beet farmers, not by import protection, but through a system of direct income payments to growers. Under the National Tripartite Stabilization Program (NTSP) for sugar, beet farmers have received a form of deficiency payment. This income support program has been funded equally by producers, the federal government and the governments of the beet producing provinces of Alberta and Manitoba. In operation since 1987, the program has guaranteed a return equal to a calculated support price. For example, sugarbeet farmers are supported with a deficiency payment in any year that the price paid by the beet sugar processor falls below a target level. Sugarbeet growers are taxed to help replenish the fund when the price paid is above the target level. The aim is for the fund to be self-financing.

The NTSP for sugarbeet growers in Manitoba terminated with the 1996 crop. Alberta growers opted out of NTSP at the end of the 1995 crop year. While the program offered substantial payouts to producers in the mid-1980s, there were no payments since the 1991 crop. Agriculture Canada reports that the program's accounts will close in late 1997 with surplus funds, a portion of which are normally returned to premium paying participants. It is not clear what will replace the tripartite program.

### Sugar Consumption: Recent Trends and Structure

Sugar consumption in Canada for 1997/98 is forecast at 1.25 million tons, with domestically produced sugar accounting for only about 9 percent of the total. For a population of 29.4 million, per capita sugar consumption is estimated at 39.7 kilograms, nearly double the world average. Over the last decade, sugar consumption and per capita use has averaged 1.11 million tons and per capita consumption has averaged 37.6 kilograms.

About 40 percent of annual sugar use goes for home use while industrial use by the food and beverage industry takes nearly two-thirds of the total. Like the U.S., Canada has domestic HFCS available as a substitute for sugar. Use is concentrated mainly in the soft drink manufacturing sector. Canada has several HFCS plants all owned by CASCO whose parent company is CPC International. While the U.S. soft drink market now uses HFCS exclusively, a small segment of the Canadian industry uses a blend of sugar and HFCS with the share shifting with price. In general, HFCS in Canada is priced

just below sugar to maintain a market price advantage in the liquid sweetener market.

A sizable portion of Canada's HFCS production is marketed in the U.S. by CPC International, the owner of CASCO. The heavily populated Northeast U.S. is part of its natural marketing territory. At the same time, other U.S. HFCS companies market some of their output in Canada.

#### **Sugar Trade: Recent Trends and Structure**

With annual domestic consumption in excess of 1.2 million tons and domestic production providing under 10 percent of annual needs, Canada must depend heavily on imports. The bulk of these imports come into Canada in the form of raw sugar and are processed into refined products at the country's four refiners. White or refined sugar imports have been supplied principally from the U.S.

The bulk of raw sugar imports coming into western Canada for processing come from Australia while the big supplier into eastern Canada is Cuba with which Canada has maintained good trade relations. According to the International Sugar Organization, in 1996 Canada imported a total of 1.26 million tons of which 1.23 million was raw sugar and the remaining 30,000+ tons was refined sugar. Australia shipped 64 percent of the raw sugar total; Cuba, 12 percent; and Brazil, 11 percent. Other important shippers to Canada have been Belize, Guyana and Swaziland. Under the old Commonwealth Sugar Agreement, these countries along with Australia were given priority to export their sugar to Canada.

With respect to tariff structure, Canada has maintained generally low tariffs on raw and refined sugar imports. The government's main sugar policy has aimed at protecting Canada's domestic raw cane sugar refining industry. As a result, higher tariffs are imposed on refined sugar than raw sugar. Refined sugar imports from Most Favored Nation (MFN) countries pay a duty of C \$30.86 per ton or U.S. \$ 22.00 per ton or about 1 cent per pound, whereas raw sugar from MFN countries pay C\$ 22.05 to C\$25.57 per ton or U.S. \$15.80 to U.S.\$18.30 cents per ton or 0.717 cents per pound or 0.830 cent per pound, depending on the polarization of the sugar.

In recent years the bulk of refined sugar imports have come into Canada on a declining tariff schedule as determined by the Canada-U.S. Free Trade Agreement.

#### **Canada - U.S.: Free Trade Agreement, NAFTA and Related Trade Issues**

Canada and the U.S. entered into a Free Trade Agreement (FTA) effective January 1, 1989, and tariffs on sugar are scheduled to decline to zero in 1998. At the start of the agreement period in 1989, the U.S. duty on Canadian refined sugar was 0.60 cents per pound, and the Canadian duty on U.S. refined sugar was 0.78 cents per pound. The U.S. also had an import fee of 1 cent per pound on refined sugar applied under Section 22 of the Agricultural Adjustment Act of 1933.

In October 1990, the United States replaced the eight year-old quota system with a tariff-rate quota. The implementation of the U.S. tariff-rate quota was complicated by the FTA, which prohibits the application of the higher rate of duty to Canadian sugar. However, Canadian sugar exports to the U.S. were expected to remain close to 1.1 percent of the "low-duty allocations" under the tariff-rate quota.

The NAFTA has not changed U.S.-Canadian sugar tariffs, but requires that Canadian sugar entering Mexico be given Mexico's Most-Favored Nation (MFN) over-quota customs duty. The NAFTA allows Canada to apply a duty on Mexican sugar equal to the Mexican duty on Canadian sugar.

Despite the various trade agreements between Canada and the U.S., the two countries have continued to have a series of trade disputes over

sugar and sugar-containing products to the U.S. and the level of U.S. sugar exports moving into Canada.

In mid-1995, Canada was shipping about 40,000 tons annually of its domestic beet sugar production to the U.S. The duty paid on this sugar was 0.20 cents per pound, as specified in the Canada-U.S. Free Trade Agreement and NAFTA, plus a 1-cent per pound fee. But this treatment changed with the adoption of the new U.S. tariff schedule to implement the Uruguay Round GATT agreement. While the low duty schedule was not affected, the new tariff schedule put limits on Canadian low-duty sugar access to the United States.

In addition, U.S. imports of some sugar-containing products, including those from Canada, were constrained by quotas to protect the U.S. sugar program. As of January 1, 1995, the U.S. placed several categories of sugar-containing products into tariff categories with tariff-rate quotas (i.e., fixed amounts that can be imported at low tariffs while additional quantities face higher tariffs). Canada had been rapidly increasing exports of these products, such as powered-drink mixes. They now are limited to a tariff-rate quota of about 72,000 tons (64,000 metric tons), which is well below the amounts Canada had been exporting to the U.S.

Concurrently, a wave of U.S. sugar shipments to Canada under the re-export program led to the imposition of anti-dumping duties on refined sugar imports into Canada from the U.S. and EU from July 1995, and these are due to last until late 2000.

More recently, Canada and the U.S. reached some accommodations on these sugar-related issues. As of early September 1997, Canada and the U.S. reached an agreement over a long-running dispute regarding sugar-containing product trade. The agreement avoids the dispute going to a NAFTA settlement panel. The deal results in Canada dropping its challenge of the U.S. re-export program for sugar-containing products. In return, Canada now will receive guaranteed access to the U.S. market for a minimum of 10,300 metric tons of refined sugar and 59,250 metric tons of sugar-containing products, under the TRQ for edible preparations (i.e., dry crystal mixes, cake decorations, confections). The standing U.S. TRQ for edible preparations (HTS 1701.91.5400) is 64,709 metric tons. Canada can compete for the balance of the quota (5,459 tons) on a first-come, first-served basis. To be eligible for the access, U.S. Customs must designate the sugar-containing products "as a product of Canada."

#### **Sugar Prices: Recent Trends and Structure**

Pricing for individual refined sugar products in Canada is based upon the bulk refined granulated sugar price, which, in turn, is based upon the New York No. 11 daily futures contract for raw sugar price plus a margin for refining services. An additional amount, or differential, is then added for each particular product and packaging configuration. From this daily list price, discounts are negotiated which reflect supply and demand conditions in the domestic market.

Domestic refined sugar prices also are affected by the presence of import competition. Refined sugar imports had faced no quantitative restrictions and only low levels of import duties. A second source of price competition for sugar is from alternative sweeteners, mainly high fructose corn syrup which is a close substitute for refined sugar in a range of uses. As a result, refined sugar prices in Canada reflect domestic and imported refined sugar price competition as well as price competition from alternative sweeteners. These factors, taken

together, explain why Canadian sugar prices have tended to remain below both those of the U.S. and Mexico.

### **Canada Beyond 2000**

Given recent history and the lack of processing capacity, it appears unlikely that domestically produced beet sugar will expand significantly in Canada. SCI projects that Canadian beet sugar production will remain in the 110,000 to 150,000-ton range in the years ahead. It will be interesting to watch whether the Rogers Sugar facility in Winnipeg will reopen and how much sugarbeet agriculture will grow near the U.S. border in the Ontario province to service the needs of the Michigan Sugar Company.

With population growth expanding slowly and competitively priced sugar available to households and industrial users, SCI forecasts sugar consumption in Canada growing to 1.325 million tons by 2000/2001 and 1.45 million by 2005. Concurrently with this consumption growth will be the need for incrementally more imports, the dominate share of which will continue to be raw cane sugar. Import needs are projected to be 1.2 million tons in 2000 and 1.33 million in 2005. Australia is expected to remain the dominate supplier in western Canada, while Cuba (supplemented increasingly by other suppliers) will service the increasing needs of refiners in eastern Canada.

### **North America Beyond 2000**

North America's large and diverse sugar production agriculture and processing industries, organizational structures, consumption patterns, and trade flows are in transition. These recent trends and current developments also offer signs to potential future outcomes:

**Production:** North America's sugar production is forecast at a record 11.95 million tons for 1997/98. Prospects are strong that this production level will be exceeded in the decade ahead. Mexico's cane sugar industry is expanding with increased area in production and better yields underpinned by better management and increased investment levels. The U.S. beet and cane sugar production base also is expected to expand, assuming no major change in the price support level; however, the growth likely will be uneven as higher cost areas of both beet and cane production contract while lower cost areas expand. The growth of production will be particularly interesting to watch in the sugarbeet area of the Red River Valley and the cane area in Louisiana. In contrast, Canada's beet sugar production base is likely to remain small as farmers in western Canada concentrate on more remunerative grain crops.

Technology will play a key roll in expansion reflecting improvements in the field and factory. Higher yielding beet seed will be available to farmers in the U.S. and Canada. New cane varieties will be coming on line in the U.S. and Mexico. Management of the sugar crops in these countries will strive to establish a balance between tonnage and sugar content. To achieve its potential, Mexico will need to devise a system that provides incentives to produce for quality, i.e. higher sugar content. This will require investment in monitoring systems acceptable to both growers and processors. At the factory, new technologies, such as the desugaring of beet molasses, will be fine tuned and new systems such as membrane filtration systems at cane mills, will foster higher pol sugar.

**Organization Structure:** North America's sugar industries are undergoing significant changes in structure that have important implications for the future. In Mexico, the new land law allows greater concentration of holdings and reduces fragmentation that has led to lower yields, difficulty in applying new production input technologies, and logistical problems at harvest. In the U.S., the cooperative grower processor movement is very strong and is expanding, led by the grower cooperatives in the Red River Valley that account for over 50 percent of the U.S. total beet sugar production. In Canada, the U.S. and Mexico, sugar companies are merging to aid in creating production

efficiencies and larger marketing organizations. For example, traditional regional companies such as Imperial-Holly in the U.S. are moving to be a national marketer given their recent merger with Savannah-Michigan. Mexico's milling sector has gone from largely government owned to a privatized industry. In Mexico, the U.S. and Canada, the trend toward larger and fewer sugar companies is expected to continue with the more financially viable firms flourishing. In addition, the strength of cross-national sugar firms such as Tate and Lyle with interests in Canada, the U.S. and Mexico is likely to increase as will the trend of Canadian firms, such as B.C. Sugar, investing in the U.S. (i.e. Refined Sugars Inc. in New York) or U.S. firms investing in Mexico.

**Consumption:** Sugar consumption growth in the region is expected to continue to outpace production expansion. In 1997/98, North America's population is estimated at 403 million and with a per capita consumption of 33.6 kilograms that equals 14.46 million tons of sugar use. By 2005, North America's population, according to the World Bank, will be 424 million (U.S. 286.70 million, Mexico at 106.72, and Canada at 30.70 million). Assuming the per capita use rate does not change, North America will be consuming 15.24 million tons of sugar, raw value, in 2005, up nearly 800,000 tons or 5.4 percent from the 1997/98 forecast. This projection assumes that the current sugar price structures in the U.S., Mexico, and Canada, remain unchanged. Only incremental growth is foreseen in sugar's chief substitute, corn sweeteners. The HFCS liquid sweetener markets in the U.S. and Canada are already mature. The key looming question is the future growth of HFCS as a substitute for sugar in Mexico -- that question is extremely difficult to gage at this point as it involves social as well as economic issues.

**Trade:** With the gap between sugar demand and regional production expected to widen, net sugar imports into North America are expected to expand. Canada is projected to need 1.1 to 1.3 million tons of annual imports, again mainly raw sugar coming from traditional origins. U.S. imports of tariff rate quota (TRQ) sugar are also expected to grow to 2.48 million by 2005. The composition of TRQ imports is likely to change as pressure is building that the current system of allocations is dated and the move to a partial globalization of the raw sugar quota would be a viable solution.

Mexico's import and export future levels are again difficult to judge as much depends on the financial health of the industry and this, in turn, pivots on the potential level of impact of HFCS on the Mexican sugar sector.

Clearly, the level of sugar trade between Mexico and the U.S. will grow reflecting the current NAFTA access schedule and declining tariff levels as the region moves toward becoming a "customs union." The trade between Canada and the U.S. will remain small but important to the respective industries, especially the volume of sugar-containing products crossing the respective borders. Moreover, as the region has recently experienced, viable trade dispute mechanisms need to be in place to resolve inevitable trade disputes relating to the marketing of sugar and sugar containing products.

## **FACTORS DETERMINING INDIAN SUGAR PRODUCTION AND ITS COMPARATIVE ADVANTAGE**

*This was prepared by Mr Satish Kansal for the Sugar and Beverages Group, Commodities and Trade Division, FAO.*

### **INTRODUCTION**

India has become largest producer of sugar cane/sugar

producing 280 MnT of cane and 16.5 MnT of sugar in 1995-96, making it the largest producer of sugar in the world, representing about 20% of cane sugar production. India also produces another 10 MnT of traditional sweeteners (gur 9 MnT, khandasari 1 MnT). India also has a large consumer base, thus makes it quite vulnerable to international sugar market, in the event of surplus or deficit situation. At the same time it has good potential and prospects.

Sugar production commenced in 1920's but it got industry status in late 20's/early 30's when India had 29 sugar mills producing just 100,000 tons of sugar. The industry, facing competition from imported sugar, sought tariff protection. Sugar production picked up under the Sugar Industry Protection Act passed in 1932 and country became self sufficient in 1935. Also cane pricing act was enforced to provide good cane price to farmer. This was followed by land reforms putting ceiling on land holdings to protect small farmers, formation of cane grower cooperatives and setting up of sugar mills jointly with farmers called as cooperative mills on ownership and sharing basis. Today this sector produces 60% of country's production.

Under the structured Industrial Development Policy, sugar industry was part of the Five-Year Plans introduced in 1951 and has been under the direct control of the Government ever since. Sugar industry is highly politicised and so closely controlled by the Government which has no parallel in the industry. Govt. control, covers all aspects of sugar business i.e. licensing/capacity/cane area, procurement/pricing/sugar pricing/distribution and Imports and exports.

Sugar scene in India has been that of protectionism. The mills, the farmers and the consumers all have been protected one way or another. Whereas the protection to farmer and consumer has been consistent, it has not been so consistent for the mill owners.

Overall government policy has given impressive results. The production has gone upto 16.5 MnT. per capita consumption up from 5 to 13 kg over a period of 3 decades. There is a potential - what is needed, is some changes in policy to make it world class player.

Winds of liberalisation have touched sugar also. Licensing is liberalised. The imports freely allowed. Exports deregulated. Many lessons learnt. Competition became intense. Customer more demanding on quality and service.

The document gives an overview of agricultural background development in cane. Sugar production, consumption, policy/regulations. The paper ends up dealing with important issues, aspects of deregulation, decanalisation of exports, the potential and the comparative advantage of Indian sugar.

### **HISTORICAL BACKGROUND**

History of sugar and sugar cane in India goes back to several thousand years BC. Indian mythology vouches for this since it contains some legends depicting origin of sugar cane.

It was sometimes in 4/6<sup>th</sup> century art of sugar making was discovered. Method was crude beyond imagination. Cane was cut in pieces - crushed under heavy weight - juice thus obtained was boiled and stirred, till it turned solids.

Solids of uneven shape and size were called sarkara, a Sanskrit term of 'gravel'. Modern word 'sugar' is derived from the word Sarkara.

Thus it could be rightly said that India has been the original home for sugarcane as well as sugar manufacture.

However, for all practical purposes, scientific sugar processing by vacuum pan method may have started sometimes in 20s. The development process was slow. Country met its sugar requirement

through imports. In mid 20s number of sugar mills sprang up in UP and Bihar. By 1930-31, there were 29 sugar factories producing just 100000 MT of sugar and they found adverse competition from Japanese sugar which was ruling the Indian market.

### **Good beginning leading to self reliance**

Industry took up the matter with "Tariff Board" and Sugar Industry Protection Act was passed by the Indian Legislature in 1932. Under this act, protection was granted to the indigenous sugar industry. Salient features:

- The act shall be for a period of 14 years ending on 1 March, 1948.
- Performance was to be reviewed before 31 March, 1938.
- Govt. to identify measures for next 8 years.

However, anytime during the period of Act, if it was found that sugar was being imported at the prices to make domestic industry ineffective, Govt. should have power to levy additional duty on imports. With enforcement of Sugar Protection Act, within a period of four years country became self-sufficient in sugar by 1935. It was a great beginning indeed.

### **Balancing of revenue (tariffs)**

However, the Govt. lost revenue by way of custom duty on reduced imports. Govt. again reviewed the position in 1934 and decided on two fold action:

- Imposition of excise duty on factory produced sugar.
- Union Government passed legislation to enable provincial Government to enforce minimum price of cane to be paid to cane growers.

The main objective of the Act was to regulate the price of sugarcane intended for use in sugar factories and assure sugarcane growers a fair price for their produce.

Govt. of U.P. enacted Sugar Cane Rules in 1934 followed by Bihar and Orissa Sugar Cane Rules in 1934. In 1951, Central Govt. took over control of sugar industry under the Industries Development and Regulation Act.

The post protection history of Indian sugar industry is amazing. From the mere 32 mills in 1931-32 number of units rose to 130 by 1934-35 and the production arose from 0.17 MnT to 0.95 MnT. The rate of expansion was 460%. The growth continued till 1938-39, when the production touched 1.28 MnT.

### **Exploitation leading to land reforms**

Most of the new mills were set up by private rich individuals/industrialists in North Indian states of UP and Bihar. They owned sugar cane farms and also purchased cane from small farmers - who were at the mercy of such mill owners. The exploitation of small farmers by sugar mills, led the Government to take various measures. First was policy of land reforms. Ceiling was put on holding by an individual including a sugar company. This led to disinterest of private sugar mills. But the growing need of sugar and so the sugar cane gave birth to Govt. partnered Cane Growers Programme in which growers co-operatives owned sugar mills. - First such step was in Maharashtra - Western India - 50 years later this sector produced 60% of country's production. Success was attributed to stable alliance amongst small/medium/large cane growers and Mills where they are partners.

### **First set back**

The first cycle of reversal was seen during the period 1939-44 and it continued till 1950-51 for various reasons when the output fluctuated between 0.89 to 1.1 MnTons mainly on

account of instability of cane supplies caused by weather conditions, preference of farmers to essential food crops which gave them higher return. Food production became a priority during the war period.

#### Development after 1951 - the five-year plans

The Govt. of India was entering into industrialisation. With limited resource, on one hand and to provide focus and prioritise the Industries on the other, Govt. introduced 5 year plans and which have been subsequently referred to as First Five-Year Plan. Second Five-Year plan and so on. The objective of these plans was to have a structured and planned and timely implementation of the industrial, infrastructural, services sector and agriculture growth.

#### Here we are

- We produced 16.4 MnT sugar in 1995-96.
- Installed capacity stands at 12.4 MnT.
- Number of sugar mills is 448.
- New mills and expansion in pipeline.

#### SUGAR PRODUCTION

Indian Sugar production growth came up under structured and planned sugar programme. The demand, the production requirement, the capacity needed and cane production went through a planning process and close monitoring by the planners over past 4 decades.

Further in order to achieve the set targets. Govt. has been setting up committees, task forces from time to time to make policy changes in consultation with Industry, State Agriculture Departments etc. such as cane and sugar pricing policy, levy price fixation free sales / levy sugar ratio etc. Also government has been closely monitoring the licencing policy.

The production of sugar cane, the cane utilisation, the production of sugar has been given in Annexure II. The target and actual production in the last year of the plan is as under:

Government has been encouraging setting up of new sugar mills as well as expansions upto 5000 TCD allowing upto 100% of sugar for new mills and 80% for expanded units, to be marketed in free market for certain number of years. Thus the growth has been lateral. Today there are 448 mills with installed capacity of 12.5 MnT with average size of 2150 TPD with some units of 10000 TCD and few of 5000 TCD.

In India, sugar cane is also utilised for production of traditional sweeteners like gur and khandsari. The country produces a total of about 10 MnT (9 MnT Gur and 1 MnT Khandsari). This sector enjoys all the freedom. No controls, no restriction on cane prices - the sector can pay commercial price. Thus poses a direct threat to sugar industry and sugar production has not followed cane production.

However, over a period of time with changes in Govt. policy on free sale/levy ratio from 35:65 TO 60:40 can utilisation for sugar has gone up from 30% to 55% and for gur/khandsari sector has come down from 58 to 34% (Annexure III).

Sugar Industry has gone through a structured planned growth based on projected requirement of sugar for consumption.

#### First Five-Year Plan

Since the consumption was seen going up additional capacity came up by way of new unit as well as through expansion of the existing units.

- Achieved output in 50-51 1.12 MnT
- Target sugar production 1.50 MnT
- Mid plan revised target 1.80 MnT
- Production in last year .89 MnT

#### Second Five-Year Plan

The Industry continued to perform well and Govt. also encouraged the growth with increase in demand.

- Production 1960-61 3.50 MnT
- Installed capacity .45 MnT

#### Third Five-Year Plan

In 1965-66 which was the last year of the Third Five-Year Plan Industry continued to grow and exceeded the planned targets.

- Planned Target Production 3.50 MnT
- Production in 65-66 3.54 MnT

#### Third and Fourth Year Plan Gap Period

Until now the Govt. was fully controlling the Sugar Industry. It anticipated that if total control continued the Industry could go into a reversal mode. Govt. adopted the policy of Partial decontrol with effect from 1st October 1967 The policy has since seen total control to partial control to decontrol and back to partial control. Why this has happened will follow later in the chapter.

Results were encouraging. Mills could produce more/sell more at a good/bad price and pay more to the farmer.

- Production 66-67 2.13 MnT
- Production 67-68 2.16 MnT
- Production 68-69 3.76 MnT

#### Fourth Five-Year Plan

The Govt. for the 4<sup>th</sup> plan fixed target for production at 4.7 MnT and license capacity of 4.87 MnT. Since capacity was not coming up the licensed capacity target was raised to 5.5 MnT.

- In the first year of the 4<sup>th</sup> plan i.e. 1969-70, production was all time high 4.6 MnT.
- With high stocks on hand, Govt. decontrolled sugar in May 1971.
- Sugar prices crashed in domestic market - mills could not pay the farmer dues.
- Farmers moved to other crop causing decline in sugar production in following season 1970-71 to 3.1 MnT (Down by over 32%).
- Sugar prices in domestic market moved up. Industry volunteered to offer uniform price for Rs. 1500/T for domestic market and also offered to export 3.5% of its production.
- Govt. again brought industry under its control effective 1st July, '72.

#### Fifth Five-Year Plan

Planning Commission appointed task force to develop programme of sugar industry for the fifth plan period 1974-79. Its findings:

- Requirement 5.5 MnT
- Export/Buffer stock 0.5 MnT
- Total Need 6.0 MnT
- Capacity Target 7.0 MnT

The Industry performed extremely well by exceeding plan targets (5.72 MnT) by producing 6.47 MnT in 1977-78.

Action:

- Govt. decontrolled sugar from August 1978 and withdrew monthly release system for domestic market.
- Mills panicked, off loaded all its stocks. Mills were on way to sickness.
- Learning from history, Govt. acted fast once again imposed partial control with effect from 17.12.1978.

#### Sixth Five-Year Plan (1980-85)

Govt. focus and attention on sugar industry further increased - Objective realistic growth and pricing structure. Appointed committee for the same. Recommendation:

- Cost structure reviewed and price of levy sugar fixed on Statutory Minimum Cane Price (SMP) without linkage to free market price for sugar or actual cane price paid.
- Govt. continued to announce SMP linked to 8.5% recovery.
- To continue dual sugar policy.

Following the recommendation, the policy of partial decontrol continued in the real sense from 30<sup>th</sup> Nov.'1980.

Sugar production fluctuated from 3.9 MnT in 1979-80 to 8.7 MnT in 1981-82 industry suffered losses - causing delay in cane payment. Production came down to 5.5 MnT in 1983-84 leading to imports.

#### Seventh Five-Year Plan

The estimated requirement of sugar 9.8 MnT during the 7<sup>th</sup> plan period 89-90. The projected growth rate was 5%.

##### Targets:

Licensed capacity	13.26 MnT
Installed capacity	11.46 MnT

Licensed capacity by the end of 89-90 stood at 16.21 MnT against the target of 13.26 MnT. The installed capacity was however only 9.34 MnT (unimplemented licensed capacity of about 7 MnT).

Govt. also announced a pragmatic sugar policy with increase in statutory minimum price of cane basis recommendation of the Commission of Agriculture Cost and Prices and change in the levy/free ratio of the sugar in year 1992-93 to 40/60. Industry got a boost.

- Result once again the status changed from importer to exporter.

#### Eighth Five-Year Plan

Govt. constituted a Task Force to deliberate various aspects of the sugar industry in the 8<sup>th</sup> plan period:

Requirement	13.41 MnT
Installed capacity target	14.12 MnT
Licensed capacity target	18.20 MnT

Eighth plan was delayed by two years and Government made projections on the basis of parameters on the year 1994-95. The status at the end of VIIIth plan:

	Target (MnT)	Actual(MnT)
Licensed capacity	20.0	21.1
Installed capacity	15.5	12.5
Production:96-97	14.8	13.0
Consumption: 96-97	14.6	13.5

There are 448 mills with installed capacity of 12.4 Mt average capacity of 2150 CD. Over 100 new mills and expansion of existing mills will add 9.0 MnT to capacity.

#### Ninth Five-Year Plan - Targets

The targets of the Eighth Plan have been achieved. The approach paper indicates the following plan:

Year	T a r g e t (MnT)			
	Lic. Capacity	Installed Cap.	Production	Consump.
1997-98	20.1	16.4	15.5	14.2
1998-99	21.2	17.2	16.4	15
1999-00	22.3	18.2	17.2	15.8
2001-01	23.5	19.1	18.2	16.5
2001-02	24.8	20.2	19.1	17.5

#### PROCESSING

India is the only country in the world who produces plantation white sugar. All other countries are producing either raw sugar or refined sugar or both. Thus the processing capacities are quite different and so also is the quality of sugar.

In terms of number of mills, India ranks first with 448 Mills, followed by China 241, Brazil 231. World total of 2500. Average size is 2150 TCD, much lower than world average. In India, we are still setting up 2500 TCD mills whereas the trend globally is to set up 10000 TCD mills. (Annexure IV.V)

#### Capacity

Mill capacity is calculated basis normal crushing period. At the end of eighth plan, the target licensed capacity was 18.9 MnT and installed capacity of 14.1 MnT against which the licensed capacity was 21.0 MnT and installed capacity of 12.4 MnT. The target production in 1995-96 was 14.1 MnT against which the country produced 16.4 MnT. This was due to high sugar cane production and early/late crush incentive. However, there is still a shortfall in achieving installed capacity. The reasons for non fulfilment of target were:

- Non availability of finance from institutions to new sugar factories and to existing factories for expansion.
- Specified capacities have been installed but could not be utilised due to certain technical reasons such as Letter of Intent, compliance of pollution controls etc.

In 1995-96 the total installed capacity was 12.4 MnT and there were 448 mills i.e. average capacity of 2150 TCD. Its distribution was as under:

Capacity TCD	No. of Mills
<1250	63
1251-2500	313
2501-5000	60
5001-9000	8
10000	4

- There are about 100 new units or expansion schemes under implementation which will add to capacity of about 9.0 MnT.
  - The current licensing policy envisages new units of minimum capacity of 2500 TCD.
  - Government has recently announced incentive schemes for new mills as well as for expansion of existing units by way of additional release of sugar for free markets.
  - All the same time, the minimum distance between the two mills has been reduced from 25 km to 15 km.
- Thus the growth of capacity continues to be horizontally.

#### BY- PRODUCTS & DIVERSIFICATION

##### Baggase

Basic utilisation of baggase continues to be as a fuel. Dry baggase contains 40% cellulose, 30% pentasone and 20% lignin. It is suitable raw material for paper industry. 30% of cellulose requirement comes from agricultural residues. However, since the mills are scattered all over the country, collection of surplus baggase poses a problem and makes paper units uneconomical. Efficient utilisation yet to come up.

#### **Co-generation of power-use of baggase**

Baggase is used as captive fuel in the mill as power. Most efficient as well as balanced mills should be able to save baggase to the extent of 10% of its production. The potential for co-generation and export of power to the grid after meeting mills own requirement of energy is estimated by expert bodies, at 3600 MW by 1996-97. India has not exploited its huge potential like other countries like Hawaii, Mauritius etc. where co-generation of power from sugar mills has become a dependable source for supply of power.

Central Government needs to coordinate this with state government electricity boards for utilisation of the surplus power which sugar mills even can generate. Co-generation should be encouraged. Commercial aspects of power purchase arrangement and distribution needs study.

The investment required is about 60% of what will be required for setting up a conventional thermal power plant. A beginning has been made with 5 such plants coming up.

#### **Molasses**

Molasses for many decades have been fully controlled in every aspect i.e. price/movement/end use etc. In 1993, the Central Govt. decontrolled the molasses. Most states have complied with the centre's directive but some state government's like Bihar, UP have reimposed controls like dual pricing, Movement end use controls etc. this is only helping in keeping free market molasses prices high leading making availability difficult for distilleries and country liquor production thereby encourages illicit liquor production from Gur - hence more diversion of sugar cane.

There are total 283 distilleries and 108 sugar mills having distilleries attached. Total installed capacity is 2700 Mn Litres. At current level of sugar production and surplus availability, total is estimated at 400 Mn Litres which could go upto 700 Mn Litres by the year 2000.

#### **Developments – agricultural**

Just after India attained freedom, 50 years ago, Indian governments first and immediate concern was food production. In the words of the first Prime Minister of India - "Everything can wait, agriculture can not." The words expressed common concern as population was growing at a much faster rate than food production.

That the country became self sufficient in food grains was a demonstration of unprecedented collaboration between policy makers, administration, scientists and overwhelming response of farmers. To give a further boost Farmer was provided incentive by way of an attractive support price and disposal mechanism by way of procurement of the food grains by the Govt. agencies.

The agricultural thrust continued in other agriculture commercial crops as well like oilseeds, sugar cane where Govt. appointed technology missions and where India became self sufficient from a net importer. In sugar, it became an exporter, exporting as much as 1 MnT in 1995-96. Today India has made a place for itself in the world agricultural map where it enjoys a prominent position with rest of the world.

#### **Developments - Sugar cane**

It was in mid 1960's that sugar became a priority and Govt. set up task force to plan requirement and growth. Policy was to focus on cane production, utilisation and processing capabilities. Remunerative cane prices led the farmer shift to sugar cane and oilseeds. The growth in sugar cane production has been both in acreage and yield. Whether this trend will continue, will depend upon crop economics as farmer has been adopting commercial approach.

There is a need for rationalisation of sugar cane policy to encourage farmer to improve yield and mills to build up rapport with farmer to build up trust, commitment resulting in assured supplies of clean and freshly cut cane (improve extraction). In return farmer gets better and quick return.

#### **Support system for agri crops**

Agriculture sector still contributing 28% to India's GDP. Projected growth rate is 3.5%. The focus of agriculture scientists has been on increase in productivity, by providing scientific inputs - demonstration by State Agriculture Departments in fields with farmers of such practices.

To overcome the biggest apprehension of exploitation of farmers by financiers and traders. Govt. provided support to ensure remunerative prices as well as marketing of agriculture production.

#### **Price support system**

Price support system for agriculture produce has been one of the significant factors providing confidence to the farmer. The commission on agriculture costs and prices, in the Ministry of Agriculture is vested with the responsibility of determining the minimum price a farmer must get, which brings him prosperity and keeps him motivated. Various state departments of agriculture monitor the quality and the value of direct inputs like seed, pesticides, Irrigation, fertiliser, manure etc. and also the fixed costs like interest, rental of land etc. Farmer is compensated more than the cost of the inputs.

At the same time to encourage the farmer to experiment in new crop (most recent being sunflower) - the farmer is compensated lot more than the cost of input. A typical costing to arrive at the minimum support price, is annexed.

#### **Procurement system**

Procurement system also needs a mention. Govt. procures the food grains and stores to provide relief to the farmer who otherwise will have to hold an inventory and block his finance.

Also Govt. has appointed some state federations and cooperatives to intervene in the market i.e. to support prices of oil seeds, grains etc.

#### **CROP ECONOMICS**

The phenomenon of crop switch is driven by one single factor i.e. farmers confidence in the price support system and the payment commitments against his cost of produce. For inducing the farmers to invest in yield apart from raising infrastructure and use of inputs, price support to farmer has to be demonstrated. With total area sown stable at 142 Mn Ha, further increase has to come only from increase in yields whatever may be the means i.e. seeds, irrigation, pest treatment, harvesting, etc..

Farmers attitude of commercialisation has been amply seen by shifting from food grains to sugar cane and oil seeds. This trend can not be assumed to continue and if farmer could shift

from food grains to non food grains - he can also switch back if non food grains become less remunerative at any stage.

The attached table will show the cost of production of crops competing with sugarcane. The data is sourced from the Central Agricultural Dept. who in turn get it from state agriculture depts but the same is not so regularly compiled.

While calculating the return per hectare of land - a farmer may decide on cropping basis only operating costs or basis total costs.

The agricultural practices vary from state to state depending upon the irrigation facilities, soil condition, weather, inputs from local state agriculture depts. State support in form of subsidies on water, power, diesel, etc.etc. as and also work attitude of regional labour.

#### Sugar cane economics (interstate)

U.P., Maharashtra and A.P. are amongst the largest producer of sugar cane, representing 60% of total cane produced. The variations are because of different agronomic conditions and farming practices.

#### Comparison of return on various crops in same district

In order to make an effective comparison, a study was conducted for a season in Western U.P. taking into account all elements of various inputs i.e. direct costs.

Operations	Unit	Wheat	Paddy	Potato	Sugar cane plant
Field preparation	Rs.	700	875	700	3800
Sowing/Transplanting	Rs.	690	840	7800	7000
Fertilizer & Manure	Rs.	2100	2325	2775	6000
Irrigation	Rs.	750	1250	625	4000
Plant Protection	Rs.	-	-	1000	2000
Harvesting/Disposal	Rs.	4500	4000	1850	6060
Total Cost	Rs.	9115	9665	20900	32860
Yield	Ton/ Ha	5	5	21	58
Value of Product	Rs.	20000	21250	31500	41400
Return/Ha	Rs.	10885	11585	10600	8540
	US\$	306	325	298	240

#### Multicropping pattern

- Overall return to farmer is basis multi-crop cultivation
- Multicropping results in maximisation of crop production.
- Various multicropping patterns with sugarcane are followed like
  - Wheat/sugar cane plant
  - Potato/sugar cane plant
  - Mustard/sugar cane plant
  -
- Ratoon cane crop constitute 45% of cane area or 30% of cane production - Even with ratoon - short duration crop are undertaken like pulses.
- In India, one ratoon is common while in areas like U.P., Punjab, Haryana, practice of multiple ratoon is in vogue. Other countries also adopt multi-ratooning like Mauritius 6 to 8, Australia 2 to 3 and in Cuba 3. To 5.
- Thus with multicropping-ratoon sugar cane and plant cane with other crops gives the best return to farmers.

#### Sugar cane production

Sugar cane is one of the important cash crop. The production has grown dramatically over past several years. Sugar cane growing area in India may be broadly classified into two agro-climate regions:

REGION	STATES
Sub-Tropical	Uttar Pradesh, Bihar, Punjab, Haryana
Tropical	Maharashtra, Gujarat, Tamilnadu, Andhra Pradesh, Karnataka

Sugar cane industry was initially set up in the sub-tropical region. Till 1950's - 90% of area under sugar cane was in this region. With

commencement of planning process, sugar cane found its route in tropical area. sugar cane being a tropical crop finds favourable agro climatic conditions for its growth in this region - i.e. higher yields. Growth after 1950's was more in this region and by 1994-95 the sub tropical region, sugar cane area was 65% and cane production 55% of the total cane produced.

Now the tropical region is already developed and reached near saturation level. The biggest state in this region - Maharashtra faces acute problem of lack of water which effects cultivation of sugar cane. The sub-tropical belt, with fertile land, high water table and irrigation, appears to be the area for future growth.

India has total 26 states. Sugar cane is produced in 15 states. Above 9 states produce 97% of cane. 5 states contributed to about 87% of sugar cane produced in 1994-95.

#### The trend

The sugar cane crop has been in growth mode though there have been fluctuations and a sharper increase came in last 15 years. The growth can be attributed to:

- Government's thrust on sugar production - planned growth
- Govt./State Agriculture Dept's input on field extension, seed varieties, crop maintenance
- Cane development programmes of sugar mills
- Increase in cane support price covering more than input costs
- Crop switch resulting in more crop area in sugar cane due to better return
- Increased irrigation facilities and increase in energy consumption for irrigation
- Favourable monsoons.

#### UTILISATION OF SUGAR CANE

The sugar cane produced in the country is utilised for the following purposes:

- Production of white sugar
- Production of traditional sweeteners
  - Gur
  - Khandsari
- Seed, feed and direct consumption (chewing)

Production over the period has shown a significant growth. Over the past fifteen years. Production of sugar cane, white sugar is not consistent due to utilisation pattern of sugar cane.

The above data would reveal a trend that would indicate:

- Cane used for seed/chewing/feed as percentage stays constant at about 12%.
- Cane utilisation for sugar has been moving up and down.
- There is inverse relationship between sugarcane production and percentage utilisation for gur and khandsari.

On yearly basis, loss of sugar production is lot more than drop in sugar cane production and likewise increase in production is also much more than increase in sugar cane production. Thus such reversals can be witnessed again in 1996-97.

#### Role of traditional sweeteners - gur/khandsari

Gur is produced by continuous direct heating of crude extracted juice in open pans - till it turns solid paste. Khandsari is sugar produced from unrefined cane juice.

The trend and the data reveals that sugar production has a strong and direct rivalry with traditional sweeteners segment i.e. gur and khandsari.

While healthy efficient competition is order of the day but gur and khandsari is an inefficient utilisation of limited resources of raw material, i.e. sugar cane

#### Comparative Extraction and Recovery from Sugar Cane (%)

PRODUCT	Juice/Extraction	Recovery
Gur	55	9.5 to 11.0
Khandsari	70	6 to 7
Sugar	90-92	9 to 10

Let us take a look at gur and khandsari and the concessions these two sweeteners enjoy over white sugar.

#### Gur

- Predominantly produced in UP, Maharashtra, Andhra Pradesh and Tamilnadu.
- Initially produced to meet basic farmers' own need of sweetener.
- Direct consumption in household in winter season as a digestive sweet.
- Gur is commodity which is traded on futures - thus provides speculation.
- Gur has no controls - some commodity taxes such as Cane Purchase Tax, Trade Centre (Mandi) tax are also evaded.
- Thus gur manufacturers can pay more for sugar cane at the time of shortage, causing diversion.

#### Khandsari

- Immediate substitute of sugar.
- It is sugar produced from unrefined juice.
- Competes directly with sugar due to excise duty difference.
- Good Khandsari sells at marginal discount to sugar.
- At times of low sugar cane production i.e. high molasses price, high sugar prices - Khandsari operation is profitable.
- Hence can pay for sugar cane - even more than sugar mills causing diversion.

#### Competition with sugar mills

Thus because of complete freedom. gur and khandsari enjoy, they give stiff competition to sugar mills - be it cane procurement, cane prices, unrestricted sale of product as well as by - product.

Net Result:	In the event of low sugar cane crop
	<b>Whereas</b>
SUGAR MILLS	<ul style="list-style-type: none"> <li>• Have to sell sugar at dual price to the extent Govt. decides and not beyond two weeks.</li> <li>• Have to sell Molasses at dual prices at ratio fixed by Govt</li> <li>• Have to pay for sugar cane at fixed price.</li> </ul>
	<b>On the other hand</b>
GUR/ KHANDSARI MILLS	<ul style="list-style-type: none"> <li>• Can sell product and Molasses at free Market price</li> <li>• Can sell forward - there is a futures market for Gur.</li> <li>• Thus with more cash and good margins pay market price for cane</li> <li>• high at time of shortage and low at the time of Glut.</li> </ul>

This explains the reason of excessive diversion of sugar cane and the changes in the sugarcane utilisation pattern for sugar versus traditional sweeteners.

#### Impact on overall sugar economy

- Khandsari manufacturing is a waste of precious agricultural resource of sugar cane. The recovery is 6 - 7% against 10% in sugar.
- Thus on every 10 MnT cane utilised for khandsari, means a loss of 300,000 tons of sugar equivalent.
- At times of cane shortage, it has been found that upto an extra 10% of cane gets diverted to gur and khandsari.
- This explains that sugar production is not in line with sugar cane.

#### PRICING

##### Sugar cane pricing

Till mid 1960's industry was fully controlled. To provide support to farmer, in 1965-1966, the sugar cane price for sugar mills was fixed based on production and input costs called SMP (Statutory Minimum price). The sugar mills on one hand paid SMP. Gur and khandsari producers could pay lower or higher than SMP. This would result in diversion of sugar cane to khandsari and gur causing a decline in sugar production and also lower cane production.

Therefore, Government adopted partial decontrol policy i.e. mills could sell 35% sugar in free market enabling mills to pay more than SMP (like khandsari & gur) but the same was administered by states called SAP. Thus sugar production went up from 2.13 Mn. T in 1966-67 to 2.16 Mn. T in 1967-68 to 3.75 Mn. T in 1968-69.

In early 70's, Government appointed a commission, amongst other things, the tasks being to recommend mechanism to stabilise sugar cane supplies to sugar mills. The commission got known as Bhargava Commission, which sought the views of industry, cane growers, Cooperative Sugar Federation. The cooperative mills wanted 100% benefit of free market sugar benefit to farmer on the logic that levy price was fully covering the production cost whereas private mills wanted 50% sharing. While sugar cane constituted 70% of the sugar cost Bhargava Commission recommended 50% of the profit sharing (on the logic that sugar mills will have to pay 60% income tax on 50% profit - mills will effectively get 20%).

The government accepted the Bhargava formula and incorporated the same in the Sugar Cane Control Order of 1966.

Thus in practice, country has two systems of sugar cane price movement. In cooperative mills dominated states, i.e. Maharashtra, Karnataka, Gujarat, sugar cane price is based on profit sharing formula while in other states dominated by private mills - State Government advise the sugar cane price known as State Advised Price (SAP). The statutory minimum price or SMP is used only to determine the price for levy sugar

But this is not the end. The politicians need to impress upon farmers that when they fight for farmers right, the later has to discharge its obligations i.e. apart from guaranteeing supplies also improve quality/productivity and not to ask per unit price alone. (At the time of shortage farmers are lured by gur and khandsari manufacturers who can pay more.).

The farmers need to understand that cane price has to have a relation with sugar price. Concept is already in place in some parts of the country. The mills, farmers and cooperatives and politicians need to work together agree on the principle of cane pricing which should have a relation to sugar sales proceeds, quality and productivity. Then only a natural continuous growth can be expected.

Sugar cane prices based on Bhargava formula will lead to competitive farming and competitive processings. Both farmer and mills will have to become competitive in respective areas.

### Sugar pricing

The country has dual sugar pricing policy.

### Levy sugar price (fixed by Government)

It is a peculiar situation where raw material price is fixed by the Government which goes up every year. Sugar price for the levy sugar (40% of production) is fixed without taking into consideration of all factors that go into production - i.e. 40% of the sugar is sold below cost of production. Thus Government, for all its valid reasons, has protected the farmer and the household consumer who gets levy sugar.

### Non levy - sugar (free market price)

Once the house-hold consumer is protected through levy price - mills should be left free for the free portion of sugar. But it is not so. Free is not free at all. How much quantity - and when all the Govt. decides. The quantity is determined based on historical data of past plus to keep the prices under check - who uses this sugar. 80% of free sale is used by Institutional users who are free to charge on their product.

Besides the controls, on sales, are such that mills are forced to sell its product fortnightly basis due to fear of the quantity short-sold getting converted into levy. The advantage is taken by the trade i.e. the retailer. He adjusts his price upwards when the mill rate goes up but does not drop when mill is forced to sell at lower price.

The sugar price is perhaps the lowest in India comparing to other countries. The annual increase in 1994-95 over 1988-89 is only 5.3% as against 13.5% in case of Rice, 10.8% in case of wheat, 13.5% in case of food grains, 18.0% in case of groundnut. The sugar cane price is up 20%. (Annexure VII). Annexure VIII shows the sugar cane price announced by the Government (SMP) and the actual cane price paid. Annexure IX shows the Trend in Sugar prices. Thus, there is no mechanism by which sugar mills can price or hedge their product in the market where price fluctuation can be as much as 8 to 10%.

India perhaps is the only country in the World where sugar cane price is going up and the sugar price is not keeping pace. Sugar cane prices - both SMP and SAP have been going up. Sugar prices have not followed cane prices. India is the only country where there is no relation between sugar realisation and cane prices. Therefore, if the growth is to be assured, cane pricing-one of the key issues for the health of sugar industry, has to be realistic.

### TRENDS IN SUGAR CONSUMPTION

When we speak of per capita sugar consumption for India, we shall consider traditional sugar cane based sweeteners (gur & khandsari) as well.

Thus with sugar and gur/khandsari consumption taken together the consumption stands at around 24 kg/annum. Trends and comparisons with other countries (Refer Annexure X,XI)

- Per capita consumption of all sweeteners has been fairly stable at 20kg until 1980.
- In this period however there has been a gradual shift from gur/khandsari to sugar.
- In 1960 - sugar was 4.8 kg or 25% of all sweeteners which in 1980 grew to 8.2 kg or 42%.
- Between 1980 to 1995 - total consumption grew to 24 kg with sugar at 13 kg or 55%.
- Thus growth between 1960 to 1995 has been as under:

**1960 –1980** Total sweeteners steady at 20 Kg. sugar  
Up from 4.8 to 8.2 kg.  
Gur khandsari down from 15.2 to 11.5 kg.

**1980-1990** Total sweetener moved upto 24 kg.  
Sugar upto 13 kg.  
Gur/khandsari down to 10.7 kg.

### Sweeteners consumption India vs world

- Today India's per cap. consumption of 24.4 kg is higher compared to world average of 20.4 kg.
- Well high above Asia average of 12.8 kg.
- Lowest is in China at 6.5 kg - which distorts Asia average - (alternate sweeteners basic buying high)
- Compare's well with Pakistan 23, Srilanka 24.1, Thailand 24.9.
- But behind Philippines at 28.7 and well behind Malaysia 39.8.
- Also substantially behind developed countries such as US, Canada, Australia, New Zealand, EC and developing countries and major sugar producing countries such as Brazil, Cuba.

### Trend in consumption pattern

- Major increased witnessed between 1980 to 1995
  - World average 19.8 to 20.4
  - Asia average 8.6 to 12.8
- Asia average increase is 50% hence. We confine discussion on Asia:
  - \* Japan Down 10% to 21.5
  - \* China Up 50% to 6.5
  - \* Thailand Up 80% to 24.9
  - \* Malaysia Up 25% to 39.8
  - \* Pakistan Up 150% to 22.9
  - \* Sri Lanka Up 50% to 24.1
  - \* Philippines Up 28% to 24.4
  - \* India Up 20% to 24.4
- While there has been a general trend in health consciousness but Western habits are catching up fast. Good growth potential in:
  - \* Soft drinks
  - \* Food products
  - \* Confectionery segment
- Back to India, the dual pricing/marketing policy clearly segments two sectors i.e.
  - \* House hold direct consumption i.e. levy sugar i.e. 40% of production.
  - \* Out of free market sugar 60% of production - 80% goes for indirect consumption and 20 % for direct consumption.
  - \* Thus total off- take for house-hold consumption would be 48% of sugar produced.
- 4% growth in sugar consumption is expected. (2% from the population growth and 2% is expected from the institutional segment).

### REGULATIONS

The Industrialisation in india has been highly regulated and protected leading to monopolisation and centralisation. Over a period of time, however the Govt. encouraged new business - new entrants but beginning of the 1990's the reforms and liberalisation has changed the environment. Protection has disappeared. Imports exports liberalised. Production has overtaken, demand competition has increased, new technology has come in supported by direct foreign investments, All this has resulted in growth in consumerism driven by better quality and availability at reasonable prices.

Sugar however remains insulated, liberalisation and reforms touched sugar limiting to only imports and in some way in exports. Some of the major regulatory measures at the central Govt. and State level are as under:

## ISSUES RELATING TO SUGAR INDUSTRY

### Central Government Measure

#### Licensing

- Sugar industry is a schedule industry under Industrial Development Regulation Act requiring license to manufacturer.
- Gestation period has been reduced from 3 years to one.
- Minimum capacity of a new sugar mill is 2500 TCD and expandable upto 5000 TCD.
- Minimum distance between 2 sugar mills is now 15 kms which used to be 40 km.
- Cane availability is now not so critical requirement.
- Government gives incentives where in new mills can sell upto 100% of the sugar in free market against 60% of existing mills - Government has also announced such incentive for expansion upto 5000 TCD.
- The impact has been horizontal growth-causing cane shortage-higher per unit processing cost etc. etc.

#### Production Monitoring

The Sugar (control) Order 1966, regulates the production, sale of sugar, stock limit. It also prescribed standard of quality - to which sugar must conform at the time of delivery.

#### Sugar Cane Pricing

Sugar Cane (control) Order 1966, was issued to promote sugar industry and to ensure fair deal to cane growers by fixing minimum price payable by sugar mills. Act provided cane price fixation basis 50% profit sharing. Not enforced in some states where such state fix its own price.

#### Sugar Supplies for Public Distribution

The Levy Sugar Supply (control) order 1979, was issued empowering the Govt. to direct sugar mills to supply levy sugar to authorised persons/organisation etc. at a price fixed for the season.

#### Dual Sugar Pricing Policy

Under the provision of the Sugar Control Order, Govt. has been regulating the sugar supplies for distribution under PDS and free market. Several times in the past, industry has gone through complete control or partial control to complete decontrol and back to partial control. (Annexure XII)

Under the current policy 40% of the sugar produced is to be delivered by mills, for public distribution, at a price fixed from season to season. Balance 60% can be sold in the free market as per quantity decided by Govt. on month to month basis for each mill. Also mill has to sell minimum 47.5% in the first fortnight and 52.5 in second.

#### Quality/Packaging

Governed by Indian standards. Grade 31, 30, 29 and Packaging only in 100 kg jute bags. Consumer packs allowed in 1, 2, 5 kg in any packaging. Exports packing can be in 50 Kg and in any packaging material and so also imports

#### State government regulations

Over and above the central Govt. control, each state Government enforces its own regulatory measures to protect the State/farmers. Following are some typical controls in the State of Uttar Pradesh which are there in other states in some form or other.

#### Restriction on Sugar Cane Purchase Order, 1966

This Order provides for restriction on purchase of sugarcane by gur producers. It also provides for permits for purchase of sugarcane by a

khandsari manufacturer holding a licence.

#### Sugar Cane Cess Act, 1956

This Act has been promulgated for imposition of cess on cane sold to a sugar factory. At present the rate of cess is Rs. 140 PMT on sugar which is collected at the time of delivery of sugar.

#### Sugar Cane (Purchase Tax) Act, 1961

This Act proposes to impose a tax on the purchase of sugarcane by the owner of a sugar factory. A sugar factory is not allowed to remove any sugar until Purchase tax has been paid thereupon. At present the rate of Purchase Tax is Rs.220 MT on sugar.

#### Sugar Cane (Regulation of Supply & Purchase) Act, 1953

This Act regulates the supply and purchase of sugarcane required for use in a sugar factory, khandsari unit and for manufacture of gur, it provides for:

- Declaration of reserved area/assigned area for the purpose of supply of cane to a sugar factory.
- Speedy payment of the price of cane (action for delays)
- Cane purchase by mill through cane growers coop-societies.
- Payment of commission to cane growers coop-societies.
- Power to declare some cane unsuitable for sugar mills.

#### Sugar Cane (Supply & Purchase) order, 1954

It provides for rules and regulations governing purchase of cane in a reserved area/assigned area and purchase for cane at cane purchasing centres within the reserved area of a sugar factory.

#### Molasses Control Order

While the Central Government has decontrolled the molasses, the State Governments, had imposed its own regulations like:

- Ban on interstate movement
- Restriction on end use i.e. sale to a specified consumer.
- Ratio of control fixed rate and free market rate
- Also specifies consumers who will get at control price.

#### Regulations for trade - domestic

Sugar is governed by the Provision of Essential Commodities Act. The act provides stipulations on trade licenses, stock limits and rotation period for stocks. In addition, there are restrictions on sales and distribution, i.e.

- Mills can sell only to licensed dealers.
- A dealer can sell to another dealer only once.
- At times dealer is not allowed to sell to another dealer in the same state.
- Anybody storing more than 900 kg. of sugar needs license.
- Stock to rotate before 15 days.

#### Sugar - distribution and trading practices

Under the dual pricing policy Government announces from time to time portion of the sugar, that can be sold in the free market and what is to be supplied at the fixed price under the public distribution system called levy sugar.

#### Levy Sugar sales/distribution system

Currently 40% of production (effectively due to non-levy unit 33%). Quantity for distribution per month fixed unit per kg/family etc. Varies basis additional requirement arising due to important festivals.

Food Ministry issues allocation of various food departments/corporations. Such depts approach individual

mills to lift the sugar and for onwards supply to various public distribution system (ration shops) appointed by the State Govt.

Consumer get their sugar allocation on fortnight basis against the ration card issued to each family head.

In reality, however, not all such sugar reaches bonafide users and finds way into open market due to large price differential that exists between levy and free market sugar (Rs. 5.50/Kg. Or 6.25 c/lb).

### Free sales sugar marketing system

#### Quantity

Currently it is 60% of the production for older mills. Extra fee sale sugar is allowed for late and early crushing and also for new units. Effectively it is 67%.

#### Free Sales Release

Food Dept. assesses the monthly requirement for the country basis-historical demand pattern over the previous years and allowing growth ranging 4 to 5%.

The statewise allocation is then fixed basis historical data plus any specific festival demand for the month in that state.

Millwise allocation is then made basis production/stock of the mills on pro-rata basis. Individual mill adjustments are made for the export release of the previous months or additional incentives out of late/early crush.

#### Period of Sale

Mills have to complete sale and despatch of 100% of the such sugar released by the government on monthly basis and within stipulated period, so prescribed.

Also in order to reduce speculation and ensure supplies in market, mills are bound to sell the quota evenly in two fortnights of the month i.e. 50:50. However, the only relaxation is that mills can sell upto minimum 47.5% in a fortnight and a maximum of 52.5%.

Failure can lead to prosecution under the sugar control order and such quantity can be converted in levy sugar. Thus mills are forced and have to comply with this requirement. This is one singular factor which determines the price of sugar in market (not consumer).

#### Authorisation for Sale

Such sugar can only be sold to government approved licenced wholesaler only and to actual users who have a storage/dealing license.

Further these wholesalers have to sell only to retailers but can sell to another wholesaler only once. The wholesalers also have to sell such sugar within 15 days of receipt - on first in first out basis (earlier this was 7 days).

The institutional bulk consumers, in order to meet their requirement and to buy at the best prices are also required to have a wholesaler license. (Any person/user can store sugar upto 900 kg without license).

There is no restriction in movement of sugar from one state to another.

#### Customer Base

• House Hold Users	900 Million
• Retailers selling sugar	300,000
• Licensed wholesalers	70,000
• Establishments	800,000

#### Trade Channel

Thus driven by statutory requirements most trade from the mills is to licensed wholesalers - who in turn service retailers for the household customers and endusers for institutional demand.

Moreover, with such a large customer base spread all over the country, neither it is possible for the individual mill to access them, nor service. Thus trade is an important link in the supply chain.

In order to make sure of commitments/transactions and collection of sales proceeds a system of indent and order collecting agent got developed over a period of time in most states. These agents are appointed by the mills whose role is:

- To book order from wholesalers.
- Place such orders and delivery instructions on mills
- Arrange deliveries from mills to the wholesalers.
- Collect payment from the wholesalers
- Pass on sales proceeds to the mills

The mills for the above service pay a consideration by way of commission (0.5 to 0.75%).

The secondary sale is transacted through brokers. Such brokers bring the wholesalers and the retailers in contact for the ultimate sale and charge a fee (upto 0.25%)

The retail either pick up the sugar or the wholesaler makes the delivery to the retailer at a cost.

### Segmentation - Consumer base (Typical)

The distribution/segmentation of the Sugar is

	000 MT	%
<b>PDS</b>	4400	33
<b>Free Market</b>	9100	67
<b>Total</b>	13500	100

The distribution of the free market segment is

<b>Institutional</b>	7100	78
<b>Household</b>	2000	22
<b>Total</b>	6400	48
<b>Household</b>		

Thus almost 52% or say half of the sugar produced goes in for indirect consumption i.e. institutional segment.

- **Large Buyers such as:**

	000 MT	%
* Soft drinks bottlers	300	4.23
* Biscuit manufacturer	600	8.46
* Food products	50	0.70
* Confectionery	200	2.81
* Pharmaceuticals	50	0.70
* Hotel/restaurants	100	1.40
* Sweet meat	5800	81.70
<b>Total</b>	<b>7100</b>	<b>100.00</b>

### Segmentation - regional

The product quality in different states is based on customer preferences/cane quality/processing capabilities etc. also driven by local sugar availability.

### Sugar market - major trading centres

Sugar is allowed to move freely through the country. Apart from local price, cross movement shift in different states from neighbouring states taken place due to transportation costs and local prices, the differentials got determined basis delivered cost in consuming centres.

Major Trading centres • Mumbai • Ludhiana • Kolhapur are

- Calcutta • Vijaywada • Chennai
- Delhi • Ahmedabad

### Sugar Price

Determined by demand/supply gap in each state and cross movement from surplus to deficit states. Each state has developed preferences of colour/grain size etc/

Primarily sale is on Ex.Mill basis and free market price is more trade driven than customer driven as almost 100% sugar is marketed through trade and mills have to sell the sugar to fulfill statutory obligation - thus demand is actually created by Trade.

While sugar price at mill level and wholesale level fluctuate, within 5 to 6%, retail price moves only upwards.

Also sugar price entirely depends upon Govt. fix on price. Sugar prices had been kept artificially low both for free sale as well as PDS

- Have not followed cane prices
- Have been far behind compared to other commodities
- There is no relation to International prices.
- Indian sugar average price at 17.0 c/lb is perhaps lowest all over the world (Ref Annexure XIV)

### INTERNATIONAL TRADE

India has always been in the International market either for imports or exports. In last 15 years, India imported 6.596 Mn. T sugar and exported 4.496 MnT. Imports have outweighed exports. The volume of exports and imports are based on surplus or shortfall anticipated or determined between demand and supply.

It is likely due to inconsistent policy, delayed action, monopolization etc. the imports and exports may have not been most efficiently handled and India may have paid high price for imports and perhaps didn't get best price for its exports.

### Policy on international trade

The International Trade in India has generally been highly regulated both in terms of authorisation as well as volume. There has been a dramatic change since 1991. With the wave of economic reforms and Liberalisation Policy, even essential commodities like edible oils and sugar also got freedom/relaxation in imports/exports. While imports of sugar were put under OGL, exports got decanalised.

### Imports

In last 3 decades. First import was in 1979-80 and the imports until 1993 were canalised through Government agencies such as

- \* State Trading Corporation of India.
- \* Food Corporation of India.
- Govt., under advice of the Food Ministry, would access the shortfall and give a directive for import.
- In 1993-94, anticipating a heavy shortfall of over 2 MnT, Govt. allowed free imports under open general license. Almost half of imports were private. Today imports are freely allowed.

### Exports

India entered the world market as an exporter in the year 1957 and has exported sugar all along. The quantity has been as low as 20000 MT in the year 84-85 to as high as 1.02 MnT in the year in 1995-96. The exports have never been an economic proposition due to dual sugar pricing policy which makes the free market prices high.

Thus to boost exports Govt. enforced an act in 1958, called as Sugar Export Promotion Act. The very purpose of the Act, as the title suggests, was to boost exports. Salient Features were:

The exports were canalised through two canalising agencies:

- State Trading Corpn. of India (STC)
- Indian Sugar General Import Export Corpn. (ISGIEC)

These agencies will procure sugar from the mills willing to supply the sugar, otherwise, as per act. all mills were obliged to supply for export.

The profit and loss so achieved on the exports would be shared amongst all the mills on the apportioned quantity.

### Impact of decanalisation of exports

How much sugar will be exported - the decision rested with the Central Government i.e. it will announce how much sugar can be exported. The monitoring agency will then issue public notice on the system which broadly is:

- Exporter to have registration with APEEDA.
- Exporter enters into an agreement with a buyer in another country and then applies to APEEDA for export registration certificate with following:
  - Bank certified original contract
  - Copy of the letter of credit.
  - Registration fee.
  - Non performance bank guarantee of 5% of contract value (to be encashed in the event of export not taking place in time).
  - In case of merchant exporter, consent letter of the mill supplying sugar.

The procedure was simple, it was on two counts that export didn't get a boost.

- One Fear of 5% Bank guarantee encashment.
- Two Export not profitable.

India could still export upto 0.5 MnTons was a matter of chance that Pakistan's demand came and India got advantage of low freights. 80% of the exports were to Pakistan. In long run, the policy of decanalisation is a non starter, under the dual sugar pricing policy because domestic price of free sugar is high. International price will determine the economics. The contribution is negative. The loss will be solely borne by the exporter (earlier it was shared by the entire industry).

### ISSUES RELATING INDIAN SUGAR INDUSTRY

#### Profitability of sugar business

The Reserve Bank of India's study, in respect of select Industries, has indicated that gross profit in sugar industry has been lowest at 9%. The post-tax profit has been significantly lower. Risk free Investment give a yield of 15%.

The study conducted by industries association of the sugar industry, for listed companies covering 15 year's performance has revealed that:

- It incurred losses in 9 out of 15 years.
- Over 50% of units incurred losses.
- Gross profit over capital employed has been as low as 1.2% and never crossed 12%.
- Even the best mills could not pay dividend over 10%

Therefore, the key issue is to develop strategy and a consistent policy which will help the sugar industry and sugar production to grow. To see a growing Trend line is not good enough.

#### Sugar mills capacity

The Government has been issuing licenses based on its planned requirement of sugar and also the gestation period which could

be upto 3 years. There has been delays in conversion of license into Installed capacities due to:

Investors delaying the investments because of declining profitability during the period.

Financial institutions not coming up for committing finances in companies with sugar as a core-business.

Some basic issues leading to poor health of sugar industry remain unaddressed - the licensing policies have been modified to attract investments by way of incentive i.e. New sugar mills will be allowed to market upto 100% of its production in free sale (against 60% from existing units) for a certain period.

There lies the catch - while the new units come up, some old units become sick and close and may decide to set up another new mills. Thus effectively there was no substantial increase in capacity but more free sale sugar in market - i.e. Lower prices or delayed release for old mills at the expense of new mills.

The government, on the advice of Committee of Members of Parliament, scrapped the incentive schemes effective 31<sup>st</sup> March 94 and all new licenses (over 50) were to be without any Incentives/Sops.

But it was not be - sugar is the only industry where only one thing is certain that policy can not be certain. Despite with good production in 1994-95 and 1995-96 and capacity utilization of 110% and 125% at installed capacity of 12.4 MnT with another 1 MnTon in pipeline, under some pressure. Government again announced an incentive scheme with retrospective effect i.e. covering all licenses issued after 31<sup>st</sup> March, 1994 which earlier did not have provision for such incentive. Under this scheme-

	CAPACITIES	INCENTIVES	
		High recovery	Others
New Mills:	1750 TCD Back ward area 2500 TCD Normal area	100% Free 5 years	100% Free Sale 8 years
Expansion:	Upto 2500 TCD 2500 to 5000 TCD	85% Free Sale 80% Free Sale	100% Free Sale 90% Free Sale

(Quantities subject to some ceilings) (For 5 years on additional production)

All such capacities either from new units or expansions have to come by October 1999 to avail such incentives. There is a need to address to the basic issue whether we need horizontal growth. To achieve economy of sale, to be competitive, per unit capacity must grow vertically to target average capacity of 3500 TCD which today is no more than 2150 TCD. The licensing issue must be addressed accordingly.

- Expansion only to be allowed
- New capacity only in cane surplus regions
- Minimum capacity not less than 5000 TCD

#### Policy towards traditional sweeteners

The role of traditional sweeteners has been dealt with in details. There the issue is not to do away with this segment. It can't even be suggested since these have been there and their are consumers for these products particularly gur.

The consumption pattern has already gone through a shift i.e. conversion towards sugar. During 1960 to 1980 sugar at 4.8 Kg. represented 25% of all sweeteners at 20 Kg. Sugar has gone up from 4.8 Kg. to 13 kg and gur and khandsari per capital has come down from 15 kg to little over 10 kg and we see it going down further to 9 kg where it will stabilise.

While gur has a demand of its own in the rural population base - there is no justification in allowing gur to be diverted to manufacture illicit liquor. (What a pity to use a product what sugar by product - molasses can do)

Khandsari production recovers 4% less sugar and produces 4% extra molasses - what a waste of valuable resources of cane again.

There is need:

To remove control on sugar or bring gur and khandsari under similar controls.

To have uniform taxes/duties for all sweeteners.

To impose ban on further capacities in gur/khandsari sector and to be covered by licensing.

To have common cane price and not more than the price fixed by Government.

Once all sweeteners are governed by the same regulations/controls we see these two sectors stabilising on the strengths of its own. Net impact will be no more fear of diversion of sugar cane. The efficient segment will survive and will benefit all segments the farmer, the consumer and the producer.

#### Sugar cane pricing

It was almost two decades ago when the committee comprising of cane growers, sugar mills, co-operative decided the cane price to be determined basis minimum statutory price. Plus 50% sharing of profit. This is also in line with International practice where sugarcane price is related to sugar sales realisation.

But in actual practice only few states like Maharashtra, Gujarat, Karnataka have followed this agreement. In other states, the respective government's fix the price for political gains. Here the Central Govt. has to act firmly once for all, that cane price will be as per the provision of the sugar control order.

There may be a need to relook, if necessary, in order to maintain a growth rate of 3 to 4% in sugar cane production. The farmer in India has options. If he shifted from wheat/paddy to sugar cane or oil seeds - he can always go back.

Sugar cane price for farmer is a sensitive issue. It has to be such that the return/hectare of his land, is well placed compared to wheat/paddy etc. Wheat procurement price in 96-97 have been increased by 35% (From Rs. 3800/ton to Rs. 4750/ton equivalent to US\$ 106 to US\$ 132/MT). Have free sugar price have support price for cane.

#### Estimate of production

Apart from the various issues which we need to address, is tasks of managing inventory well. With latest communication systems/information systems/techniques available what we got to set right is the system of Forecasting/availability. We know the carry forward stock, demand is reasonably known, we got to have a realistic estimate of sugar production.

This is one single factor where we have gone wrong time and again. If the estimates and actuals can be off by as much as 15%. Decision making becomes difficult. Take a look at last few years.

Some of the reasons are:

- Lack of scientific/organised base thus lack of correct information in the first place.

- Vested interest - may be to get better prices in domestic prices or to increase exports.
- Incorrect assessment on variation in yield/recovery
- Delay in correction/revision of estimate due to sudden change in weather conditions or other un-foreseen factors.
- No structured information system to assess usage of sugar cane by gur/khandari units - the so called "Cane Diversion Phenomenon."

The industry/Govt/co-operative's body should be constituted and have scientific assessment.

### **Management of surpluses/deficits**

Over last five years, we have witnessed a closing stock of the season of as low as 1.224 MnT in October, 1989 equivalent 1.5 month's consumption to as high as 7.95 MnT in October, 1996 equivalent to 7.5 month's (or 60%) consumption. The standard norm in India is 2.5 months or 20% of consumption (2.8 MnT) i.e. excess inventory of 4.7 MnT at the end of 1996. The impact of this has been:

Blockage of excess Inventory of over Rs. 5000 crores. (US \$ 1680 Mn)

Yearly impact: Rs. 1200 crores (US \$ 335 Mn)

Damage of stocks

Low prices of sugar in domestic market

Delay in payment to farmer - forcing him to shift to other crops.

Drop in Production in next year

The inventory can be used to its advantage. The carrying cost provides the flexibility.

The advantages:

Carrying cost goes down thus low total cost.

Increased liquidity to pay the farmer.

Regular presence in International market.

### **Deregulation liberalisation**

#### ***Delicensing***

With 448 sugar mills in existence and an other 100 in pipeline, this aspect should be examined. The policy should be to:

Encourage new capacity with development of cane responsibility. Min. capacity 5000 TCD.

Expand vertically to achieve economy of scale.

New capacities in surplus cane areas. Minimum distance norm should stay and distance be flexible between 25 to 40 kms. 15 kms distance could make some sugar mills unviable.

Incentives if any, to be in the form of reduced excise duty etc. - not of high free sale quota.

#### ***Captive Farming to Improve Yield/Recovery***

Low or stagnant recovery of sugar from sugar cane is an issue which has not been dealt with at national level. Over last 10 years, while the yield has gone up by 24.5% i.e. from 57 MT/Ha to 71 MT/Ha, the average recovery has been fluctuating between 10.3% to 9.9% it has been lower in the year of high cane production. Some reasons.

- Staling of cane (Min. 12 hrs to as high as 8/10 days).
- Unplanned harvesting
- Cane lodging.

Government should encourage captive farming. Sugar mills will take more interest in cane development, newer varieties, tissue culture, sophisticated farming/crop treatment techniques/planned harvesting etc. Impact will be higher yield. Better recovery.

Improvement of 0.1% recovery would yield 0.15 MnT of sugar.

#### ***Decontrol/Doing away with a dual pricing***

There have been three options such as full control, partial decontrol and complete decontrol. Over past 4 decades - all have been experimented with two/three times. But almost for three decades now, since 1967-68, except for a brief spells of decontrol/control in between 25.5.71 to 30.6.72 and 16.8.78 to 17.12.79 partial decontrol has been in existence. In this policy a certain portion of sugar has to be supplied at Government fixed price called levy and balance can be sold in free market.

The ratio of levy to free has changed over a period of time from 35:65 to 60:40 (1992-93).

Decontrol has not been successful in the past. In 30 years, it did not work for 30 months. Why risk again - the industry view is divided while some section is for decontrol and the cooperatives/Federation against.

#### **Why control and what to do**

- In free market economy where is the need of control - cement, steel, vegetable oils, fertilizer have been decontrolled. This resulted in better quality, availability, improved performance of the sector.
- Dual pricing to be done away with. It should be free market pricing of 100% sugar.
- However, in order not to allow the policy to fail as in the past, quantity should be fixed by month.
- Mills could be given flexibility of selling upto 10% more or less to be adjusted in next month.
- The monthly quantity should be worked out basis expected demand and to maintain prices within a range.
- Regulatory mechanism for monthly quantity should stay. This is a must to stabilise domestic prices and unauthorised pumping of stock by mills once flexibility has been provided.
- Domestic prices will make exports viable.
- Sugar, for Public Distribution System, will be procured by the Govt. agencies in free market or Imports for distribution at the price it wants.
- To guard against violent fluctuation in prices, futures trading in sugar to be allowed
  - In domestic market for domestic sugar.
  - At London and New York exchange for international trade.
- Use of futures market should be seriously and expeditiously considered even in partial decontrol policy.
- Sugar cane prices should be based on support price, concept basis cost and comparable return/hectare of land.

#### ***Packaging***

Industry should be left free what it does for packaging. It could be 1 kg to 5 kg for Household consumers, 10kg to 25kg for small institutional consumers and 50 kg for bulk users, 100 kg packing should be banned under the ILO convention.

#### ***By-Products***

Molasses, molasses base products should be de-regulated. The price to be determined by the free market forces. Trading and interstate movements should be freely allowed.

#### ***Regulations***

There is need to look at all the controls/legislations. Regulations, acts. etc. at the Central Government level and the State level. The process need to be simplified - multiple regulatory bodies to be replaced by single body. The list of compliance should be by exceptions. Producers/traders etc. need to be told what they can't do.

#### **International trade (imports-exports)**

The Sugar policy has to have a provision for import and export of sugar. Amongst largest producer of sugar, India is the only country where it has a large consumer base, therefore, its exim policy has to keep this in mind.

Ideally the imports and exports have to balance the gap and surplus situations and to sustain and to maintain reasonable price level of sugar.

Since 1980, total Imports have been 6.6 MnT against total export at 4.50 MnT though India has been an exporter all through out. Thus India could be in the international Trade for both import and export depending upon its domestic production which with stable inventory could keep domestic prices at a reasonable level to boost production. What it means is export more at a time of high physical stock and cover through futures import with option of delivery in the event of subsequent lower production, if any, i.e. maintain floating inventory.

Who should import and who should export is an issue to which there can not be a straight answer because of complexity of Indian agricultural and sugar business dynamics.

Under the liberalised economy to suggest control may look conservative, but at the same time, the imports and exports of sugar are needed with following objective:

To maintain domestic sugar prices with in a band.

Thus maintain certain minimum inventory and monthly plan of import/exports.

And encash opportunities in the international market.

Under free pricing, sugar exports could be deregulated. But India with such large consumer base can not afford total freedom on volumes. Some regulatory - quantitative or tariff are necessary to maintain adequate availability.

#### Sugar industry body

The issue or organisations needs to be debated between industry and Government to set up a responsible and responsive organisation. Logically with such a large base of 448 sugar mills, an effective centralised agency should take this responsibility.

The sugar industry associations could play more responsible role like Australia. South Africa etc. Then only they could achieve stabilised policy for sugar business.

There is a need of coordinated and concerted effort for appreciation and consolidation of the needs of the consumer. farmer, processor and to address to various above issues if India has to attain the glory of self sufficiency and attain the status of net exporter and an important significant player in the international market.

#### COMPARATIVE ADVANTAGE- INDIAN SUGAR

Here we address some of the factors which give India an advantage in the international market, in comparison to other sugar producing countries. We will also dwell on some issues which place India in a disadvantageous situation. Broadly advantages and disadvantages are summarized as under:

ATTRIBUTE		ADVANTAGE	DISADVANTAGE
Product	Plantation White Sugar		Less flexibility for exports as cannot offer Raw Sugar
Quality	45 to 200 / ICUMSA	Over Brazil	Over EEC and can't compete with refined sugar.
Sugar Policy			High regulated and

			controlled and politicized.
Sugar Cane price	63% of Av Sugar Price		With assured price farmer does not bother about quality and delivery
Sugar Prodn.	70 Mt Ha	Compares well with major producers	
Sucrose content	12.00%		Low against 12.5% in thailand. US-but far behind Australia, Brazil
Sugar recovery	82.50%	Next only to Australia 90.0%	
Economy of scale	2000 TCD		Low compared to other countries.
Factory Production costs			Less competitive compared to Thailand, Australia
Cane Farming/ Harvesting	Manual Av Farm Holding 1.57 Ha		No control on cane quality, cane procurement due to low land holdings.
Cane Utilisation			Traditional sweetener segment. Free from controls.
Fobbing Costs	6.5% of Ex. Mill Cost	Compares well with major sugar exporters even with Port berthing delays	
Export market	Natural markets	Natural markets of Sri Lanka Pakistan, Bangladesh, Nepal, Indonesai, Gulf	Exports are opportunity based due to dual pricing policy.
Price Hedging Mechanism	Trading on Futures		All imports and exports open to market risks.

- India produces only plantation white sugar while most countries produces. Refined or raw sugar or both.
- Traditionally India has not produced raw sugar as it does not have a market locally and it would cost 30\$/MT to convert into white sugar making it uneconomical.
- This puts India in somewhat disadvantageous position. If opportunity arises, can not offer
  - Raw sugar
  - Also Indian sugar has to compete with world's refined sugar.
- At the same time, produces granular sugar which has a market in Pakistan, Bangladesh, Indonesia.

#### Sugar policy

The dual policy of sugar pricing, keeps the free market price artificially high thus export is not economically viable most of the time. The difference over average price, in case it was free pricing, could be Rs. 1350/MT (US \$ 35 to 40). The export policy is not consistent resulting into restricted exports even when there is an opportunity - In fact non compliance penalty of 5% export value has become a disincentive. Indian farmer gets 62% of sugar price as cane price - compares with 50% in Pakistan, 68% in Brazil. However, cane price is not linked to sugar sales realisation nor it is linked to cane quality leading to low recoveries.

#### Productivity

India has improved its productivity considerably over a period of past two decades and compares well with major cane sugar producers (Annexure II and XV). However, the improvement has only been on yield of sugar cane per hectare which has gone up from 58 in the year 1984-85 to 71 in the year 1995-96. At this level of average 70 MT per hectare, it compares well with other sugar producing countries. However, within the country it is as low as 46 in the state of Bihar and as high as 113 in the state of Tamil Nadu. There is a scope of

improvement in some states like UP, Bihar, Punjab, Haryana, Andhra Pradesh with average touching 75 MT. (Dealt in Chapter on cane production).

The sucrose content averages 12% which is not good as compared to Brazil/Australia. With better farming practices and favourable climate, it could improve to 12.5%. Sugar production as percentage of cane has been ranging between 9.3 to 10.3%. Here also 1% improvement is achievable.

There is substantial scope of improvement in productivity both in terms of yield as well as sugar contents and recovery by adopting better harvesting practices and close coordination of sugar mills with farmers. It has been estimated that better farming and harvesting practices could result upto 1.0% improvement in extraction which can lead to 10% increase in production.

The comparison with other sugar producing countries is as under:

COUNTRY	Recovered sucrose production per hectare (MnT)	Av. Cane sucrose content (%)	Av. Sucrose recovery rate (%)
Australia	10.5	15	90
Brazil	5.5	13.5	76
Cuba	5	12.5	82.5
India	6.5	12	82.5
Mexico	6.5	12	78
South Africa	7.5	13	85
Thailand	5	12.5	80
U.S.	8	12.5	82.5

#### Cost of production

While there is not much information with respect to cost of production of other countries, on the basis of information available through a paper presented at an international conference, India is a low cost producer but because of lateral capacity expansion, with average capacity of 2000 TCD, can not reap the benefit of economy of scale. Same is true in farming sector where land holding is mere 1.57 Ha.

But there is a scope of improvement in sugar content and recovery which can bring the cost down by as much as \$25/MT.

#### Sugar stocks

The biggest burden on the Indian Sugar Industry is the inventory carrying cost. The average period for which the sugar remains with mills in 8 months and the time it takes to finish previous season's stock can be as much as 18 months. The Govt. has created a buffer stock of 1 MnT for one year - cost will be \$60/MT plus blocking \$ 335 Mn worth of foreign exchange. Thus \$ 60/MT is net flexibility for export. The opportunity gets missed year after year because of too-cautious approach.

#### Export markets

India has a distinct advantage of its geographical location. It is land locked with neighbouring countries like Pakistan, Nepal, Bangladesh and Bhutan. Also Sri Lanka is the nearest country by Southern India. All these countries (except Pakistan who like India is exporter/importer depending upon its consumption) are regular importers of sugar. Besides some Gulf countries as well as Indonesia have a market for Indian granular sugar. India is most competitive for Pakistan, Bangladesh, Sri Lanka and Nepal.

Indian Sugar will have \$ 30/MT freight advantage over Brazil, 15\$ over Thailand, Besides Indian sugar should command premium over Brazilian sugar.

#### FOBing costs

While infrastructure bottlenecks do exist but if the export is planned on regular basis and planned well, it could be well organised effectively. Indian FOBing costs from Coastal factories and distant factories are as under:

Unit: Rs./MT

Head	Coastal Mills	Distant Mills
Transportation	300	1000
Godowning	50	50
Insurance	25	25
Handling expenses	100	100
Clearing/Forwarding	50	50
Demurrage	150	150
Total Rs./MT	675	1375
US\$MT	19	38
% of Ex. Mill costs	6.5	13
Average Ex. Mill Cost: Rs. 10500/MT		

Recently loading rates upto 3000 MT/day have been achieved by way of sharing the advantages with the port labour.

The FOBing costs in India, for coastal Mills, as percentage of Ex. Mill cost compares well with other countries.

Country	FOBing Costs % Ex. Mills Cost of Production
India - Coastal	6.5%
India - Distant	13.0%
Australia	3.0%
Thailand	7.0%
Cuba	8.0%
France	9.0%
Brazil	20.0%
South Africa	11.5%

#### SUMMARY

- India is one of the largest producer of sugar in the world and so also the consumer. Can manage its inventory to its advantage by rotating the same through imports and exports.
- Agriculture growth pegged at 3.5% - sugar cane has to compete and compete on its own.
- There exists a potential in terms of increase in productivity, extraction and production.
- Like in the past planners/policy makers/farmers producers - should get together to form a policy also acceptable to politicians.
- Optimisation of sugar mill capacity - vertical growth need of the day.
- Pricing
  - Decontrol may not be the answer - at the same time dual pricing policy has to go to provide level playing field for all sweeteners.
  - Govt. can procure sugar from market and subsidies in case, it is a must for PDS.
  - For the good of consumer, farmer and the mills sugar price should move in a band, meaning monthly inflow to market to be regulated by Government.
  - Balanced export/import policy.
- Mills and farmers to work together to improve yield and extraction through better harvesting.
- To become internationally competitive - i.e. cost effective and quality producer.
- To be ready for free marketing i.e. to hedge on futures.
- With consistent policy and competitiveness India can be a regular player in the international market.

## WILL THE PHILIPPINES REVERT TO ITS NET SUGAR EXPORTER STATUS?

*Prepared by Mr Jose Maria T. Zabaleta for the Sugar and Beverages Group, Commodities and Trade Division, FAO. Tables and charts have been removed due to space limitation.*

### INTRODUCTION

It is believed that early Arab traders had introduced sugarcane into the Philippines even before the Spanish era, and indeed the plant is found throughout the country in various wild species making the Philippines a source of noble cane or genetic material for breeding purposes.

The culture of sugar cane as a commercial crop started in the Philippines in the 18th century, and by the 19th century the crop had adapted itself so well to our soils and climate that sugar became a major commodity for export. By the 20th century, the growing needs of America for sugar fuelled a major expansion of the crop. This, together with new technology in sugar milling and the provision of adequate financing, created what is now known as the Philippine sugar industry.

The crop is currently grown in 17 provinces which are widely distributed in 8 regions from the northernmost island of Luzon to the southernmost island of Mindanao. The island of Negros in the central islands of the country, with its 17 operational mills, remains the primary cane-growing region accounting for about 55 percent of the total land area planted to sugar cane. Rapid industrialization in Central and Southern Luzon, where Metro Manila is located has resulted in a significant reduction in hectareage in the island. On the other hand, the opening of new farms in the island of Mindanao signifies the growth potential of the island for sugar production.

The Independence Era after World War II saw further growth for the industry, as it retained access to the lucrative U.S. market and enjoyed the post war boom. Sugar established itself as one of the young country's major products in trade and commerce, created wealth, spawned development, gave employment, and often enriched its major players. In so doing, it created both political friends and social enemies; and its complexities, often misunderstood, in later years destroyed its reputation and maligned its modus operandi.

About 40,000 farmers and another 500,000 farm workers are currently involved in cane growing, making the sector one of the largest employer in the country. The close to 520,00 individuals directly and indirectly dependent on the industry represent close to 7% of the country's population.

While the U.S. limited importation from the Philippines in the 50's with a quota, the lucrative prices that prevailed at the time allowed for sustainability and growth. This then resulted in another export boom after the imposition of the Cuban embargo by the U.S. in the 60's. The sugar industry prospered, old mills expanded capacity and in the 70s alone, 11 new ones were built as new land areas were put under cultivation. Prices and markets were so good that, supported by adequate government financing, production reached a total of 2.7 m tons in 1977, of which 2.42 million metric tons were exported to the U.S. and World Markets. Domestic demand was about 0.82 million metric tons at the time.

When the Marcos dictatorship saw the lucrative sugar industry as a potential source of financial gain, especially in the midst of rising world market prices in the early 70's which reached the 56 ¢ a lb. level in November 1974, a monopoly was established to handle all sales of sugar and promote further development of the industry. The monopoly's gain was shortlived, however, as world market prices tumbled to below the cost of production and as the Philippines lost much of its U.S. quota with the expiration of the Laurel-Langley Agreement which gave practically limitless preferential access to

Philippine sugar in the U.S. market. The Philippines was exporting around 1.6 million metric tons to the U.S. when the said agreement expired in 1974. The volatility of world sugar prices is shown.

The collapse of export markets, both to the U.S. and the World, was compounded by a silent but pervasive policy of the Marcos regime, to keep urban consumers satisfied and hold at bay demonstrations by keeping food prices down in the cities through price controls and government monopolies. These market distortions through price interventions could not be sustained, however, and in time the sugar industry collapsed. Production dropped from a high of 2.7 m tons to a low of 1.3 m tons in 1987, when sugar came to be called the "sunset industry", and when insurgency prevailed in most sugar growing areas that were then called the "social volcanoes" of the country. While the industry was able to overcome the crisis of the 1980s, sugar production continues to follow a downward trend as shown.

After the peaceful Revolution of 1985, the sugar monopoly was dismantled, nationalized sugar mills and refineries acquired by government were privatized, and market forces were restored, albeit under the protective guidance of government which established the Sugar Regulatory Administration. The SRA's major mandate was to rebuild the industry, spur its further development, and regulate inventory levels. It allocated sugar production, through quota classifications, to supply domestic markets, the U.S. quota, and all surplus or residual sugar was destined for the world market. It had a mandate to regulate supplies and keep markets supplied, but had no authority to buy, own, or much less even manage sugar marketing. This seeming contradictory policy has resulted in daunting problems as, except for the few times that prices were kept stable, most of the time it failed in its duty. While the retail prices of sugar were kept at high and stable levels, the SRA could not control the drastic fluctuations of millsite prices of raw sugar, to the detriment of the producers. To use a variance of a well known cliché - it baked the cake but could neither keep it nor eat it.

To make matters worse, the Philippine government, while the monopoly was in place and subsequently when the SRA was established, still assumed that the country had the competitive advantage to remain an exporter. Internationally, it supported the liberalization of the sugar trade and the lowering of tariffs hoping to penetrate more markets. Domestically, it made no provisions to shield its market from either efficient exporters or the volatility of the world market. It offered a Margin of Preference of 35% to refined sugar from ASEAN countries in the Preferential Tariff Agreement of 1977, when government built three new refineries. In 1990, it offered a tariff reduction program at the Uruguay Round of GATT greater than most sugar producing countries. Little did it expect at those times that Thailand would embark on a major investment and development program for sugar and that Australia would take such bold steps to stimulate further its already efficient industry.

The result has been that the tariff concessions (initially at 100% and a final bound rate of 50%) have worked against it and have facilitated entry into the Philippines of world market sugar while its own industry struggles to reform itself and adjust to a changing economic environment internationally as well as domestically.

The passage of time, the experience of the Marcos created monopoly, the Aquino land reform program, the new urban

based shift to industrialization, and the winds of change in trade policy all tell us that the Philippine sugar industry must metamorphose and change its shape, character, and destiny.

## **THE FARMING SECTOR**

### ***Farm productivity and farm size***

To be competitive in the global economic environment, a sugarcane farm requires a minimum economic unit or size. It also requires equity investment, good management, and the practice of the findings of the latest productivity enhancement research.

A sugar farmer in Okinawa can consider 7 hectares as an economic unit, he sells his product at three times the high U.S. price and receives a green payment or subsidy from the 200% tariffs on all sugar imports into highly industrialized Japan. This farmer is assured a middle class life or he will abandon his farm for the city.

His counterpart farmer in the Bicol or Cagayan provinces has hardly any financing, poor infrastructure, sells his product at a third of the price of his Japanese counterpart, and ekes out a living that assures him a peso based "D" market income for the rest of his life. The declining farm yield is an indication of the sorry state of productivity of the farmers in the Philippines.

To earn a middle class income, therefore, he needs at least 5 times the size of 7 or 5 hectares of land. Anything else is not an economic. For him to compete with an Australian farmer, he must have at least half the size of an Australian farm. However, about 71% of the sugarcane growers operate farms not larger than 10 hectares and the number of such farmers is growing owing to the effect of the Comprehensive Agrarian Reform Program of the government.

### ***Land tenure and ownership***

The Comprehensive Agrarian Reform Program (CARP), a law passed in 1987 to cure social unrest in the Countryside, distributes large plantations in excess of 25 hectares to its workers and beneficiaries. As a result of the program, the average sugar cane farm size has shrunk from 14 in the early 70s to only 9 hectares in 1993. The distribution of farms in parcels of 3 to 5 hectares, patterned after rice to pacify the landless, and the natural redistribution through inheritance of farms over 100 years, have rendered most Philippine sugar farms uneconomical in terms of size and harvesting systems, and have made extension extremely difficult. The system of redistribution under the law, where government purchases the land from the landowner at nominal value without regard to improvements and equipment, has halted investments in irrigation, soil amelioration, and new equipment. Moreover, since banks cannot foreclose mortgaged lands and sell them on the open market, government being the only buyer by law, financing by banks has ceased. Where, on the other hand, the land has been awarded to beneficiaries, they in turn start business with a 30 year debt on the land and no capital or equity to invest and scarce financing from government banks. This has all resulted in lowered productivity, insufficient technology, and a new bondage to the soil by small farmers who in time have discovered few options but to abandon, lease, or sell their rights. The meager size of their holdings, whether individually or collectively owned, has contributed to this problem.

While the CARP has a few success stories in rice and vegetables, and indeed served the purpose of appeasing social unrest in the countryside, it is now, on its tenth year, undergoing scrutiny. The law is poised for amendments that would encourage reconsolidation through cooperatives and even perhaps the forming of corporations and joint ventures with entrepreneurs, not the least of which are the sugar mills themselves in the case of sugar. Plantation crops such as bananas for export, pineapple, and rubber have already formed a modus operandi with the CARP, and it is only now that sugar has entered this stage. It may perhaps take another five to ten years more before sugar fully

adjusts to these new structures in land tenure and can gain the impetus required to rebuild itself fully.

### ***Research, development and extension***

The sugar industry has relied for too long on research and development to be undertaken by government. The trend in many sugar producing countries has been to privatize this activity as no one will look after the benefits of R & D, search for new technologies, or innovate production processes as much as he who stands to benefit the most. The SRA is mandated by its charter to privatize R & D but the private sector thus far refuses to assume the full responsibility and enforce the collection of a lien paid by all producers to carry out this mandate. Oppositors bicker, independent growers sue, and leaders squabble, while year after year the industry foregoes the benefits of the latest technology because it refuses to pay for it collectively. An enabling law is being considered in order to remove all government intervention in R & D and place it squarely in the hands of the private sector.

### ***Management and cultural practices***

Agricultural practices - from proper plowing and cultivation to insect and disease control, and extending further beyond to partial or total mechanization - are mostly obsolete in Philippine farms. Technology is circa 1930s and at best late 50s. Cultural biases and a lack of education and extension prevent modern methods from being applied, especially in the smaller farms. These conditions have been identified in a number of studies as one of the primary culprits to the declining farm productivity and quality of cane delivered and crushed in the sugar mills as shown.

There is a need to carry out a well defined extension program to educate, train, and motivate farmers to intensify management and apply modern methods. The gains in productivity, considering climatic conditions and soils in the Philippines, can be astounding provided the economics can be proven to the farmer and he can secure the facilities and credit to match new technology.

## **THE INDUSTRIAL SECTOR**

### ***Obsolete mills***

In 1991, the sugar industry started to implement a Rehabilitation and Modernization Program to upgrade the mills which have been left in a state of disrepair and obsolescence during the crisis in the 70s and 80s. While it is true that some of the mills have invested and completely rebuilt and changed their equipment, making them the equivalent of new mills, and others have made major investments in upgrading or adding equipment- it is undeniable that many mills are also maintained in their dilapidated state and used as milking cows by their proprietors. These mills not only produce inferior sugar which oftentimes fetches lower prices, but also prevent farmers from optimizing the potential of their farms. They are prone to breakdown and cause harvest losses and have very poor extraction, significantly contributing to the decline in sugar recovery per ton of cane.

Since a sugar price shakedown will also hurt those not guilty of complacency, such as investors in new or rehabilitated mills, the only answer would seem to be for the SRA, given proper authority, to impose mandatory recovery rates and capacity parameters as conditionalities in granting milling licenses. Other options would be the imposition of market-based incentives, fines and stricter regulations, either through the SRA or self-regulating mechanisms.

While ruinous competition by overlapping and interloping mill districts is a malaise, the other extreme where a solitary mill takes advantage of its position to maximize profits at the expense of the farmer is just as serious a malaise. The industry will have to come to terms with this problem sooner or later and a re-study of the situation is called for. In Queensland, redistricting has been carried out with the help of state authorities who enforce rights-of-way and build the necessary infrastructure. Perhaps a similar approach should be undertaken by the Philippine government.

#### ***Forward integration/diversification***

It has been determined worldwide that forward integration is not a part of the sugar business, and that manufacturing candies or bottling beverages is not a necessary direction for sugar mills and refineries, only an investment option. Sugar cane milling however, produces large volumes of by-products particularly molasses, bagasse and filter cake/press.

That having been said, it is also noteworthy to mention that by-product diversification (e.g., alcohol from molasses, paper and particle board from bagasse, vegetable dehydration with steam) is a very viable corollary business to sugar manufacturing and that waste product utilization (e.g., organic fertilizer from filter mud, co-generation of electricity from bagasse) are very profitable undertakings. In many countries and numerous mills throughout the world, this has occurred, spurring the development of industrial estates beside mills, but the Philippines has been unable to do so because of an obsolete law passed in the early 50s which mandates the sharing of by-products between the mills and the planters. This law has prevented the development of downstream industries by mill companies. Meanwhile, undetermined volumes of surplus bagasse, and filter press lay in waste in mill yards and in fact contributing to the environmental problems of many mill companies.

#### ***Backward integration/extension***

The introduction of new technology can best be done by the mills as they are in a position to hire professionals for the purpose and to access technology internationally. Having more cane supply and better quality cane increases mill profits, thus the incentive is there if the need is identified and the environment for it is in place.

Proliferation of small farms and perhaps even the abandonment of uneconomic-sized farms will also encourage mills to lease larger and larger tracts of land to farm themselves. This has occurred worldwide and is starting to happen in the Philippines, as smaller and smaller farms become less profitable when compared to the efficiencies that can be attained with modern methods and machinery.

The backward integration of mills through the operation of large tracts of land is expected to give the mills better control of the harvesting program and improve the synchronization of cane harvesting - milling operations which at present, is a major problem and contributory factor to huge sugar losses due to delayed milling of harvested cane.

Extension, credit support, and education is also a vital component in ensuring cane quantity and cane quality for sugar mills. Sugar factories for the past 30 years have limited themselves to the confines of the mill yard and forgotten the farms in contrast to the 1920s and 1930s when most mills were established and cane supply was a major concern. They now have to look again at sugar cane productivity enhancement, and the supply of related vital services, as a major mill activity.

### **THE GOVERNMENT SECTOR**

#### ***Pricing policy and tariffs***

The law that created the Philippine SRA calls for a pricing policy set to make sugar farming and milling profitable, while keeping prices to consumers reasonable. In most major sugar producing countries, this is done by regulating domestic supply within volume parameters that

allow market forces to operate within a certain price band. The mechanisms for this regulation, however, are subjective and not spelled out in clear terms in the law or its implementing rules. This has led to wild swings in prices as SRA Administrators or Agriculture Ministers are changed and their interpretation of policies change. Price stability is now known more for its absence, in the case of sugar, than for its promised implementation.

Tariffs for commodities are usually held at levels that insure against imports from subsidized or dumped markets, and are usually in consonance with pricing policy. As the world sugar market is known for its volatility and unpredictability, cyclical nature, and uncertainty in the medium and long term, the Philippine tariff concessions offered at both the GATT Uruguay Round and the ASEAN Free Trade Area Agreement (AFTA) may prove insufficient to keep farmers profitable when sugar prices fall below the Philippine average cost of production. The question is not whether the Philippines can export sugar at 10¢ a lb. or less, but more one of whether the Philippine sugar industry can survive when sugar is allowed to be imported in unlimited quantities at those levels. Without a pricing formula firmly in place to maintain domestic prices at remunerative levels, it is estimated that half of Philippine sugar farmers would abandon their crops when world markets collapse. Sugar mills, lacking cane supply, would be forced to close, and the country would be unable to attain or regain even self-sufficiency.

Recent moves by government, which organized this year a Presidential Task Force on Sugar to address this problem among others, indicate that corrective measures are necessary with regard to tariffs and inventory management, coupled with major policy changes to make the industry more efficient.

#### **Monitoring and regulations**

A government agency, such as the SRA, must estimate domestic needs and provide a stable supply from production or controlled imports to meet these needs.

The *quedan* system of Warehouse Receipts as it now operates was established by the American Colonial government in the 1920s. The system offers an ideal framework to carry out this task. All sugar is classified as to market destination and market benefits are fairly distributed to all producers. The sugar *quedan* likewise offers itself to collateralization through the Warehouse Receipts Law, and, therefore, secures financing for sugar and enhances its trade and marketing.

A review of the system of classification as to market share or destination is, however, necessary as mills located near urban centers or located in the interior are no longer interested in export markets, while mills with their own ports in distant provinces can efficiently export sugar to viable markets such as the U.S., or even the world market when prices justify.

#### **Legislation**

As legislators tend to favor certain constituencies with their own perceived needs, they are prone to be pressed for special legislation favoring one party versus another. It is now felt by many that government's role should be to create the environment for the industry to grow and prosper, and not to draft bills and pass laws which create artificial costs (such as the Social Amelioration Act, Profit Sharing for large estates under CARP, VAT on Refined Sugar, Republic Act 809 mandating sharing levels between mills and planters, etc.) that tend to favor certain sectors or create imbalances within the industry that do not exist in neighboring countries.

The industry's needs would best be served if constrictive laws are repealed and replaced with none. Incentives to agriculture must be made universal and not Board of Investments-regulated, and certain incentives, such as loss carry-over and tax free importations of specialized machinery and equipment must be promoted for agriculture and agro-industry in general. Sugar and agricultural products, all bulky commodities transported over great distances, are forced to pay high tariffs for trucks to protect local assemblers. Agriculture pays high tariffs for plastic products to protect local manufacturers, pays value added tax and high tariffs on chemicals and equipment imports but is unable to recover this from its selling price.

It now appears that state policy and legislation is skewed in favor of industrial expansion to the detriment of agriculture. This is the one area which needs further correction as the industry enjoys no subsidies but sometimes feels that it suffers from indirect subsidies to other industries.

## **MARKETS**

### ***Industrial users***

In fairness to producers of sugar-containing food products, producers should not only supply the domestic market with adequate supply and carry sufficient inventory stock, but should also consider a sugar price that is defensible in the greater context of the global environment. An internal sugar price that is the average of say Indonesia, Thailand, and Mexico (all Pacific-Rim developing countries producing sugar) is a fair target to maintain and a fair price level to both producers and industrial users.

For industrial users to lower prices to unreasonable levels due to a bumper crop or for producers to sell at exorbitant prices in times of crop failure is an unreasonable situation that can only create a backlash. Price bands should be agreed to, as they are in many countries mentioned, when the product in question is a basic commodity and a major crop grown by a major segment of the rural population.

Imports should be resorted to as a last resort, and only when government declares that a shortage indeed does exist. GATT commitments and agreements should be respected, but are difficult for producers to accept as fair when sugar prices and stocks in most producing countries are "managed". Except for perhaps Australia, sugar is still subjected to high tariffs that are used as farmer subsidies in some countries, is limited in trade by rules on pooling in other countries, or is controlled through state trading agencies in yet others. The recent entry of refined sugar from the E.U. into Philippine Export Processing Zones and Free Ports at zero tariff, and the entry of sugar containing manufactured goods such as candies and chocolates from tariff free city states has rendered the ideal of entering an era of global liberalization in trade in question. The industrialized countries must lower their tariffs to levels that reflect competitive advantage, and at a faster rate, otherwise the dilemma that faces producers of sugar and sugar containing products in the Philippines will continue to be a subject of political debate all over the world. It would be a pity indeed if the economic gains that liberalized global trade offers for the future cannot be applied to agricultural products until the next generation.

### ***Marketing and trade***

Sugar trading and marketing in the Philippines has been returned to the private sector, but with a vengeance as a backlash to the Marcos monopoly, and is proving to be too fragmented. Sugar mills and planters' associations and cooperatives do not market and sell sugar collectively, as individual planters, mostly small, sell their sugar to a ladder of traders. Too many hands all add to the price as sugar volumes undergo consolidations prior to refining and then again have to go through another ladder of traders, distributors and dealers prior to reaching the retail markets. The present cost of intervention in trading is exceptionally high and must be brought into line for the greater

benefit of all producers and consumers. The role of traders should be more as market distributors rather than that of quedan consolidators, while lately sugar trading has even become more of a speculative business on its own due to the high fluctuations in price that occur in the domestic market.

## **LABOUR AND SOCIAL CONDITIONS**

While labor in the mills is highly unionized and, therefore, amply protected by Collectible Bargaining Agreements and existing legislation, the opposite is true in sugar farms, both big and small.

Sugar is a seasonal crop where, even if high wages would become mandatory and enforceable, the conditions of feast and famine would continue to exist among plantation workers. This, again like in other sugar growing areas around the world, is not unique to the Philippines. The answer might seem to be to subsidize wages in the off-season, a practically unaffordable alternative, or to create a seasonal parallel industry that can operate during the sugar off-season, perhaps an unrealistic alternative as well. If we look at what other countries have done, we see the replacement of man by machines, in part because fewer men have to be subsidized during the off-season. To do this, the Philippines would need tremendous investments in mechanization and a massive re-education and re-deployment of labor including a relocation strategy that would move labor to potential employment centers. This relocation is occurring now. Unfortunately, the result of urban migration and squatter colonies in the big cities.

A well-designed plan with a rural industrialization component is now being undertaken by government and would probably be achieved over a twenty-year period. This may sound like an unattainable objective but it has actually become a necessity if the country is to squarely face its options for the future. A well-planned strategy is called for, with clear objectives and the will, by both the government and private sector, to carry it out.

## **COMPARATIVE ADVANTAGE**

The middle islands of the Visayas and the northernmost island of Luzon lie in the typhoon belt of the Pacific Ocean, and its eastern seaboard, often visited by as many as twenty hurricanes a year two or three of which are often considered as destructive, is not suitable for maize, many tree crops, and year round agriculture. Sugarcane, however, grows luxuriantly and well, and suffers little from typhoon damage. It is, therefore, a crop of preference not only because its product, sugar, has a long shelf life and is easily transported, but because the farmer is never really in danger of losing his entire harvest because of its resiliency.

The southernmost island of Mindanao is typhoon free and therefore sugar competes with other tropical crops in a balanced manner reflective of market conditions and investment priorities.

The Philippines also does not have large tracts of land as most islands, due to their geological origins, have a large percentage of mountainous areas. Most islands, moreover, not having a major land mass to serve as a catchment area, are also mostly dependent on the rains of the monsoon season to feed their rivers.

All told, this would indicate that, allowing for other crops, not more than 100,000 additional hectares of land could be made available for sugarcane cultivation in the future, about 50,000 in Luzon and another 50,000 in Mindanao. The Visayan

islands of Negros, Panay, and Leyte have probably reached their full potential. The present 370,000 hectares under cultivation may soon be reduced by as much as 10% to provide for urban sprawl in the midst of an economic boom and to retire lands that are too unproductive or distant from sugar mills to pursue cultivation.

Increases in production would, therefore, have to come from increased productivity on 370,000 hectares and from new areas not to exceed 100,000 hectares. Given the right government policy and assuming a pricing policy remunerative to investors, both in mills and farms, the Philippines can, therefore, attain and continue to sustain self-sufficiency.

The Philippines has the financial capability and human resources to develop the industry to competitive global levels. Much will depend on the time when changes in the investment environment mentioned are carried out. If done in the next year or two, then we will be on our way earlier, if not, then we shall see a decimation of at least 50% of the present players after which there will surely be a backlash that will cause policy changes to be put in place. The question, therefore, is not whether the Philippines will become an exporter of sugar again in the future, but whether it will be able to supply its own growing appetite and demand for sugar and perhaps keep its share of the U.S. market while it is still there.

#### **THE SITUATION IN THE 90s & CURRENT DEVELOPMENTS**

##### ***Research and Development***

The industry's performance has been marked by fluctuations in production, from 1.7 million tons in 1990/91 to a high of 2.1 million metric tons in 1992/93 and down again to 1.65 in 1994/95. While climatic factors do play an important role, it is felt that the major cause has been due to fragmentation of farms to smaller production units which are highly dependent on yearly price fluctuations and do not have the financial resources. Moreover, the lack of capability to restore full production in many areas and the inability to improve productivity have been attributed to a lack of research, development, and extension.

Concerned with the declining yield and productivity of sugarcane farms, the National Council of Sugar Producers commissioned an audit of the sugar industry in early 1995. The study team was composed of Dr. Rosario of Madecor, Dr. Heinz formerly with HSPA, Dr. Ryan of BSES, and Dr. Paningbatan of UPLB.

The main recommendation of the study team was to strengthen the existing research and development support. Thus the Philippine Sugar Research Institute Foundation, a privately funded and administered foundation was organized in late 1995.

##### **Initial Activities of PHILSURIN**

To have a focused direction in solving the problems of the industry, PHILSURIN conducted the following studies:

1. ***Internal assessment of the sugarcane breeding program.*** This study resulted in the rehabilitation of the photoperiod chamber in La Granja, rehabilitation of the quarantine facilities of BPI in Los Baños, training of two sugarcane breeders in Colombia and Florida, and more importantly an integrated sugarcane breeding program for the country. The study also highlighted the inadequate manpower pool of highly trained scientists involved in sugarcane R & D. To this end, PHILSURIN will provide scholarship grants to UPLB to train five PhDs in the next three years.
2. ***Evaluation of the fertilization recommendation of SRA.*** The study has just been completed and the recommendations will be implemented in the coming months.
3. ***Cane handling and transport system.*** This was conducted by a team from Sugar Knowledge International Limited of UK. This study has just been completed. The objective of this study is to

come up with solutions in reducing the delay from cutting to milling.

4. ***Integrated management of sugarcane ratoon stunting disease.*** This study has just been started.

To strengthen extension, PHILSURIN has conducted a three day seminar for more than 200 extension workers in the industry. It has also hired several Mill District Development Committee Coordinators to ensure speedy delivery of new technologies to the planters.

More are needed to be done. PHILSURIN is committed to raise the level of productivity of the sugarcane planters to be in a competitive position with other sugar producing countries of the world.

#### **SUGAR DEMAND PROFILE**

In 1993, the industry commissioned a study by the Center for Research and Development of the University of Asia and the Pacific to determine the short and long-term prospects for sugar. The study included a Market Research component done by the Asian Research Organization (a member of Gallup Poll International).

The Philippine archipelago was sampled as to per capita variations in different locations and under varying economic conditions. It concluded that on a per capita basis, Ilocos region, Metro Manila, and Central Luzon had the highest usage in 1993 at 18.3 kg., 18.0 kg, and 16.6 kg., respectively. All the other regions, including two in Luzon and seven in Visayas and Mindanao recorded a per cap consumption below the national average. Per capita consumption for all regions ranges from 11 kg. to 13 kg.

The study likewise investigated market distribution channels. On the demand by different user groups it concluded that for the same period, the country's total consumption grew by 3.5% annually. By main groups, i) household sugar consumption rose by 3.5%; ii) industrial use by 4.6%; and iii) by contrast, institutional use declined by 1.8% yearly.

Finally, sugar demand for the future, considering price elasticity, comparative trends in other developing economies, and population growth indicated that the country's consumption of sugar, in raw sugar terms would grow by 3.3% to 4.3% or from 2.06 to 2.19 million metric tons by the year 2000. Furthermore, looking beyond to the year 2010, it was possible that local consumption would reach a high 2.95 million metric tons.

#### **SUGAR PRODUCTION PROFILE**

##### ***General Information***

Sugarcane is grown in 17 provinces located in 8 regions on 6 islands. It is grown on a wide variety of soil types, from sandy loams to clay loams and from acidic volcanic soils to calcareous sedimentary deposits.

The island of Negros accounts for half of the country's total production, and is ideally suited for cane cultivation, as climatic factors such as regular monsoon rains and low typhoon incidence complement its good soils.

The harvest season commences from October to December depending on whether the area is on the eastern or western seaboard, and ends more or less in May. Rarely does the grinding season exceed 180 days except in the Victorias Milling District, due to even rainfall distribution, but this has been put in question lately as the Philippine window for cane

ripening appears to be limited by a dry period of 120 to 150 days.

#### *The agricultural sector*

Planted area has declined from a peak of 540 thousand hectares in 1975/76 to a trough of 345 thousand hectares in the 90's. Sugarcane production has closely followed trends in hectareage, with a peak of 29 million metric tons in 1975/76 to a low of 14 million metric tons in 1986/87. The 90's have been marked by periods of declining productivity, mostly attributed to poor farm cultivation and poor harvesting schedules in addition to insufficient development and extension capability. However, the scientific community attributes these figures to years of neglect in research and development.

The number of sugarcane farms has reached about 41,000 where 80% of planters cultivate holdings of 10 hectares and below, although they collectively own only 29% of the country's total cane area. About 55% of the land is owned by planters with more than 25 hectares. These lands, however, could no longer be mortgaged or sold since 1987 as they await coverage of land reform and purchase by government to comply with CARP. Whether these farms will be fragmented further, consolidated thru joint ventures of corporations with beneficiaries or cooperatives, or leased by mills is an unknown factor at the moment as the CARP is scheduled for review and possible amendments in 1998.

Except for about 10,000 hectares of land with varying degrees of mechanization, and some following fully Australian mechanized planting and cultivation systems of the early 80's, most farms use manual labor extensively and use a mix of tractors and buffalo for plowing and land preparation.

A few unsuccessful attempts have been made to harvest with chopper harvesters, but the industry seems to be moving to a manual cutting/grab-loader combination in most areas. The number of farm workers nationwide is about 500,000 with total direct or indirect dependents of some 5 million people.

Productivity, in terms of TC/Ha as well as sugar content or TS/Ha, has been on the downtrend. Sugarcane yields now average nationwide about 50 TC/Ha while sugar yield is at about 4.5 TS/Ha., although highs of 100 TC/Ha and 9 TS/Ha have been proven to be achievable in most areas where irrigation is practiced, cultivation is well-managed, and harvesting is timely. The higher yields have been attained with exciting varieties despite productivity constraints in disease resistance, ratooning capability, and sugar content.

#### *The milling sector*

There are 41 installed sugar mills in the country where 37 are operational, and with varying capacities. Most are located in the main sugar growing island of Negros along the fertile coastal areas. Rated capacity indicates that most mills are of an economically viable size subject to sufficient cane supply. Grinding capacity averages about 5,000 TC per day using conventional milling equipment. Half of the mills have been upgraded in the past five years at a total cost of about P10 B while about half are short of cane supply, lacks capital, or would need to be closed down. Each mill employs around 500 workers on either a permanent or seasonal basis. Most sugar output is in the form of raw sugar (97.5 pol, 1,400, affined color ICUMSA), except for some washed sugar (800 - 1000 ICUMSA color) and some sulphated white sugar.

Mill performance has also been on a downward trend due to poor quality of cane and lack of cane supply. In some cases, this has been the result of obsolescence and disrepair of the mill itself. While mechanical time efficiency and over-all mill recovery have improved due to upgraded equipment, the problem of capacity utilization caused by low cane supply has taken its toll.

Sugar mill performance could be improved further with the continued inclusion of the industry in the Investment Priorities Plan (IPP) of the Board of Investments (BOI) which was introduced in 1992. This program provides incentives in the form of duty-free importation of equipment, and 23 mills have so far taken advantage of this program.

#### *The Refining Sector*

The refining sector is composed of 16 sugar refineries, 15 of which are annexed to raw sugar mills. Average refining capacity is about 8,000 50-kilo bags per day, with Victorias Milling as the biggest with a capacity of 25,000 50-kilo bags per day. Capacity utilization for the whole sector is about 78% using a variety of technologies including carbonation, ion exchange resin, phosphatation, and granular activated carbon. Recovery is about 0.92 metric ton of refined sugar per metric ton of raw sugar.

### **TARIFFS AND TRADE LIBERALIZATION**

#### *GATT - WTO*

At the Uruguay Round of GATT which included agricultural products for the first time, the Philippines offered perhaps the biggest reduction in bound tariffs for out-quota imports for sugar over the life of the Agreement. While the local sugar industry supported government in its accession to the GATT-UR, it did so with the Philippine Senate's support to modify tariffs due to the dangers of the world market where, for some years that came in cycles, sugar prices drop below the cost of production of most sugar producing countries. As this was not considered an immediate threat in 1995, this has presently become a very real threat to the continued existence of the industry as prices fell to the 10.5 ¢/lb level in 1997. It has called for a Modification of tariff commitments (Article 28 of the Agreement) and the government has now given the industry a favorable endorsement of its position. There are also moves to take recourse of Special Safeguards under the Agreement on Agriculture and Regular Safeguards under the Regular Provisions of the Agreement on Safeguards, due to both an import surge in 1996 and a need to trigger escape clause mechanisms in 1997. Hearings and negotiations are now taking place on this matter.

#### *Margin of preference within the ASEAN Preferential Tariff Agreement and the Common Effective Preferential Tariff Agreement*

The MOP or Tariff Discount offered by the Philippines on refined sugar, resulting in tariffs below the MFN of GATT, and distorting the price of raw sugar, has become a political issue in the Philippines. While both Thailand and Indonesia offer MOPs, they effectively do not allow this to distort their government set internal price bands for sugar as imports are under the control of the Thai Sugar Board in Thailand or BULOG in Indonesia. The Philippines, having dismantled its state trading arm, is now threatened by an influx of refined sugar from Thailand that may destroy its newly installed refineries and distorting the internal price of sugar. There is a clamor from the industry for the government to either restore state trading for imports or enjoyment of the MOP, or for price band mechanisms such as stock and inventory management, to be put in place by the SRA. This would then include in the equation the entry and control of imports. This proposal is also now under serious consideration by government.

### **POLICY ISSUES**

A policy study conducted in 1994 by ACIAR, headed by Mr. Brent Borrell and funded by the Australian government, cited issues that tended to prevent the Philippine sugar industry

from being globally competitive. It cited the higher prices of sugar exports to the U.S. under the quota in the past as one of the causes of complacency, although today it comprises 10 to 15% of the country's local production. Further, it questioned the legally mandated sharing system between sugar mills and planters as a disincentive for mill investments and stressed the need to apply a CCS system of sharing similar to that of Australia and Thailand. By-product sharing was put in question as it prevented the downstream development of those products, to include power generation. The classification of sugar by market destination and its allocation to all individual planters and millers was also said to be an important issue to look into, although other countries apply a similar system through other means such as pooling, single desk selling, and market quotas.

While the views presented under the ACIAR study were not well received in the Philippines, its intention was primarily to spur further studies and discussions that would result to a reassessment of the local sugar industry. This it has achieved, as many of the issues in the study are now the subject of much debate within the country.

A Presidential Task Force, of which this author is a member, is mandated to study the fundamental structure of the industry in order to restore production to self-sufficiency levels, increase productivity, and enhance long-term competitiveness in the world market. While the final output of the Task Force is purely recommendatory, it is expected that legislation will follow in 1998 and that the executive arm of the government will act accordingly in the near future or within the year 1997.