



Chapter – 2

REVIEW OF LITERATURE

2.1 In order to develop a clear understanding of the current policy issues in the sugar sector, the summary part of the GOI reportⁱⁱⁱ is worth a revisit:

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Executive Summary.....

1. Sugar and sugarcane are notified as essential commodities under the Essential Commodities Act, 1955. India is the largest consumer of sugar and the second largest producer of sugar in the world. However, it does not have a reasonable degree of predictability in its production and trade policy with respect to sugar. The sector is characterized by controls across the entire value-chain of sugar production and sale, which not only hampers its efficiency but also exacerbates the cyclical nature of sugar and sugarcane production. This characteristic of unpredictability in sugarcane production, coupled with the controls, does not allow the sugar sector to tap its full potential and thereby adversely impacts the interests of stakeholders across the value-chain—be they sugarcane growers, sugar mills, or consumers.

2. The highly perishable nature of sugarcane, the small land holdings of sugarcane farmers and the need to keep the price of sugar at a reasonably affordable level while also making it available through the Public Distribution System (PDS) have been the drivers for regulation. The principal aspects regulated in the sugar sector are as under:

(i) Cane reservation area and bonding— Every designated mill is obligated to purchase from cane farmers within the cane reservation area, and conversely, farmers are bound to sell to the mill. As a consequence of the area requirement (distance criterion), setting up of a new mill requires approvals, notwithstanding delicensing under the Industries Development & Regulation Act.

(ii) Minimum distance criterion—The Central Government, under the Sugarcane Control Order, has prescribed a minimum distance of 15 km between

ⁱⁱⁱReport of the Committee on the Regulation of Sugar Sector in India: The Way Forward” by a high powered committee, under Chairmanship of Dr. C. Rangarajan, Chairman, Economic Advisory Council to Prime Minister, October, 2012.



any two sugar mills. Enhancement of this distance has also been allowed on the request of some state governments.

- (iii) *Price of sugarcane*— While on the one hand, the Centre Government fixes FRP as the minimum price, which is also used for arriving at the price of levy sugar. On the other, many States have intervened in sugarcane pricing with State Advised Price (SAP) to strengthen the farmer interests. SAP has typically been higher than FRP. Farmers and millers on the one hand, and CACP and states on the other, have held divergent views on which is a price fair to both farmers and millers.
- (iv) *Levy sugar obligation*— Every sugar mill mandatorily surrenders 10% of its production to the Central Government at a pre-determined price, which is, at present, Rs.1,904.82 per quintal. This enables Central Government to get access to low cost sugar stocks for distribution through PDS. At present prices, the Government of India saves about Rs.3,000 crore on account of this policy—the burden being borne by the sugar sector.
- (v) *Regulated release of free-sale (non-levy) sugar*— The release of non-levy sugar into the market is regulated by the Central Government through a controlled release mechanism. Earlier, monthly release orders were issued to each mill. Release orders have now become quarterly. The idea seems to be to match supply with anticipated demand based on the data available with the Directorate of Sugar.
- (vi) *Trade policy for sugar*— Depending on mill-wise monthly production and stocks, local production levels and world market conditions, quantitative controls on both exports and imports are common in the sector. This is an avoidable source of uncertainty for the industry.
- (vii) *Regulations relating to by-products*—There are several regulatory hurdles in respect of the by-products of sugar industry. In respect of molasses, these are at the state level, in terms of state government decisions relating to fixation of quotas for different end uses of molasses, restrictions on movement (particularly across state boundaries), etc. In respect of cogeneration from bagasse, there are regulatory and implementation issues relating to freedom to sell power to consumers other than the local power utility, and resort by state governments or their electricity boards to restriction on such open access sale by frequent or routine invocation of statutory provisions meant to deal with emergencies.
- (viii) *Other Issues* — Jute Packaging Materials (Compulsory Use in Packing Commodities) Act, 1987 mandates that sugar be packed only in jute bags.



3. Cane area reservation and bonding are intended to serve the twin purposes of giving a minimum assured supply of the highly-perishable raw material to a mill, while committing the mill to procure at a minimum price (FRP/SAP). However, this arrangement may reduce the bargaining power of the farmer, who is forced to sell to a mill even if there are cane arrears and also reduces the farmer's remuneration if the design mill has a lower recovery rate. Mills also lose flexibility in augmenting cane supplies, especially when there is a shortfall in sugarcane production in the cane reservation area. Moreover, mills are tied down to the quality of cane that is supplied by the farmers in the area.

A priori, there is no reason why market-based long-term contractual arrangements which balance the interests of sellers and buyers will not work in this sector. Markets ordinarily are a superior option to state allocation of both raw material and manufacturing capacities. Therefore, over a period of time, states should encourage development of such market based long-term contractual arrangements, and phase out cane reservation area and bonding. For those states that may want to continue in the interim, the current system may be allowed to continue. However, where a state does decide to continue with cane area reservation, it must be ensured that the period of reservation is not less than three to five years.

4. The minimum distance criterion for setting up of a new mill is expected to ensure a minimum availability of cane for all mills. This can cause distortion in the market. The virtual monopoly over a large area can give the mills power over farmers, especially where landholdings are smaller.

This restriction inhibits entry and further investment, and adversely impacts competition for purchase of sugarcane as well as for improving mill efficiency. As such, it is not in the interest of development of sugarcane farmers or the sugar sector, and may be dispensed with as and when a state does away with cane reservation area and bonding.

5. There is general agreement that there is a need to rationalize the pricing of sugarcane. It is also generally agreed that there should be a sharing of the revenues/value created in the sugarcane value chain between the farmers and the millers in a fair and equitable manner. The question that needs to be answered is the exact level and manner of arriving at the cane dues.

It would be fair to share the revenue pot of value created in the sugarcane value chain between the farmers and millers in the ratio of their relative costs. An analysis of the costs incurred by sugarcane farmers and those incurred by sugar mills suggests that this ratio between farmers and millers, taking a recovery rate of 10.31 per cent, works out as 69:31 which, rounded off, can be taken as 70:30.



This value-sharing ratio should apply not only for the revenue generated from sugar but also to that generated from saleable primary by-products produced in the process of sugar production. Therefore, it is suggested that 70% of the value of sugar and each of its three major by-products, namely bagasse, molasses and press mud (all ex-mill), be fixed as the cane dues payable to the farmer for the sugarcane supplied. (Based on an analysis of the data available for the by-products, and if by-products are loaded on the value of sugar, the

value-sharing ratio for farmers is estimated to amount to roughly 75 per cent of the ex-mill value of sugar alone). However, farmers will in all circumstances be paid the Fair and Remunerative Price (FRP) as the minimum, and this will be paid up-front.

States may publish half-yearly ex-mill prices of sugar and the by-products for this purpose. While scrutinizing the ex-mill sugar pricing data, the open market price of sugar as competitively bid in sugar procurement for PDS (which has been recommended separately, in lieu of the present levy sugar arrangement), net of taxes, may be kept in view.

The actual payment for the cane dues would happen in two steps. The first would be payment of a floor price, based on FRP as per extant mechanism. Balance payment of cane dues will be done subsequent to publication of half-yearly ex-mill prices, on the lines indicated. With such a system in operation, states should not declare an SAP.

6. *Levy amounts to a cross-subsidy between open market and PDS sugar and is not in the interest of the general consumer or the development of the sugar sector. Therefore, levy sugar may be dispensed with.*

Dispensing with levy sugar translates into doing away with a centralised arrangement for PDS sugar. The states which want to provide sugar under PDS may henceforth procure it from the market directly through a competitive bidding process according to their requirement and may also fix the issue price. An additional subsidy on account of the implicit cross-subsidy in the levy arrangement may be provided by the Central Government over and above the current subsidy being given for the difference between the levy price and the issue price and PDS transportation costs. This should be done along with rationalization of the current issue price for PDS sugar which has been kept constant for the past so many years.

The recommendation for an export/import duty, made separately in connection with the trade policy for sugar would help compensate the Centre in part for the cost incurred for the additional subsidy to be provided to states. The



Centre would also benefit from the improved tax receipts received from the sugar industry as a result of an improved regulatory environment, and could also consider redeploying the sugar cess proceeds.

7. Markets in almost all sectors in India are constantly matching anticipated demands with supply. There is no particular reason why sugar market would not be able to do this. This mechanism of regulated release of non-levy sugar imposes costs directly on mills (and hence indirectly on farmers) on account of inventory accumulation, inability to plan cash flows, etc. Further, seasonal fluctuations in price are continuing. Hence, since this mechanism is not serving any useful purpose, it may be dispensed with.

8. Decisions regarding the export and import of sugar are taken after taking into account the domestic availability, demand and prices. A number of cascading import controls and export "permits" are used to achieve this. Thus, India's trade in the world trade sugar is "thin" and volatile. Even though India contributes 17% to the global sugar production, its share in the exports is only 4%.

The extent to which the policy interventions have been fully successful at stabilizing consumer prices is debatable. But it seems that this has been at the cost of considerable instability for the sugar cane and sugar production.

The committee is of the opinion that trade policies on sugar should be stable. Appropriate tariff in the form of a moderate duty on imports and exports, not exceeding 5-10 per cent ordinarily, as opposed to outright ban or quantitative restrictions, should be used to meet domestic requirements of sugar in an economically efficient manner. However the option of imposing a higher level of duty could be retained for dealing with exceptional circumstances.

9. Current regulatory arrangements relating to by-products impede development of a national market and consequently reduce economic efficiency. There should be no quantitative or movement restrictions on by-products like molasses and ethanol. Prices of by-products should be market-determined with no earmarked end-use allocations. Likewise, there should be no regulatory hurdles preventing sugar mills from selling their surplus power to any consumer.

10. Suitable changes may be made in the relevant control orders to give effect to the recommendations outlined above.

11. Jute Packaging Materials (Compulsory Use in Packing Commodities) Act, 1987 (JPMA) mandates that sugar be packed only in jute bags. It is estimated by the sugar industry that this leads to an increase in cost by about of 40 paise per



kg of sugar besides adversely impacting quality on account of ingress of jute fibers of jute bags. Further there is often a shortage of jute bags.

12. Sugar industry (like cement and fertilizer industries earlier) should be removed from the purview of JPMA. If the use of jute is uneconomical, such a mandatory use regime is unlikely to render the jute industry profitable. All it ends up doing is impose a loss of efficiency in consequence of this distortion of choice.

13.

14. Establishing the basis for an efficient sugar industry would require a multi-pronged approach as suggested in the report. Rationalization of sugarcane pricing and liberalization of sugar trade need to be introduced over a two to three year period, in a calibrated and phased manner. However, levy sugar obligation and administrative control on non-levy sugar need to be dispensed with immediately. The regulations regarding cane area reservation and bonding may be dispensed with by states over the long run, and as states discontinue reservation area, the Centre should dispense with the minimum distance criterion. Implementation of the recommendations would enable India to continue to meet its domestic demand while also ensure growth of a competitive and efficient market.

2.2 In order to decipher the methodology of sugar cane price fixation, the cane price fixation system world over, the implications of the cane pricing system in India as well as the nitty-gritties of various regulatory controls on sugar sector, a recent reportⁱⁱⁱ, by the Commission for Agricultural Costs and Prices (CACP) was reviewed and the important parts of the report are reproduced below:

Chapter 1.....

1.3, unlike other mandated commodities, the pricing of sugarcane is governed by the statutory provisions of the Sugarcane (Control) Order, 1966 issued under the EC Act, 1955. Prior to 2009-10 sugar season, the Central Government was fixing the Statutory Minimum Price (SMP) of sugarcane and farmers were also entitled to share profits of a sugar mill on 50:50 basis. The sharing provision was introduced in the Control Order as Clause 5A in September, 1974 with a well-intended purport to empower farmers to equally share the dividends of the mills. But it remained virtually unimplemented mainly on account of delays in the

ⁱⁱⁱ "Price Policy for Sugarcane (The 2013-14 Sugar Season)", by the Commission for Agricultural Costs and Prices (CACP), Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, August 2012.



announcement of profits by the mills. The Sugarcane (Control) Order, 1966 was amended w.e.f. 22.10.2009 and the concept of SMP was replaced by the Fair and Remunerative Price (FRP) of sugarcane. For the purpose of working out FRP, a new item 'reasonable margins for growers of sugarcane on account of risk and profits' was inserted in Clause 3(1) w.e.f. 22.10.2009 and made effective from 2009-10 season. Clause 5A relating to sharing of profits between sugar factories and farmers was thus deleted.

1.4 The amended provisions of Clause 3(1) of the Sugarcane (Control) Order, 1966 provide as follows:

***Fair and Remunerative price of sugarcane payable by producer of sugar –**

(1) The Central Government may, after consultation with the authorities, bodies or associations as it may deem fit, by notification in the official Gazette, from time to time, fix the **Fair and Remunerative** price of sugarcane to be paid by producers of sugar or their agents for the sugarcane purchased by them, having regard to -

- (a) the cost of production of sugarcane;
- (b) the return to the grower from alternative crops and the general trend of prices of agricultural commodities;
- (c) the availability of sugar to the consumers at a fair price;
- (d) the price at which sugar produced from sugarcane is sold by producers of sugar; and
- (e) the recovery of sugar from sugarcane;
- (f) the realization made from sale of by-products viz. molasses, bagasse and press mud or their imputed value (inserted on 29.12.2008)
- (g) reasonable margins for growers of sugarcane on account of risk and profits (inserted on 22.10.2009)

1.5 Accordingly, the Commission is required to pay due regard to the statutory factors listed in the Control Order. It may be worth emphasizing that this includes taking into account not only the cost of production of sugarcane, but also recovery rates and pricing of sugar, as also its by-products namely molasses, bagasse and press mud. Thus, revenue sharing of sugar factories is expected to



be reflected in sugarcane pricing. Whether this is actually done, and to what extent, will be discussed later in this report.

Pricing of Sugarcane in Practice and the issue of Mounting Cane Arrears

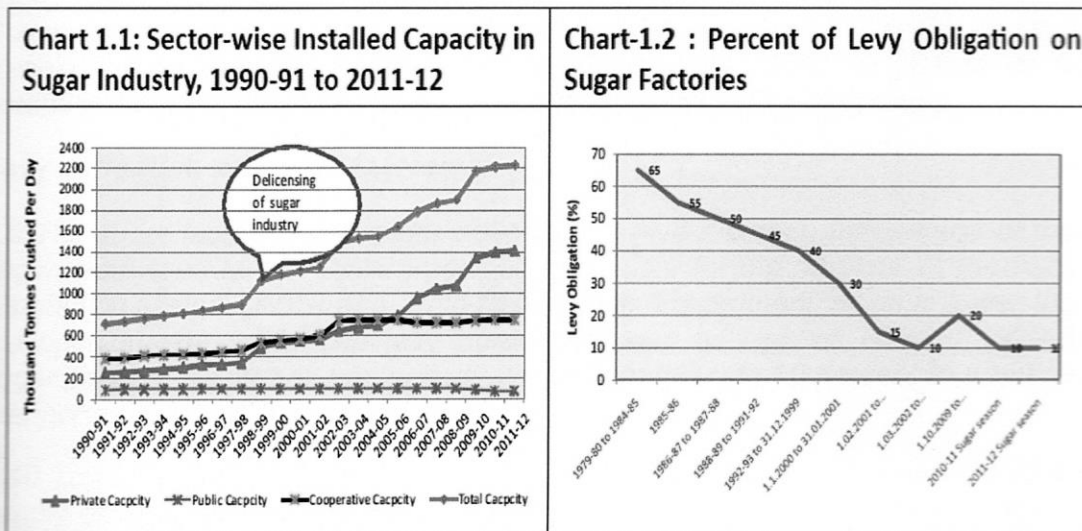
1.6 The Commission has been recommending the prices of sugarcane (SMP/FRP) as per its mandate and terms of reference. But those prices (SMP/FRP) are far below (see chapter-2 for details) the prices that are actually received by farmers as a result of state level intervention in the form of State Advised Prices (SAP, as in states like Uttar Pradesh), or some sort of final 'negotiated price' based on 'surplus sharing' mechanism as in case of Maharashtra sugar cooperatives. In any case, since the actual prices being paid to farmers are much higher (statutorily) than the SMP/FRP, many a times it creates a situation where mills are not able to pay those prices, especially when sugar prices in the market are low and SAPs are high. This results in mounting arrears to farmers. In 2011-12 sugar season, these arrears amounted to 11.6 per cent of the price payable. Similar situation has earlier developed in 2006-07 and 2007-08 when these cane arrears were 16.4 and 22.9 per cent of price payable, respectively. This is not a healthy state of affairs from the point of view of farmers as well as industry, as it leads to increasing litigation in courts, wherein farmers ask for immediate payment of arrears and mills plead that given the low realization from sugar and by-products, SAP is too high and they cannot pay the SAP without going in losses. And these litigations continue for years in courts. This is a clear sign that the pricing mechanism for sugarcane, as it exists today, has serious shortcomings. SMP/FRP seems to be much on the lower side than what farmers' consider fair and remunerative, while SAP, at times, becomes too high resulting in mounting arrears, and widening trust deficit between the main stakeholders, farmers and millers, in the cane-sugar value chain. There is, therefore, a dire need to devise a more appropriate pricing formula that ensures a fair sharing of the value created in the cane-sugar value chain, and where farmers and millers both feel comfortable. This is discussed in some detail in chapters 2 and 6. The other way would be to change the FRP regime in such a manner that it reflects more the demand side pricing (i.e., looking more at the price of sugar and its by-products) rather than the cost of production of cane (supply side pricing). But in a sector, which is highly regulated, getting the right market price of sugar or its by-products is not an easy task. From levy on sugar mills to controlling the releases of even non levy sugar into market, its exports and imports, all are heavily controlled by the government. Even the allocation of molasses to different user industries is often controlled by the state governments, affecting its true market price. Perhaps there is no other agri-commodity sector which is as heavily controlled as the sugar sector today.



From De-licensing to Decontrol of Sugar sector

1.7 Sugar sector has been heavily controlled for a long time. A major step to liberate this sector from controls was taken in 1998 when licensing requirement for new sugar mills was abolished, and over a period of time, from 1998 to 2009, levy percentage on sugar mills was reduced from 40 per cent to 10 per cent. These measures contributed significantly to a structural transformation in sugar industry, from being dominated by the sugar co-operatives to private sector led sugar mills, as is shown in charts-1.1 and 1.2.

1.8 It may be noted from chart-1.1 that till 1997-98, growth in sugar industry was



at a much lower level, which took-off to much higher growth trajectory in terms of installed capacity in post de-licensed period. And this came increasingly from the private sector. Till 1997-98, sugar cooperatives were dominating the sugar industry with an installed capacity of 51.51 percent of total installed capacity in the country, followed by the private sector (38.21%) and public sector (10.28%). But, by 2011-12, this had changed significantly with the private sector contributing to the larger share of 63.25 percent in total installed capacity, followed by cooperatives (33.56%) and public sector (3.19%) trailing behind. There is also evidence that the private sector mills, the existing ones as well as the new ones that are coming on stream, are of much higher capacity than the cooperatives or public sector mills. Normally, the larger mills enjoy scale economies and greater efficiency in sugar production. This clearly indicates that the policy decision to liberate the sugar industry from licensing requirements and reducing levy had large beneficial impact on the growth and efficiency of this sector. This should encourage the government to go full length on liberalizing this



sector from other controls, especially about remaining levy, regulated monthly/ fortnightly/weekly releases of non-levy sugar in the open market, cane area reservation, distance between mills, exports and imports policy, etc. This move from delicensing to full de-control has the potential to take this sector yet to a greater height, where integrated plants can come up producing not only sugar, but also ethanol and power from its by-products. These can become energy hubs in rural areas, and given that the demand for energy (fuel and power) will keep increasing with rising incomes and population, sugar industry can latch on to this rising demand, diversify and avoid the usual cyclicality in its production and prices, and bring greater prosperity in rural areas. Currently, sugar industry is considered worth Rs.80,000 crores with large employment in rural areas, and it has a potential to grow in double digits over a longer period, if it can exploit this energy potential. It is in keeping with the potential of this industry, the Government has set up an expert committee under the Chairmanship of Dr. C Rangarajan to look into how best to de-regulate this sector to realize its full potential. Some of these key issues are briefly touched upon hereunder.

Levy obligation on sugar factories

1.9 The sugar factories are under obligation to give a certain percentage of their sugar production to the Government as levy sugar for the purpose of the public distribution system (PDS) at a price fixed by the Government which is lower than the open market price. The levy percentage was as high as 65% in 1979-80 sugar season, which has been gradually brought down to 10 percent in a phased manner as depicted in chart-1.2.

1.10 To move towards better targeting in PDS, the Government restructured the supply of levy sugar in the PDS, in Feb. 2001 and restricted its supply to BPL families except in the north eastern states, hilly states and Islands territories where universal coverage was allowed to continue. Accordingly, the allotment of levy sugar is made on the basis of fixed States/UTs quotas with effect from 1.2.2001. Besides, a quantity of about 1.00 lakh MT is allotted as fixed Annual Festival quota of the States/UTs as per the scheduled festival requirement of the State Governments / UT Administrations. At present the total annual requirement of levy sugar is about 2.8 million tonnes out of a total sugar production of about 26 million tonnes in 2011-12. The price paid to the mills for levy sugar by the government is worked out on the basis of SMP/FRP of sugarcane declared by the Centre, and not the actual prices (SAP or final prices) paid by the factories to farmers. This amounts to a sort of 'implicit tax' on the factory, but which gets transmitted either to the farmer as the capacity of the factory to pay a remunerative price to farmer is reduced by that amount or to the consumers of non-levy sugar as their price for sugar goes up. Currently, the levy price is about Rs.18/kg vis-à-vis an ex-factory price of more than Rs.30/kg, leading to an 'implicit tax' of more than Rs.3000 crores on sugar mills/farmers/non-levy sugar



consumers. Basically, what the government policy of levy on sugar is trying to achieve is cross subsidization of the PDS sugar consumers through sugar mills/cane farmers and non-levy sugar consumers. This use of price policy instrument to achieve equity objectives, compromises on efficiency front. A better way is to either use an income policy for PDS consumers, i.e., giving them direct cash subsidy to buy from the open market or invite bids from the sugar industry for 2.8 million tonnes to feed the PDS on fortnightly/monthly basis. This will encourage the more efficient mills to bid for this large market at lower price, improve their scale and cut down costs further to capture this PDS market. This will go a long way in improving the overall efficiency of sugar mills, and also making them globally competitive. So, the Commission is of the considered view that levy obligation on sugar mills be done away with, and the government should invite tenders from sugar mills to supply for PDS. A still better solution would be to use income transfers to the poor and take sugar out of PDS system all together.

Regulated Release Mechanism

1.11 Sugar, manufactured during five to six months during the sugar season (October to September), is controlled and regulated to be sold and distributed in a staggered manner with certain stated objectives namely (a) the consumer gets adequate sugar throughout the year at a fair price, (b) cane growers who provide sugarcane to millers, receive a fair price, (c) the sugar producer gets a reasonably fair return from the sale of sugar. After adjusting the levy obligation of the sugar factories, the other 90% of sugar is allowed to be sold as non-levy (free-sale) sugar through the system of Regulated releases applicable uniformly to all the sugar mills throughout the country. The quantum of non-levy sugar to be released for a particular month for domestic consumption is decided by the Central Government having regard to the production, stock, requirement and prices of sugar in the country. On the basis of the non-levy quota decided by the Government, month-to-month release orders for sale of sugar in the open market are issued. Sometimes, these release orders are based on fortnightly or even weekly quotas, hoping that these controlled releases will keep the sugar prices in open market stable and at a 'reasonable level'. How far this policy has succeeded is debatable as sugar prices have demonstrated high degree of volatility (see chapter-6) and the trend of sugar prices has been rising. Also, it is worth noting that there is no other agri-commodity which faces such a monthly/fortnightly/weekly regulated release system as does sugar, and certainly not sugar anywhere else in the world. This is akin to the 'license/controlled raj' of 1960s when India was facing huge food shortages. That's not the case anymore. There is ample evidence that 'license-control raj' leads to more 'rent seeking' and stifles efficiency. The Commission, therefore, is of the considered opinion that there is no case for such a tight control for a commodity, which is largely (more



than sixty percent) consumed by bulk buyers like beverage companies and confectionaries. The Commission recommends abolishing controlled release mechanism of non-levy sugar. There are better instruments of price stabilization than this. For example one can use a hybrid of sugar stocking (of about 2 million tonnes) policy dovetailed with an open trade (export and import) policy. In this context, it may be recalled that the Commission in its report on sugarcane pricing policy for 2012-13 sugar season also had recommended that sugar sector be decontrolled by dispensing with the monthly release system and sugar stock of about 2 million tonnes be created to stabilize markets.

Hybrid Formula for Pricing of Sugarcane: Revenue Sharing with Minimum FRP (MFRP)

1.12 Amongst the leading cane producing countries in the world, India is perhaps the only country where fixed price system as against revenue sharing formula is in vogue (see chapter-2 for details). In this backdrop, the Commission suggests changing the price mechanism to revenue sharing formula with MFRP, the building blocks of which are discussed in chapters-2 and 6. This pricing approach has the potential to take the sugar sector to greater heights, bringing more stability and breaking the cycles of boom and bust in this sector.

Chapter 2.....

Domestic Market Scenario

2.1 Since sugarcane is cultivated in India primarily to produce sugar, it is important to know what has been the demand and supply situation of sugar in the recent past and what it is likely to be in the coming year, if we have to get our pricing of sugarcane right. Like most of the other agri-commodities, sugarcane is also produced during a particular season, and its crushing to convert it into sugar also takes place for a few months, but its demand is through-out the year. So the sugar millers/traders/bulk consumers have to keep some stocks with them to meet their year round demand. While the demand for sugar is gradually increasing with rising population and incomes (given that its expenditure elasticity is positive and high) and therefore has a robust trend, the supplies of sugar are more volatile depending upon weather, and prices of sugarcane that farmers receive in relation to other competing crops.

2.2 The NSSO data shows that the per capita consumption of sugar in 2009 for direct household consumption in rural and urban areas of the country is 660 gms and 780 gms per month respectively. Based on 68.8 percent rural population, all-India weighted average per capita per month for direct household consumption is estimated at 697 gms per month which works out to 10.04 million tonnes per year for a population of 1.2 billion. And out of this, a part is bought by households through the public distribution system (PDS) at a subsidized price. The estimates



of the DFPD show that about 2.8 million tonnes of sugar is distributed through the PDS. The sugar industry estimates that the total consumption (absorption) of sugar in the country, including by households, bulk buyers, and others, is roughly 21 to 22 million tonnes. This leaves 11 to 12 million tonnes or 55 percent at the maximum for consumption by bulk buyers like beverage companies, confectionaries, etc. However, bulk buyers like beverage companies, confectionaries, etc. are reported to be consuming 65 to 70 percent of sugar in the country while only about one-third is consumed directly by households. This inconsistency needs to be investigated further by undertaking an appropriate study on this issue.

Efficacy of Pricing Policy

2.5 The Commission has been recommending the prices of sugarcane (SMP/FRP) after taking into account various factors that are given in its mandate and terms of reference. To appraise the efficacy of sugarcane price policy, there could be two ways to look at it:

(1) where we compare the SMP/FRP with the actual costs of production of sugarcane by the farmers, after adjusting for their recovery rates, which would be supply side pricing, and has been attempted in table-2.2.

Table-2.2

SMP/FRP vis-à-vis Actual Cost of Production (Rs/ctl., percent)

Sugar season	Basic SMP/FRP	All-India recovery rate (%)	SMP/FRP at all-India recovery rate	Actual Cost of production (All-India weighted average)	Percent Margin in SMP/FRP over actual cost
1	2	3	4	5	6
2008-09	81.18	10.05	90.65	97.12	-6.66
2009-10	129.84	10.20	139.41	109.42	27.41
2010-11	139.12	10.17	149.37	120.74	23.35
Average					14.70



(2) where we compare the SMP/FRP, after adjusting for their recovery rates, with the sugar prices. This would be the demand side pricing and is attempted here in table-2.3. The demand side pricing is always considered better way of distributing the value created in the cane-sugar value chain between two main stakeholders viz. the farmers and millers, ratio of SMP/FRP (adjusted for recovery rates) to sugar prices since 2000-01 is worked out and given in table 2.3.

Table-2.3

SMP/FRP Recommended by CACP and its Ratio to Ex-Mill Sugar Prices

Sugar season	Ex. Mill prices (Rs./qtl)	Basic SMP/FRP (Rs./qtl)	All-India recovery rate (%)	SMP/FRP at all-India recovery rate	SMP/FRP as percentage of ex-mill prices At basic recovery rate	SMP/FRP as percentage of ex-mill prices At All-India recovery rate
1	2	3	4	5	6	7
2000-01	1347.52	59.50	10.48	73.36	44.16	54.44
2001-02	1310.88	62.05	10.27	74.97	47.33	57.19
2002-03	1182.45	69.50	10.38	84.87	58.78	71.78
2003-04	1365.28	73.00	10.22	87.77	53.47	64.29
2004-05	1607.87	74.50	10.17	89.14	46.33	55.44
2005-06	1749.88	79.50	10.22	90.28	45.43	51.59
2006-07	1363.44	80.25	10.16	90.59	58.86	66.44
2007-08	1397.74	81.18	10.30	92.91	58.08	66.47
2008-09	2127.86	81.18	10.05	90.65	38.15	42.60
2009-10	2981.63	129.84	10.20	139.41	43.55	46.76
2010-11	2653.92	139.12	10.17	149.93	52.42	56.12
2011-12	2762.62	145.00	10.17	155.23	52.49	56.19
Average					49.69	57.56

Notes: 1. SMP/FRP is always announced with some basic recovery rates, which were 8.5% during 2000-01 to 2004-05, 9% during 2005-06 to 2008-09 and 9.5 % from 2009-10 onwards. The actual recovery rates differ from factory to factory, from region to region, and year to year, and therefore, SMP/FRP actually payable needs to be tweaked incorporating the difference between actual recovery rates and basic recovery rates.

2. The actual recovery rates for 2011-12 are assumed to be the same as in 2010-11 (10.17%) due to non-availability of data for these years.



2.6 It may be seen from table 2.2 that from the supply side pricing, SMP/FRP, after adjusting for the actual recovery rates, broadly covered the weighted average costs of production at all India level and gave a margin of about 15 per cent during the three year average of 2008-09 to 2010-11 for which the latest actual cost of production data are available. The table-2.3, which reflects the demand side pricing, shows that average SMP/FRP as percentage of sugar price (12 years' period from 2000-01 to 2011-12) was about 50% of sugar prices at basic recovery rate which increases to 58 per cent if it is adjusted to the actual recovery ratio at all India level.

2.7 There would obviously be state-wise variation in this SMP/FRP as a ratio to sugar prices, given that recovery rates as well as ex-mill sugar prices differ across states. For the two major sugar producing states of India, we have made an attempt to work out this for the period 2004-05 to 2011-12 in table-2.4. What follows from this is that if UP and Maharashtra had paid farmers SMP/FRP for sugarcane, duly adjusted for their respective recovery rates, then UP farmers would have got only 51 percent of sugar price on an average during the 2004-05 to 2011-12 period, while Maharashtra farmers would have got 62 percent of sugar price. It may be noted that ex-mill sugar prices are generally lower in Maharashtra compared to UP, which may result in higher ratio for farmers in sugar prices, besides their higher recovery ratio. On a year to year basis, there is a wide variation. For Maharashtra, it would have worked out to 81 percent in 2007-08 to 50 percent in 2008-09, while for UP it would have been 65 percent in 2006-07 to 38 percent in 2008-09.

Table-2.4

Actual Prices Received by Sugarcane Farmers, SMP/FRP as Percentage of Ex-mill Sugar Prices in Maharashtra and U.P.

(Rs./qtl., percent)

Sugar season	Ex-mill sugar prices		Cane prices paid to farmers		Cane prices as percent of ex-mill sugar prices		SMP/FRP at State-specific recovery rate		Recovery rate (%)		SMP/FRP as percentage of ex-mill prices At State-specific recovery rate	
	Maha-rashtra	U.P.	Maha-rashtra	U.P.	Maha-rashtra	U.P.	Maha-rashtra	U.P.	Maha-rashtra	U.P.	Maha-rashtra	U.P.
1	2	3	4	5	6	7	8	9	10	11	12	13
2004-05	1601.66	1674.70	130.07	104.50	81.21	48.49	99.83	85.81	11.39	9.79	62.33	51.24
2005-06	1820.42	1692.29	140.62	112.50	77.25	66.48	103.00	83.83	11.66	9.49	56.58	49.54
2006-07	1452.29	1296.75	93.92	125.00	64.67	96.39	101.56	84.62	11.39	9.49	69.93	65.25
2007-08	1317.08	1492.71	93.41	125.00	70.92	83.74	106.44	83.89	11.80	9.30	80.81	56.20
2008-09	2082.29	2161.08	158.05	140.00	75.90	64.78	103.91	81.18	11.52	8.91	49.90	37.56
2009-10	3121.67	2889.58	214.69	165.00	68.77	57.10	157.31	129.84	11.51	9.13	50.39	44.93
2010-11	2806.67	2592.96	205.00	205.00	73.04	79.06	165.77	139.12	11.32	9.16	59.06	53.65
2011-12	2720.00	2950.00	235.00	240.00	86.40	81.36	172.78	145.00	11.32	9.16	63.52	49.15
Average					74.77	72.18					61.57	50.94



Notes: 1. In Maharashtra, the cane price paid from 2004-05 to 2008-09 has been taken from the compilation of cost analysis by VSI Pune and from 2009-10 to 2010-11 by taking the average of the minimum and maximum cane price paid.

2. For 2011-12, Cane Commissioner (Maharashtra) informed that farmers are given Rs.205/qtt., Rs. 185/qtt. and Rs. 180/qtt. In high recovery zone, medium recovery zone and low recovery zone respectively, besides Rs.45/qtt. as transportation/harvesting charges. As cane crushed in these three zones is more or less equal, average equivalent FRP works out to Rs.235/qtt.

2.8 It is observed (table-2.4) that neither state follows the Centre's FRP and each state advice in this regard and each state announces its own SAP or some sort of "negotiated price" which the states work out in consultation with farmers and millers. It is extremely important to note that the actual prices paid to sugarcane farmers in Maharashtra and UP, on an average for this period, work out to 75 percent and 72 percent of their respective sugar prices. This is way above what the Centre's SMP/FRP would have given them. We will see later in chapter-6 that this comes very close to the revenue sharing formula of 70 to 75 percent of sugar prices being paid to farmers as cane prices, which has a much deeper robust scientific foundation than the SMP/FRP pricing mechanism.

2.9 The problem with this "negotiated price" approach each year at the state level is that it is not linked to sugar price directly, and as a result, with sugar prices varying, this leads to sometimes abnormally high shares of farmers' cane prices vis-a-vis sugar prices, which the mills are not able to afford leading to large cane arrears (table 2.5), and several litigations in the courts. This happened in UP in 2006-07 when the share of cane price to sugar price was 96.4 percent and in Maharashtra in 2011-12, when its share was 86.4 percent. Both are at the cost of the industry and unsustainable in long run, leads to financial sickness and ultimately demise of industry. But as table-2.4 reveals that in the years following such peak payment years, there is a drastic fall, which corrects the system in a very crude manner, making it slide from the peak like a roller-coaster and bringing to a trough, to be again taken upswing, thus leading to cycles in production, bringing greater uncertainty, and somehow the sugar sector keeps moving and sometimes limping.



Table-2.5
Cane Price Arrears during 2006-07 to 2011-12

(Rs. Crores, %)

Sugar Season	Total price payable	Price paid	Arrears	% of arrears on price payable
2006-07	25747.26	21524.26	4223.00	16.40
2007-08	22423.63	17290.77	5132.86	22.89
2008-09	17884.47	17285.50	598.97	3.35
2009-10	36786.00	35324.74	1461.26	3.97
2010-11	41481.58	38889.79	2591.79	6.25
2011-12	49280.05	43581.45	5698.60	11.56

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2.10 During last two years, arrears have grown almost in geometric progression. This is not a healthy state of affairs from the point of view of farmers as well as industry, as it leads to increasing litigation in courts, wherein farmers ask for immediate payment of arrears and mills plead that given the low realization from sugar and by-products, SAP is too high and they cannot pay the SAP price without going in losses. And these litigations continue for years in courts. This is a clear sign that the pricing mechanism for sugarcane, as it exists today, has serious shortcomings. SMP/FRP seems to be much on the lower side than what farmers consider fair and remunerative, while SAP or "negotiated price" at times goes too high which millers often contest and results in mounting arrears, widening trust deficit between the main stakeholders, farmers and millers, in the cane-sugar value chain. There is, therefore, a dire need to devise a more appropriate pricing formula that ensures a fair sharing of the value created in the cane-sugar value chain, and where farmers and millers both feel comfortable. Thailand, for instance, which is close to India's sugarcane conditions, gives 70 percent plus of the value of sugar and its by-products to farmers as cane price. Table-2.6 gives a broad idea of pricing system in leading cane producing countries in the world.



Table-2.6

Sugarcane Pricing System in Selected Countries

Country	Cane payment system	Industry revenues to be shared	Grower's revenue share
Australia	Revenue share (variable)	Raw sugar (millers retain molasses)	62-67%
Brazil	Revenue share (variable)	Sugar and ethanol	56-61%
Fiji	Revenue share (fixed)	Sugar, molasses and other by-products	70%+
India	Fixed price	Varies by states	Fixed price
Mexico	Revenue share (fixed)	Standard sugar, millers retain molasses	57%
South Africa	Revenue share (fixed)	Raw/refined sugar and molasses	62-63%
Thailand	Revenue share (fixed)	Raw/white/refined sugar and by products	70% plus

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2.11 It is noted that India is the only country amongst major cane producing countries, where fixed price system is prevalent. To keep pace with best international practices, enhance objectivity and equity amongst various stakeholders in fixation of FRP, and also to reduce disputes, the Commission is of considered view that India needs to move from the existing system of fixed pricing towards revenue sharing formula with minimum FRP(MFRP).



2.3 The issues afflicting the sugar sector have been the subject matter of various committees constituted by GOI from time to time and relevant parts of one such committee report i.e. "Report of the Group of Experts on Sugar"^{iv} are reproduced below:

Executive summary.....

Sugar industry has been recognized as an important one for its contribution to food security, employment and contribution to exchequer. Its full potential is however yet to be realized. The possibilities it offers for energy security in the form of fossil fuel supplements and electrical power are beginning to be recognized. While the farm and mill profitability have been affected by the recurring cycles, the emerging commercial potential of energy products provides the means of managing the cycles without significant loss of profitability.

The EGs recommendations address the interests of farmers, consumers and mills. Suggestions are also made regarding the role of government in determining policy.

Farmers' interests

Farmers' income should be targeted rather than the price of cane. This requires attention to productivity, varietal selection and sound cultivation and harvesting/transport practices. A comprehensive cane development programme should be adopted by the mills with support from the state governments to enable the farmers raise productivity and generate higher incomes per hectare. Sugarcane price should be fixed on the basis of norms that ensure a positive net return to the farmer, enable farmer to attain a share of the high profits whenever sugar prices rule high, and take in to account the total earning potential of not only sugar but by-products also.

The SMP (which should continue as an interim arrangement) should include the value of bye-products based on normative values so that the initial cane payment fairly reflects the value of cane. SMP should be the only basis for cane price payments across the country.

Mechanisms should be evolved for avoidance of arrears in cane payments. Mills should be advised to create reserves during high profit years – with tax benefits –

^{iv}"Report of the Group of Experts on Sugar" by committee under chairmanship of Dr. Y. S. P. Thorat, Department of Food and Public Distribution, Government of India, 2009.



for meeting liquidity constraints that arise during periods of low sugar prices and high cane production. The penalties against delays in payments should be enforced through better regulation.

Over the long term, government should withdraw from fixing the price of sugar cane, after ensuring that a stable mechanism exists for fixing prices on the basis of well defined norms, acceptable to the farmers and mills.

Mill wise reservation of cane area may be scrapped as it introduces monopolistic tendencies and reduces choices for farmers. The mills should command loyalty of farmers through better services and efficient working.

The mills should source cane directly from farmers and any intermediary organisations that do not serve farmer's interest should be removed from intermediation through legislative action.

Appropriate structures and mechanisms which promote adherence to contracts by the mills as well as farmers, and a suitable dispute settlement mechanism should be immediately introduced. Standard contract documents have to be developed and circulated among the farmer's organizations and the sugar mills by the State Governments.

Mills need to undertake comprehensive cane development programmes and substantially raise the awareness and skills of farmers. The extension mechanism to take farm technologies and practices should be strengthened by the government in partnership with research institutes and mills.

Consumers' interests

The consumers belonging to the poorer sections should be protected through a targeted public distribution system in which sugar may be supplied at reasonable rates. The sugar required for PDS could be procured from the market without resorting to levy and similar other mechanisms.

Sugar should be removed from the list of essential commodities along with the phasing out of levy and market release mechanisms. The weight of sugar in the wholesale price index be reduced to reflect the reality of consumption patterns.



Millers' interests

To break the vicious cycles in sugar and cane production and prices, it is necessary that the entrepreneurs should (1) be made free to produce sugar, ethanol or other products from out of their plant and (2) be allowed to set up standalone units producing only ethanol or other derivatives directly from sugarcane juice.

The mill sector should be completely free to expand and diversify so as to achieve maximum economies of scale and scope. The factories should be allowed to not only expand but also encouraged to diversify in to the different possible derivatives and products.

The states have to be persuaded to be reasonable in controlling the movement of molasses and also in taxing ethanol and its derivatives.

Ethanol should be given a strategic role in energy security of the country. Incentives for hybrid vehicles that could run on ethanol blends and increased levels of blending of ethanol are necessary.

The norms for power purchase by the power utilities should be codified and implemented uniformly across the country. SEBs should be mandated to purchase power to a specified extent from non-conventional sources. Easier norms and technical arrangements for purchase should be introduced in accordance with MNRE guidelines.

The levy and market release mechanism for sale of sugar may be completely done away with in a phased manner over a three year period.

The minimum distance between two sugar mills should be maintained at 25 KM with a provision for relaxation of the same for allowing new mills to enter when existing mills are not functioning well. Banks should be free to determine their terms and criteria for finance. Banks should be encouraged to allocate resources and design fast track appraisal procedures for meeting the emerging requirements of cogeneration, modernisation and expansion.

The mills should recognize the cyclical nature of the industry and ensure that they create adequate reserves during the "high-profit" years for utilization during the down turn of the sugar cycle for managing cane payments and working capital shortfalls.



Policy issues

The sector should be decontrolled, with the decontrol measures being calibrated for completion of the process over five years. The Government should promote appropriate measures to reduce the cyclicity in sugar and cane production and their prices, by offering full flexibility to sugar mills in manufacturing any product from cane.

The desired policy response for stabilization of cane and sugar production and their prices comprises offering full flexibility to sugar mills in manufacturing of any product from cane, support to investment in new capacities for direct production of alcohol, ethanol and derivatives from cane, permission for setting up stand alone ethanol units, creation of cogeneration capacities and dismantling the market release mechanism for sugar.

The Exim policy with respect to sugar should be stable and provide a reasonable assurance of continuity to all stakeholders for a given period of time; this would provide the confidence to entrepreneurs for making investments in export manufacturing.

The sugar development fund loans should continue in their present form and promote energy conservation, pollution control, R & D, alternate raw material development, cane development, extension and mill process improvements.

The research and academic institutes (such as VSI and NSI) should be run autonomously by boards constituted with representation from industry, farmers' organisations and the government (without interference from the Government in the working of these institutes is envisaged. The funding of these institutions should be done out of the SDF. The government should invite the industry to come forward and design the governance and funding of the institutes in a PPP mode.

A Technology Mission on Sugarcane, which should address the issues relating to the sector from a techno-economic knowledge base, is required to guide the initial phase of productivity improvement. The mission could be designed on the lines of the other successful technology missions, with participation from farmers and industry.

Government should set up a Sugar Regulatory Authority (SRA) through an act of Parliament and confer upon it suitable powers for market conduct regulation and growth of the sector.



2.4 A study titled "Fluctuations in the Area, Coverage and Production as well as Issues in Yield Improvement in the Sugarcane Sector in the Country"^{vii} in its March, 2011 provides the following useful information related to dynamic of sugar cane cultivation in the two major sugar producing states i.e. Maharashtra and U.P :

Executive Summary.....

- *Liberalization was the major dividing line in the Indian economy in post-independence India. Hence a study of the post liberalization period from 1990-91 to 2009-10, the latest year for which data were available was considered more relevant for policy purpose.*

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- *The Report of the High Powered Committee on Sugar Industry (April 1998-Chairman B.B. Mahajan) observed that (i) fluctuations in sugar and sugarcane production have a similar pattern but fluctuations in sugar are more violent than those in cane, (ii) fluctuations in production of sugarcane were largely associated with those in area under sugarcane, (iii) yield also follows a similar trend, (iv) the accumulation of arrears of cane payments during the previous year was one of the key factors in cycle formation.*

- *The March 2009 Report of the Group of Experts on sugar (Chairman Dr. Y.S.P. Thorat) refers to six to seven years cycle. It focuses on the role of sugar prices and sugarcane arrears in activating cycles.*

- *A study entitled "The Sugar Cycle: A Diagnosis by P.C. Joshi, published in 1973 in Sankhya : The Indian Journal of Statistics indicated a sugar cycle of 4 years. It showed that peaks and troughs of sugarcane production did not coincide with those of sugar production and that sugar production was more unstable than area under sugarcane. It recommended for a system of forward purchase of sugarcane by sugar factories as well as a suitable sugar buffer stock scheme.*

- *Most of the past econometric studies on response of agricultural supply to changes in output price in the Indian context revealed weak supply response for Indian crops, thereby indicating dominance of non-price factors in farmers' decision making.*

^{vii}"Fluctuations in the Area, Coverage and Production as well as Issues in Yield Improvement in the Sugarcane Sector in the Country", Institute for Resource Management and Economic Development, March, 2011.



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- Sugarcane is a long duration, highly perishable multipurpose crop whose production and marketed surplus converge. It is more profitable than other crops and is less susceptible to natural hazards such as flood, drought, cyclone etc. It has passed through cycles of growth and depression. This persistent instability continues to be a basic malaise of the Indian sugar economy.

- Sugarcane cultivation accounts for 3 percent of total cultivated area and contributes 7.5 percent of the gross value of agricultural production.

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- There has been a long practice of fixing the Statutory Minimum Price (SMP) for sugarcane and its derivative the levy price for sugar. The various State Governments also announce/notify much higher sugarcane prices payable by sugar factories on an ad hoc basis, purely on political consideration.

- Sugar industry is the second largest agro-based industry in the country. It ranks third largest industry in terms of its contribution to the net value added by manufacturing and employs nearly 3.25 lakh workers, besides creating extensive indirect employment for 45 million farmers of sugarcane, the various agencies of distributive trade and through subsidiary industries such as confectionary. It is also an important source of excise duty for the Central Government.

- The history of sugar industry in India began in 1903 when a sugar factory was set up in Bihar and Uttar Pradesh each. During the 1950' production of sugar was a little more than one million tonnes. This increased to nearly 4 million tonnes in 1970-71. It further rose to 27.8 million tonnes in 2007-08. But during the year 2008-09 it declined to a very low level of 18.4 million tonnes.

- In terms of number of mills, India ranks first followed by China and Brazil.

- Net sugar recovery depends on sucrose content of sugarcane which is around 10 percent in India as against 13 to 14 percent in Australia, Brazil and Thailand in the mid-1990s.

- Prior to independence, Uttar Pradesh (UP) was India's leading producer of both sugarcane as well as sugar. From the 1960s onwards and up to the early 1990s, the state started losing its pre-eminent position to Maharashtra. But in recent years, there has been a revival.

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- *Problems of sugar industry include low yield of sugarcane, short crushing season, unsatisfactory location of the industry in some parts of Uttar Pradesh, Maharashtra and Bihar, inadequate supply of cane, low milling efficiency of sugar factories, low recovery of sugar from sugarcane and instability of production and prices of sugar.*
 - *Sugar industry, which is a totally agro-based, is a highly controlled one with a number of sick factories in most sugar producing regions of the country. But the government has not followed a consistent long-term policy for sugar. It has varied between complete control, partial control and total decontrol.*
 - *For increasing the productivity of sugar industry, Government of India launched a Technology Mission Programme in 1994. Financial assistance for this is being made available from the Sugar Development Fund.*
 - *Sugar is traded internationally though to a very limited extent. Imports have outweighed exports. International trade in India has generally been highly regulated both in terms of authorisation as well as volume.*
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- *Sugarcane growers in Maharashtra regarded attractive price and assured irrigation as the more important reasons for raising sugarcane while those in Uttar Pradesh ranked assured sale followed by attractive price.*
 - *Farmers in surveyed villages (about two thirds) found sugarcane so profitable that they utilized most of their land holding for this crop. For many farmers, competing crops did not exist. Other crops grown during the period when farmers had to maintain a gap between two crops of sugarcane on the same land were to maintain productivity of land.*
 - *Sample farmers grew sugarcane on the same land but after leaving a gap of 3 - 5 months during which they grew wheat, vegetables; paddy, jawar, maize etc. which could be regarded as supplementary crops.*
 - *The sugarcane sowing months are different in different states e.g. July to November in Maharashtra with a concentration in September and October and March to May in Uttar Pradesh.*
 - *The survey data indicate that farmers are taking ratoons mostly for only one year.*



- In Maharashtra, 97.8% of households used high yielding varieties where as in Uttar Pradesh, this percentage was as small as 4.4%. In Uttar Pradesh, the use of rejected varieties was rather extensive as over a third (35.6%) of the respondents reported their use while in Maharashtra no farmer was found using such varieties.
- Nearly 100 percent of cane produced by sample farmers in Maharashtra and over 85 percent in Uttar Pradesh was sold to sugar factories.
- Only 40 percent of sample farmers in Maharashtra and 7 to 13 percent in Uttar Pradesh were reported to have received payment of cane price due to them from factories within the period of 14 days during the years 2005-06 to 2009-10. But when the payment period upto 30 days was considered, the position was found to be comfortable since above 80 percent of the total amount due to sample farmers in Maharashtra and above 70 percent in Uttar Pradesh were reported to have received payment upto this period during the same five years.
- There is a substantial difference in the factual position as reported by households and factories in Uttar Pradesh with respect to payment of cane price to farmers within 14 days. As per Uttar Pradesh farmers, during 2009-10, only 13% of the total due was paid by sugar factories within 14 days as against 94 percent Claimed by sugar factories.
- Important suggestions given by farmers of both states regarding cultivation of sugarcane include reliable power supply for extraction of ground water, and timely availability of good quality of cane varieties, fertilizers and pesticides at affordable prices. In Maharashtra, farmers would also like to get subsidy for drip irrigation facility.
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- In Maharashtra, a majority of farmers (63%) have indicated the existence of cyclic pattern in area under sugarcane. But-in Uttar Pradesh only 11% farmers were of this view while 47% rejected it.
- Acreage under sugarcane of sample farmers during 5 years from 2005-06 to 2009-10 shows that there are year to year variations in. acreage in Maharashtra but not in Uttar Pradesh.
- According to factories, there is a cycle in area and production of sugarcane as well as production of sugar.



- A 3 to 5 years duration of the cycle was indicated by the sample factories in, both the states.
- Fluctuations in sugar supply, as reported by sugar factories, is mainly due to fluctuations in production of sugar. But changes in stocks were also cited as a reason specially in Uttar Pradesh.
- According to both farmers and sugar factories, the two main reasons for fluctuations are government price policies and variations in weather condition.
- MSP of competing crops is not regarded by sample farmers as a factor influencing their decision on area to be sown under sugarcane.
- A novel suggestion of providing compensation of full cost of cultivation in case of crop failure through crop insurance has been made by 55 (22%) farmers in Uttar Pradesh and 7 (3%) farmers in Maharashtra ...
- According to factories in both Maharashtra and Uttar Pradesh, there should be a balance between the price of sugar and price of cane (But it can be a counter cyclical measure only if sugar prices are made stable by appropriate policies). Announcement of cane price in advance of sowing and based on prevailing sugar prices, is a right step in that direction.

State Specific Suggestions by Factories in Maharashtra.

1. Increase in sugar price should follow increase in cane price.
2. Long term policy for sugar industry should be announced.
3. Levy sugar should be lifted within a fortnight so as to reduce the interest burden of the factory.
4. Levy sugar price should be increased from time to time keeping overall market conditions into account.
5. Sugar price may also be increased so as to increase the cane price payable to farmers. This will help farmers to grow cane in more areas.
6. While it is not possible to eliminate risks on account of natural factors such as flood, drought, pest attack etc., their vulnerability should be minimized to the extent possible.



State Specific Suggestions by Factories in Uttar Pradesh.

1. *The cane area reservation must be on long term basis say for ten years or so, so as to ensure stability in cane area of the factories in order to sustain interest of the factory in cane development for improving productivity.*
2. *Parallel allotment of centers to different factories in the same village should be stopped.*
3. *Working of khandsari units in the reserved area of the sugar factories should be banned to improve availability of cane to the factories. There is a loss of 40% (approximately) sugar due to khandsari units.*
4. *New improved varieties of cane with high yield and higher sugar content must be found out and introduced in the sugar factory areas. Rejected varieties must be completely banned.*
5. *High sugar and high yielding varieties released by the Central Varietal Release Committee of the Government of India must be automatically incorporated in the list of approved varieties of the state.*

Statistical and Graphic Analysis

- *Extent of variations in sugarcane production in Maharashtra, Uttar Pradesh and India as a whole are caused more due to overall variations in area.*
- *Extent of variations in area, yield and production of sugarcane in Maharashtra are much more than those in Uttar Pradesh and All-India.*
- *In Maharashtra, variations in area are much more than those in yield.*
- *Amplitude of fluctuations in sugar production and sugar prices is much more than those in production of sugarcane.*
- *Fluctuations in sugar production are more in Maharashtra. But fluctuations in sugar prices are more in Uttar Pradesh, thereby throwing a spotlight on trading channels in this state.*
- *The year to year variations in All-India yield, which are generally quite moderate, take sudden jumps or falls in some years. These show the effect of exogenous shocks like weather and plant diseases and pest attacks.*



- *The annual swings in area, yield and production of sugarcane in Maharashtra are much more than those in Uttar Pradesh.*
- *Fluctuations in area, yield and production of sugarcane at All-India level have been minor (upto 5%) or moderate (upto 10%) during most of the 20 years under consideration. But fluctuations in production of sugar became serious (upto 20%) and very serious (up to 20%) in 11 years and those in sugar prices in 9 years. This indicates that priority action for dealing with cycles are needed more for sugar production and prices and that too specially at the state level.*
- *Time series data for the recent 20 years indicate a 4 to 5 years cycle for area, yield and production of sugarcane. Maharashtra presents a different scenario. Here the yield cycle is 4 years but the area and production cycle is 7 years.*
- *Divergence between area and yield, (for all India) is found in 10 years while convergence is found only in 9 years.*
- *Between area and production also, there are 7 years of divergence.*
- *There is a very high degree of convergence, (15 out of 19) between yield and production of cane.*
- *In the case of all India data, there are 7 years of divergence between production of sugarcane and sugar as against 12 years of convergence.*
- *With respect to all India data, there are only 9 years of divergence between production of sugar and sugar prices whereas the unexpected relationship i.e. convergence is for 10 years. It seems that changes in stockholdings by sugar factories and / or bulk sugar consumers might have a hand in disturbing the normally expected relationships between the two.*

2.5 In order to understand the sugar situation from global perspective a recent report of International Sugar Organization (ISO) was reviewed. The ISO is the largest intergovernmental body under auspices of United Nation for sugar. The relevant parts of the Report^{vii} titled Quarterly Market Outlook, November 2014, are reproduced below:

^{vii} "Quarterly Market Outlook, International Sugar Organization", November 2014.



As early as May 2013 the ISO suggested that the surplus phase of the world sugar might come to an end in 2014/15. After four years of statistical surplus, estimated at 1.405 mln tonnes in 2010/11, 5.991 mln tonnes in 2011/12, 9.678 mln tonnes in 2012/13 and 3.626 mln tonnes in 2013/14, world production and consumption are now fairly balanced. In August the ISO expected a relatively small global surplus (the differential between world production and consumption), not exceeding 1.3 mln tonnes. The first revision of the world sugar balance for the period from October 2014 to September 2015 has reduced the global statistical surplus to 473 thousand tonnes only (see Fig. A1). It mainly reflects a considerable downgrading of our production projection for Brazil, which is compensated only partly by improved prospects for sugar output in the EU. In contrast to the previous season, when global production fell by an estimated 2.766 mln tonnes, in 2014/15 world sugar output is expected to remain flat at 182.897 mln tonnes, raw sugar value, as against 182.557 mln tonnes estimated for 2013/14. World consumption is projected to grow by 1.95%, in line with the 5-year average of 1.94%, to 182.424 mln tonnes.

Both export availability and import demand are expected to show a year-on-year decrease in 2014/15. Exports are anticipated to decline to 56.647 mln tonnes as against 57.916 mln tonnes estimated for the previous season. Imports are expected to fall to 55.937 mln tonnes as against 57.916 mln tonnes estimated for 2013/14. As can be expected for a balanced year, neither a trade surplus nor a trade deficit have been identified.

Practically equal global production and consumption are not expected to provide relief to the huge stocks accumulated over the past four seasons. The ending stocks/consumption ratio is still high (about 42%). In the past..... there has been a strong negative correlation between changes in the global stocks/consumption ratio and world prices (-0.79 for the period from 1997/98 to 2012/13). In other words, before a substantial reduction in the level of global surplus stocks, any significant price recovery once the world sugar economy enters a deficit phase may be delayed. Nevertheless, the final arrival of the balanced season clearly indicates a better likelihood of more constructive fundamentals for sugar values in the longer term.
