

Technical Guide on Internal Audit of Sugar Industry



The Institute of Chartered Accountants of India
(Set up by an Act of Parliament)
New Delhi

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FOREWORD

India has been known as the original home of sugar and sugarcane. It is the world's second largest sugar producer and consumer. The Indian sugar industry is a key driver of rural development, supporting India's economic growth. The industry is inherently inclusive supporting over millions of farmers and their families, along with workers and entrepreneurs of hundreds of mills, apart from a host of wholesalers and distributors spread across the country.

By products, productivity improvements combined with price risk management tools and international trade Indian sugar industry can aim to improve profitability and reduce cyclicalities. A strong, skilful and independent internal audit function is fundamental to achieve these objectives. Internal audit adds value to the overall organizational performance by providing quality assurance that result in improved operational efficiencies, strengthened internal controls and improve effectiveness of risk management, control and governance processes.

I am happy to note that Internal Audit Standards Board of the Institute is issuing this "Technical Guide on Internal Audit of Sugar Industry" that primarily deals with the operational as well as internal audit aspects relevant to Indian sugar industry.

At this juncture, I congratulate CA. Rajkumar S. Adukia, Chairman, Internal Audit Standards Board and other members of the Board for bringing out publication on such an important topic of national relevance.

I am sure that this Technical Guide, like other publications of the Board, would be warmly received and appreciated by the members and other interested readers.

April 22, 2010
New Delhi

CA. Amarjit Chopra
President, ICAI

PREFACE

Sugar industry is of significant importance to the Indian economy. While consumption has been growing historically, the production has been cyclical. At present, the sugar industry is regulated across the value chain. The key stakeholders of sugar industry, i.e., farmers, millers, consumers and the government have shared goals of achieving high economic growth, minimizing risks, enhancing farmer miller relationships, meeting growing domestic demand and contributing to the nation's food and energy needs.

Factors, such as, cyclicity in the business, cane procurement, manufacturing and sales processes, dependency on the monsoon differentiate the sugar industry from any other industry. Internal audit can go a long way in helping sugar industry in improving their operating efficiency, increasing value for money and finally, their competitiveness, both in the domestic as well as in international markets. Given the changing dynamics of the business landscape as well as emerging technology tools to augment internal audit activities, internal auditors must commit themselves to ongoing education and skill development.

Through this Technical Guide, an attempt has been made by the Internal Audit Standards Board to help the readers to understand the basic operations undertaken in sugar industry and the detailed procedures to be undertaken by the internal auditor in respect of various areas. The Guide has been divided into seven chapters. Chapter 1 is introductory in nature and describes objective and scope of the Technical Guide. Chapter 2 provides the overview of the sugar industry in India. Chapter 3 discusses the major legislations governing the sugar industry. Chapter 4 explains the various processes involved in sugar industry, such as, sugarcane development and procurement, manufacturing of sugar, and sales and marketing of sugar. Chapter 5 deals with the overall approach of internal audit with reference to Standards on Internal Audit, and the procedures to be undertaken by the internal auditor with regard to peculiar aspects related to sugar industry. Chapter 6 provides guidance regarding internal audit of key processes such as, cane survey, procurement process, manufacturing process, sales and marketing process of sugar and also of distillery products. Chapter 7 deals with important internal control aspects related to sugar industry. The Guide also includes the glossary of terms for explaining the technical terms peculiar to the sugar industry.

At this juncture, I am grateful to CA. Amit Gupta and Shri Anurag Agarwal for squeezing time out of their pressing preoccupations to share their wealth of knowledge and experience with us and preparing the basic draft of the Guide.

I also wish to thank CA. Amarjit Chopra, President and CA. G. Ramaswamy, Vice President for their continuous support and encouragement to the initiatives of the Board. I must also thank my colleagues from the Council at the Internal Audit Standards Board, viz., CA. Naveen N.D. Gupta, CA. Nilesh S. Vikamsey, CA. Atul C. Bheda, CA. K. Raghu, CA. J. Venkateswarlu, CA. Abhijit Bandyopadhyay, CA. Ravindra Holani, CA. Charanjot Singh Nanda, Shri K.P. Sasidharan, Shri Prithvi Haldea and Shri Sidharth Birla for their vision and support. I also wish to place on record my gratitude for the coopted members on the Board, viz., CA. Sushil Gupta, CA. Smita Satish Gune, CA. Nagesh Dinkar Pinge, CA. Sumant Chadha and CA. Deepak Wadhawan as also special invitees on the Board, viz., CA. Sanjay Kumar Agarwal, CA. Vinod Jain, CA. Anuj Goyal, CA. Pankaj Tyagee, CA. K.S. Sundara Raman and CA. Ravi H. Iyer for their devotion in terms of time as well as views and opinions to the cause of the professional development. I also appreciate efforts put in by CA. Jyoti Singh, Secretary, Internal Audit Standards Board and her team of officers, viz., CA. Arti Aggarwal and CA. Gurpreet Singh, Senior Executive Officers, for their inputs in giving final shape to the publication.

I am confident that this well researched publication would provide a ready reference tool for the members and other interested readers while undertaking the assignment of internal audit of sugar industry.

April 27, 2010
Mumbai

CA. Rajkumar S. Adukia
Chairman
Internal Audit Standards Board

GLOSSARY

Ash	<p>The following two types of ash are commonly referred to in sugar production.</p> <ul style="list-style-type: none">• Carbonated Ash - This is ash residue which remains after burning at 650 degrees Celsius.• Sulphated Ash - This is ash residue from a sample treated with sulphuric acid which remains after burning at 650 degrees Celsius.
Attenuation Index	<p>This is part of the ICUMSA sugar rating process, and refers to how much light absorbance a solution has. It is tested at a specific wavelength and expressed in terms of that wavelength.</p>
Bagacillo	<p>Little bagasse particles removed from pre-clarification juices or final bagasse.</p>
Bagasse	<p>The residue left behind sugar cane crushing is referred to as bagasse. There are various types of bagasse obtained after various stages in the milling, diffusing and dewatering stages of sugar production. Bagasse obtained after the first mill is called first mill bagasse and depending on how many milling stages the sugar cane goes through, there may be second mill bagasse, third mill bagasse, etc. Post diffusion stage, the bagasse is known as diffuser bagasse and the very last type of bagasse made after the dewatering stage is known just as bagasse, or some people may refer to it as final bagasse.</p>

Bagasse Extract	Bagasse is a liquid fraction which is decanted from the bagasse after it has been blended with water in the cold digester.
Boiling House	Where juices are taken after carbonization or phosphorization to be boiled down.
Boiling House Recovery	A percentage ratio describing how much pol is recovered in the form of sugar from the mixed juice.
Brix	This refers to measurement of the ratio of the mass of dissolved sugar to the mass of water in an aqueous solution.
Brix-Free Water	Brix-Free water is water that is present in cane and bagasse, but which is not available for the dissolving of sucrose in the cane. It is estimated that in dry cane fiber, there is approximately 25% brix-free water. This water is, generally, removed by heating the fiber and evaporating it away.
Bulk Density	It is simply a measurement of how dense a material is.
Cane to Sugar Ratio	A measurement which describes how many tons of cane are required to produce one ton of sugar.
Cold Digester	A piece of equipment which disintegrates cane or bagasse in water to create a homogenous solution. It is used for analytical procedures.
Crystal Content	A measurement describing the mass of crystalline sugar present in a liquid.

Cush-Cush	This is the material that is removed from the mill juice when it is strained.
DAC Extract	It is the liquid fraction that is decanted from the cane once it has been blended with water in the cold digester.
DAC Factors	<p>There are following two types of DAC factors:</p> <ul style="list-style-type: none"> • Brix Factor - This is the percentage ratio of the total brix in the mixed juice and the final bagasse to the total brix in the cane. • Pol Factor - The percentage ratio of total pol in the mixed juice, and the final bagasse to the total pol in the cane.
Dextran	A form of glucose created by microbial activity. This is, generally, destroyed during the carbonisation process.
Dry Substance	It describes the material which is left after a substance has been dried in a consistent fashion.
Escribed Volume	This is a measurement of how much material can be described by a pair of mill rolls in a specified length of time. It is, generally, described in meters per second.
Extraction	A measurement of the percentage ratio of sucrose in mixed juice compared to sucrose in sugar cane.
Fiber	It is the solid part of the sugar cane which cannot be dissolved. It is also known as natural fiber.

Filter Cake	It is the material which is removed via filtration during the sugar refining process.
Gums	Polysaccharide precipitate which can be made by treating sugar liquor with acidified ethyl alcohol.
Imbibition	This is a process in which water (or in some cases sugar juice) is put on bagasse to dilute the juice in the bagasse.
Insoluble Solids	The material present in the mixed sugar juice which does not dissolve and must be removed by sedimentation and/or filtration. In many cases this material will collect at the bottom of the subsidiers and can be removed.
Intermixed Cane	This term arises from the method of carrying sugarcane, which is to place many differing consignments on one carrier. Cane from various consignments mixes together to make a blend of cane that possesses properties that are not representative of any one of the consignments.
Invert Sugar	When sucrose is hydrolyzed then invert sugar is produced. This is a sugar mixture which is half glucose and half fructose.
Java Ratio	Java ratio is the percentage ratio of the percentage of pol in cane to the percentage of pol in the first juice.
Juice	<ul style="list-style-type: none"> • Absolute Juice - This juice only exists hypothetically and is the mass of sugar cane minus the mass of fiber. It

is not possible to ever completely extract all the sugar and liquid present in the cane.

- Clarified Juice - It is the juice which has been clarified.
- Diffuser Juice - It is the juice removed from sugar cane or bagasse diffusers.
- First Expressed Juice - The first juice which is extracted by the first two rollers.
- First Mill Juice - The first juice extracted from the first mill.
- Last Expressed Juice - The last juice extracted by the last rollers.
- Last Mill Juice - The last juice extracted from the last mill.
- Mixed Juice - The juice that is pumped to the juice scales from the extraction plant.
- Press Water - The liquid removed when diffuser bagasse is dewatered.
- Primary Juice - The combined juices prior to treatment.
- Residual Juice - The juice present in bagasse apart from the juice in first bagasse.
- Secondary Juice - It is the diluted juice which is mixed with primary juice to make mixed juice.

- Undiluted Juice - All the juice in the cane. Once again, this is fairly hypothetical as it is not possible to remove all juice in a useful fashion.

Magma	The mixture of sugar crystals and warm sugar liquor which is created in the first stage of the refining process.
Massecurites	Crystals and mother liquor which are removed from a vacuum pan as a liquid mixture. There are various grades of Massecurites determined by their purity.
Milling Loss	A measurement describing the percentage ratio of pol (sucrose content) in bagasse compared to fiber in bagasse.
Molasses	A thick, dark, sweet, highly viscous substance separated from sugar at the beginning of the refining process.
Mud or Press Mud	This term refers to the sludge type material that is cleaned from the lower regions of the subsidiers. This is made up of liquid and insoluble substances.
Non-Pol	A term used to describe the brix minus any pol (sugar content).
Non-Pol Ratio	This describes the amount of non-pol in sugar, the non pol in final molasses, and the non-pol in mixed juice.
Non-Sucrose	A term which describes the portion of the dry substance which is not sucrose.
Normal Mass	The normal mass of sucrose should be 26,000g. This is determined by calculating the mass of dry sucrose which when dissolved in 100 cubic centimeters of

water at 20 degrees Celsius, and then read in a tub 200mm long, reads 100 degrees on the saccharimeter scale.

Nutch Sample	A sample of molasses removed prior to the curing of the massecuite.
Overall Recovery	A measurement which describes how much pol is recovered in sugar compared to the sucrose in sugar cane.
Pol	The sucrose content when expressed as a percentage. Most refined sugar has a very high pol, generally between 99% – 100%. This measurement is called “pol” because it is determined by the polarization method.
Polysaccharides	A complex carbohydrate molecule where many saccharide molecules are bonded together.
Preparation Index	This is the percentage ratio of brix in ruptured cells as compared to the total amount of brix in the cane.
Purity	This is the ratio of pol to brix. This term, essentially, describes the quantity of pure sucrose present in a sugar sample.
Reducing Sugars	These are sugars used in the reduction of Fehlings solution.
Reducing Sugar/Ash Ratio	This describes the ratio of reducing sugar compared to sulphated ash.
Reducing Sugar/Pol Ratio	This describes the ratio of reducing sugar to pol.
Safety Factor	This is a value which describes the “keeping quality” of fresh raw sugar which has a pol of less than 99%.

Saturated Solution	A saturated solution is one in which no more sugar crystals can dissolve or can be crystallized.
Solubility	The ability of a substance (referred to as a solute in many cases) to dissolve in a solution.
Solubility Coefficient of Sucrose	A measurement which describes the solubility of sucrose in a sample solution when compared to the solubility of sucrose in pure water under the same temperature conditions.
Sucrose	The form of sugar that is refined from sugarcane and sugar beet.
Sugar	The common term which is most often used to describe sucrose.
Sugarcane	A tall, fibrous plant which naturally contains high levels of sucrose, and some glucose and fructose (though these are removed in the refining process). Sugarcane is scientifically classified as being a grass and is a member of the genus <i>Saccharum</i> .
Supersaturation Coefficient of Sucrose	This is the ratio which compares the quantity of sucrose present in a sample with the potential solubility of sucrose in the sample under constant conditions.
Syrup	In sugar production, this term refers to concentrated juice which has a brix between 60 and 70 percentage.
Wash	This is a term which can be used to describe the liquor which is removed after washing, and the liquor removed from magma.

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CHAPTER 1

Introduction

Objective

- 1.1 India is the second largest producer of sugar in the world and there are around 637 sugar factories (as on 31.12.2009) operating in India. Indian sugar industry comprises of mix of private and co-operative units and is highly regulated by Central and State government bodies. Most of the private players are listed on stock exchanges and, hence, it becomes important for them to have strong internal audit function so as to strengthen overall governance/ controllership mechanism.
- 1.2 There are several aspects which differentiates Sugar Industry from any other normal manufacturing industry. Some of the peculiar aspects are as follows:
- Cyclicity in the business
 - Sugarcane procurement and governing regulations
 - Manufacturing process
 - Sales pattern (mostly unorganised despite huge consumption)

Considering these peculiar aspects, it is important that any internal auditor conducting internal audit of a sugar industry should clearly understand the details of these processes so as to be able to conduct effective internal audit.

Scope

- 1.3 This Technical Guide covers the detailed view and risks associated with key processes of sugar industry so that internal auditors can develop the understanding of the processes and, accordingly, plan audits in sugar industry. The processes explained here are generic and one may come across several variations in different organisations. This publication should be used only as guidance and internal auditors should not restrict themselves to information provided here.

Overview of Indian Sugar Industry

- 2.1 In India, sugar is mainly produced from sugarcane, believed to have been discovered thousands of years ago in New Guinea. From there it spread to South-east Asia and India. Gradually, the process for pressing the sugarcane to extract juice and boiling it to obtain sugar came into existence.
- 2.2 In the year 1950-51, the Government of India made serious efforts for industrial production of sugar. The Government projected the license and installment capacity for the sugar industry in its Five Year Plans. Sugar and Sugarcane became essential commodities under the Essential Commodities Act, 1955. The Government has since then been following a policy of partial control and dual pricing for sugar. Under this policy, a certain percentage of sugar produced by sugar factories is requisitioned by the Government as compulsory levy at a price fixed by the Government in every sugar season for distribution in the Public Distribution System (PDS). The non-levy (free sale) sugar is allowed to be sold as per the quantity released by the Government under the free sale sugar release mechanism.
- 2.3 The Government took steps to decontrol the sugar industry in phase-wise manner by reducing levy quota from 40% prior to 2000 to currently 10% limit. To safeguard the interest of sugarcane growers, Essential Commodities Act, 1955, was amended in June, 2003. As per this amended Act, no producer, importer or exporter of sugar was empowered to sell or otherwise dispose of or deliver any kind of sugar except under and in accordance with the direction issued by the Government.
- 2.4 Sugar was approved for futures trading in May, 2001. Currently, three national exchanges, viz., National Commodity and Derivatives Exchange Ltd. (NCDEX), Mumbai, Multi Commodity Exchange Ltd., (MCX), Mumbai, National Multi Commodity Exchange (NMCE), Ahmedabad and E sugar India Ltd., Mumbai and E-Commodities Ltd., Delhi have been given recognition for futures trading in sugar. Except, E-Commodities Ltd., Delhi, futures trading in sugar is taking place in all other exchanges.

Types of Sugar

- 2.5 Majority of the commercially manufactured sugar is white granulated sugar, which is then classified as extra coarse, coarse, standard, fine, or extra fine granulated. Other types of sugar, such as brown sugar, are produced with a slight variance from that of white sugar. Brown sugar is made by retaining much of the molasses during processing.

Candy sugar, used mainly by the brewing industry, consists of very large white crystals of sugar. Liquid sugar is made chiefly from cane sugar, while cubed sugar is processed by moulding granular sugar with a sugary liquid to help cement the crystals together.

Sugarcane Pricing

- 2.6 The Central Government fixes the Statutory Minimum Price (SMP) of sugarcane in terms of Clause 3 of the Sugarcane (Control) Order, 1966, for each sugar season. The SMP is fixed on the basis of the recommendations of the Commission for Agricultural Costs and Prices (CACP) and after consulting the State Governments and associations of sugar industry and cane growers. The SMP is fixed having regard to the following factors:
- (a) Cost of production of sugarcane;
 - (b) Return to the growers from alternative crops and the general trend of prices of agricultural commodities;
 - (c) Availability of sugar to consumers at a fair price;
 - (d) Price at which sugar produced from sugarcane is sold by sugar producers; and
 - (e) Recovery of sugar from sugarcane.
- 2.7 A Supreme Court ruling in May 2004, upheld the right of State Governments having a specific legislation for this purpose, to fix sugarcane prices over and above the SMP declared by the Centre. The Supreme Court ruling was in response to a Special petition filed by Government of UP challenging an interim order of Allahabad High Court delivered in December, 1996, which stated that State Governments were not legally permitted to fix cane prices paid by the mills to the farmers. This order gave legitimacy to State Advisory Price (SAP) announced by UP Government.

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- 2.8 In October, 2009, the Centre amended the Essential Commodities Act, 1955, through an Ordinance providing for fixing the levy price of sugar on a 'fair and remunerative price' to be announced by the Centre. The move raised serious concerns in the sugar industry which supplies one-fifth of its sugar production at a levy price, markedly lower than the open market price to support the public distribution system. In 2009-2010, sugar industry is set to supply 20 per cent of its production at a levy price of about Rs 13.50 a kg, fixed in 2003-04, against an open market price of about Rs 45 a kg in January, 2010. This represents a loss of revenue potential of a few thousand crore rupees to the sugar mill owners/shareholders.

Fair Price

- 2.9 The Ordinance came into effect from October 21, 2009, and makes the amendments effective from October 1, 1974. As per this amendment, levy price of sugar would be computed based on a 'fair and remunerative price' for sugarcane that would be fixed by the Centre. The objective is to put in place a uniform norm to determine the levy price of sugar and ensure that when the State Governments hike the price of sugarcane, they bear the additional cost of levy on sugar as a result of the higher sugarcane price. The Ordinance takes effect from 1974 when the levy pricing of sugar has been a subject of controversy resulting in legal proceedings.
- 2.10 Till now, the Centre announced a statutory minimum price (SMP) for sugarcane to which the State Governments added an additional component of State Advised Price (SAP) to augment farmers' income. The levy price for sugar took into account the SAP to compute the of same, apart from the impact of provisions in the Sugarcane Control Order, 1966, which provides for an additional cane price at the end of the sugar season.

The Ordinance amends the Essential Commodities Act, 1955, that the levy price of sugar is based on the fair and remunerative price fixed for sugarcane by the Centre, manufacturing cost of sugar, duty or taxes paid, and securing reasonable returns on the capital employed in producing sugar. The levy price will not take into account the SAP or the additional price of sugarcane as provided under the Sugarcane Control Order, 1966.

Structure of Sugar Industry

- 2.11 The sugar industry in India is mainly divided into organised and unorganised sector. Sugar factories belong to the organized sector and those who produce traditional sweeteners (Gur and khandsari) fall into unorganized sector. Sugar factories can be further classified into co-operative, private and public sectors. There are around 637 sugar factories (as on 31.12.2009) operating in India with a collective sugarcane crushing capacity of about 21.39 million tonnes per day. These factories are spread majorly in sugarcane growing states, viz., Uttar Pradesh, Maharashtra, Gujarat, Tamil Nadu, Karnataka and Andhra Pradesh. Uttar Pradesh alone accounts for 32% of the overall sugar production in the nation and Maharashtra's contribution is 28%.
- 2.12 The most peculiar aspect of sugar industry is its being seasonal in nature and cyclical variations as demonstrated below:

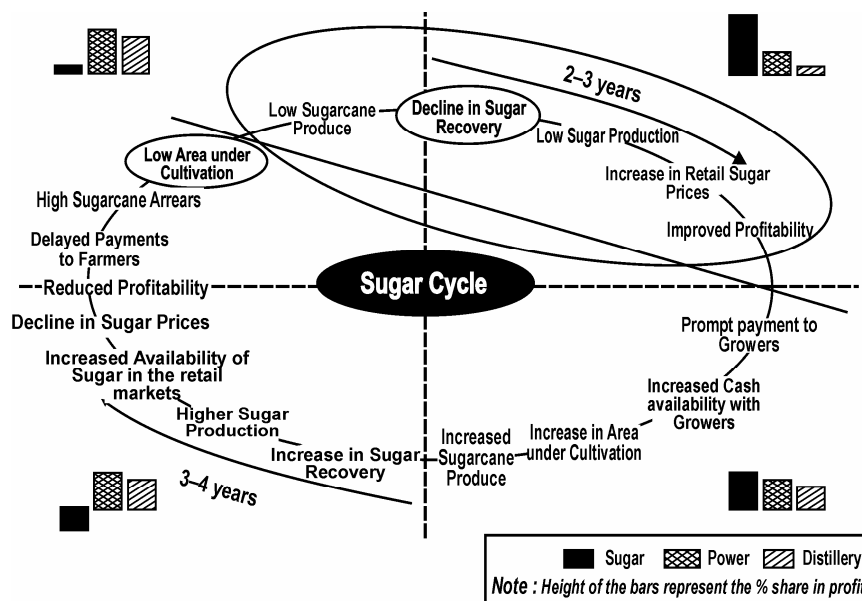


Figure 1: Sugar Cycle

- 2.13 Due to this, the sugar industry goes through a period of loss (when excess sugarcane is produced) and profit (when there is shortage of sugarcane). The cycle time normally ranges from 4 to 5 years. To reduce the effect of this cycle, now-a-days most of the new units are set-up with a cogeneration of power and distillery unit, so that they

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can be profitable even when sugar unit is making loss. The integrated aspect of sugar industry is depicted below:

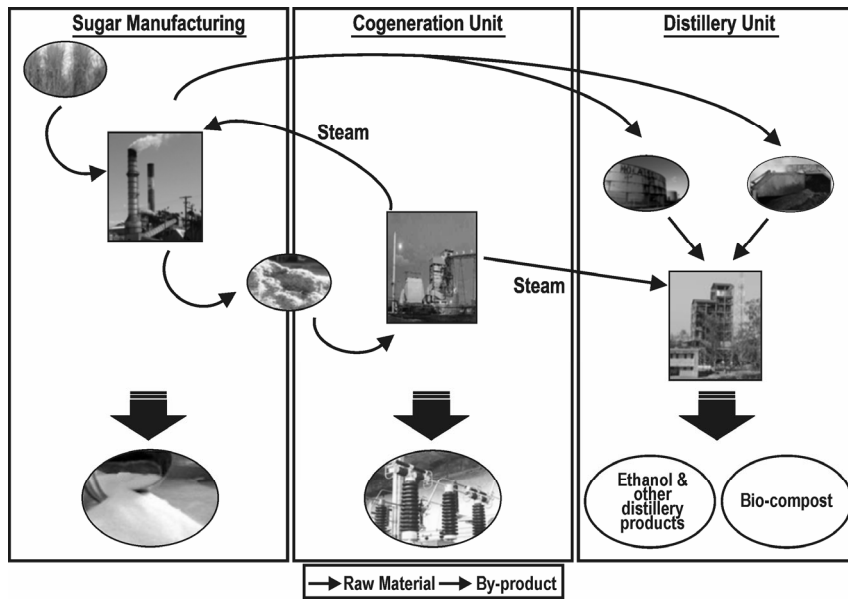


Figure 2: Overview of Integrated Sugar Industry

Major Legislations

- 3.1 The major legislation and policies concerning the sugar industry in India are as follows:
- (i) The Essential Commodities Act, 1955
 - (ii) Sugar Control Order, 1966
 - (iii) Sugarcane Control Act, 1966
 - (iv) Levy Sugar Supply (Control) Order, 1979
 - (v) Sugar (Packing and Marking) Order, 1970
 - (vi) Sugar Export Promotion Act, 1958
 - (vii) Sugar Cess Act, 1982
 - (viii) Sugar Development Fund Act, 1982 and 2002
 - (ix) Levy Sugar Price Equalization Fund Act, 1976
 - (x) Molasses Control Order, 1961 and Decontrol, 1993
 - (xi) Excise and Custom Rules
 - (xii) State Sugar Policies
 - (xiii) Power Purchase Agreements
 - (xiv) Environment Norms by State Pollution Control Boards.

The Essential Commodities Act, 1955

- 3.2 This Act provides, in the interest of the general public, for the control of the production, supply and distribution of, and trade and commerce, in certain commodities. Sugar being an essential commodity is subject to the regulations under this Act. The Central Government may by order provide for regulating or prohibiting the production, supply and distribution thereof and trade and commerce therein for essential commodities, if it is of the opinion that it is necessary or expedient so to do for:

- Maintaining or increasing the supply of essential commodity;
- Securing their equitable distribution and availability at fair prices; and

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- Securing any essential commodity for the defence of India or the efficient conduct of military operations.

3.3 Violation to this Act allows for following:

- Seizure/Confiscation of commodity by district collector (Section 6)
- Penalties for contravention of the provisions of any order made under Section 3 (Section 7)
- Power to recover certain amounts as arrears of land revenue (Section 7A)
- Make every offence punishable under this Act as cognizable and non-bailable (Section 10)

In February 2002, the Government removed the restriction on storage and movement of sugar and licensing requirement. Further in 2003, Government amended the Act by inserting clause 3(D) and 3(E) for validating the regulated release mechanism. The new amendment empowers Government to issue directions to implement the regulated release mechanism policy of the Government effectively.

3.4 On October 21, 2009, an Ordinance was promulgated to amend the Essential Commodities Act, 1955. This Ordinance had following two provisions:

- (a) It added an Explanation to Section 3 of the Principal Act, stating that the Central Government, while procuring levy sugar, would not pay any price in excess of that calculated on the basis of the Minimum Price (SMP) for sugarcane set by the Central Government. This Explanation comes into effect from 1974. The Supreme Court has ruled that the price of levy sugar should include the additional price as indicated in Section 5A of the Sugarcane Control Order, 1966 (known as the Bhargava formula) and the State Advisory Price (SAP) set by State Governments. This amendment negated the judgment.
- (b) The Ordinance also amended the price to be paid to sugar producers by the Central Government for procuring levy sugar. It specified that the price of sugar will be based on the "Fair and Remunerative Price (FRP)" fixed for sugarcane, and will include the manufacturing cost, duties, taxes and reasonable rate of return. Earlier the price was based on the Minimum Price (SMP) for sugarcane, and included the other costs and return. The FRP will be announced by the Central Government, similar to the

earlier system of SMP. The Ordinance clarified that the Central Government would not pay any price in excess of that based on FRP for sugarcane.

Sugar Control Order, 1966

3.5 Sugar Control Order empowered the Central Government or State Government or any officer or authority of a State Government with the following powers:

- **Power to regulate production of sugar:** The Central Government may, by order published in the official Gazette, direct that no sugar shall be manufactured from sugarcane except and in accordance with the conditions specified in a license issued in this behalf, whether on payment of a fee or otherwise. Clause 3 deals with the power to regulate production of sugar through the grant of license (though the sugar industry has since been deleted from the list of industries requiring compulsory licensing under the provisions of the Industries (Development and Regulation) Act, 1951). A minimum distance of 15 km would continue to be observed between an existing sugar mill and a new mill. The entrepreneurs would be required to file an Industrial Entrepreneur Memoranda (IEM) with the Secretariat of Industrial Assistance in the Ministry of Industry.
- **Power to restrict sale, etc. of sugar by producer**
- **Power to issue direction to producers and dealers**
- **Sugar attached by government officers, etc., not to be sold without directions**
- **Power to regulate movement of sugar**
- **Power to regulate quality of sugar:** The Central Government may prescribe the quality of sugar in terms of Indian Sugar Standard Grades to which all or kind of sugar should conform at the time of delivery in pursuance of the direction issued to a producer under clause (f) of sub-section (2) of section (3) of the Essential Commodities Act, 1955 or clause (5) of this order.
- **Power to call for information, etc:** The Central Government or any person authorized in this behalf by the Central Government may with a view of securing compliance with this order, or to satisfy itself that any order or direction issued under this order is complied with.

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- **Power to inspection, entry, search, sampling, seizure, etc.**
- This Act was amended in 1999, to bring both sugar imports and importers under the purview of this order. Further restrictions related to stock holdings and other formalities have been removed with effect from July, 2000. The Government has also abolished the turnover limits of 30 days applicable to recognize the dealers with effect from August, 2001.

Sugarcane Control Act, 1966

3.6 Sugarcane (Control) Order, 1966 provides for:

- **Price (SMP) for sugarcane purchased by sugar mills during each sugar season (Clause 3):** Clause 3(1) and 3(2) deal with fixation of the Statutory Minimum Price having regard to following six criteria:
 - Cost of production of sugarcane;
 - Return to grower from alternative crops and the general trend of prices of agricultural commodities;
 - Availability of sugar to the consumer at a fair price;
 - Price at which sugar produced from sugarcane is sold by the producer of sugar;
 - Recovery of sugar from sugarcane; and
 - Realization from by-products such as molasses, bagasse, etc.
- Payment of interest at 15% per annum on amounts due beyond 14 days of delivery of sugarcane at factory gate (Clause 3(3A)).
- Clause 3(7) deals with deposits to be made with the District Collector, within three months of close of a sugar year, amounts of cane price unpaid or lying unclaimed with the factory on the last day of the sugar year.
- **Payment of additional cane price to the growers (Clause 5A):** Clause 5-A provides for payment of additional cane price in accordance with the formula contained in the Second Schedule to the Sugarcane (Control) Order, 1966. This formula (generally referred to as 'the Bhargava Formula') is meant to enable the farmer to get a remunerative price for the cane supplied after 1-10-1974, by sharing the profits arising out of excess realization with the producer sugar factory.

Major Legislations

- **Regulation of distribution and movement of sugarcane (Clause 6):** Clause 6 deals with the power of Government to regulate distribution and movement of sugarcane such as, fixation of 'reserved area' for a sugar factory, grower, directing the cane supplier and sugar factory to enter into an agreement, prohibiting or restricting the export of sugarcane from any area without a permit, etc.
 - **Licensing of power crushers and khandsari units and regulation.**
 - **Issue of directions to producers of khandsari sugar (Clause 8).**
 - **Power to call for information, etc. from producers (Clause 9).**
 - **Power to entry, search and seizure (Clause 9A).**
 - **Delegation of powers conferred by the Sugar (Control) Order, 1966 to any officer or authority of the Central or State Government.**
- 3.7 In October, 2009 the Central Government issued an Order to amend the Sugarcane Control Order, 1966. The Amendment Order replaced the "minimum price" by "fair and remunerative price". It included a seventh factor "(g) reasonable margin to the growers of sugarcane on account of risk and profits". It added Clause 3B which required that the state governments should bear the incremental cost if it fixes SAP higher than FRP. It also deleted Clause 5A and the Second Schedule; sugar mills shall not pay an additional price based on the Bhargava formula.
- 3.8 The key implications from this amendment can be summarised as follows:
- (i) The Central Government shall pay a price for levy sugar based solely on the FRP that it sets for sugarcane. It will not take into account any higher price paid or payable for sugarcane by sugar mills.
 - (ii) The FRP will include a reasonable margin to the sugarcane grower for risk and profit.
 - (iii) If a State Government fixes a price for sugarcane (such as SAP) which is higher than FRP, it will have to pay the difference between SAP and FRP to the sugarcane grower.

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- (iv) The sugar mills will not share its excess profits with the sugarcane growers, as mandated by the Bhargava Formula.

Later Government agreed to drop Clause 3B vide Sugarcane Control Amendment Order, 2010, which implied sugar mills will pay higher of FRP or SAP. However, other things remained status quo.

Levy Sugar Supply (Control) Order, 1979

- 3.9 Levy Sugar Supply (Control) Order, 1979, provides for powers to issue direction to producer or dealer for supply of levy sugar requisitioned by the Central Government through an order made with reference to Section 3(2) (f) of the E.C. Act, 1955. Month-to-month release orders for delivery of levy sugar are issued in exercise of the powers conferred by this Order.

Sugar (Packing and Marking) Order, 1970

- 3.10 Sugar (Packing and Marking) Order, 1970 provides markings to be indicated on sugar bags. Unless otherwise permitted by Central Government, sugar is required to be packed in A-twill jute bags conforming to Indian Standard Specifications. Sugar meant for the purpose of export and small consumer packs of 5 kg and less have been exempted from the compulsory use of jute bags.

Sugar Export Promotion Act, 1958

- 3.11 The Sugar Export Promotion Act, 1958, which casts an obligation on all sugar mills in the country to export, has been repealed by an Ordinance which, however, has not been subsequently converted into an Act within the stipulated time. With the de-canalization of exports, it is no longer mandatory for all manufacturers of sugar to export. Export can be made voluntarily. However, resorting to export of sugar, would not exempt any sugar mill either from its obligation to supply levy sugar which is requisitioned by the Government in terms of Section 3(2) (f) of the EC Act, 1955, or to effect sale of sugar in open market in compliance of the month to month release orders issued by the Government.

Sugar Cess Act, 1982

- 3.12 The Sugar Cess Act, 1982 was enacted to provide for the imposition of a cess on sugar for the development of sugar industry and for matters connected therewith. The Act empowers the Central Government to levy the cess, by way of a duty of excise, on sugar

which will help to generate funds for supplementing financial assistance for rehabilitation and modernization of sugar factories and for development of sugarcane and research activities connected therewith. The Sugar Cess Rules, 1982 (which were made under the Act) provide for the manner of accounting reports and returns to be furnished by sugar factories, maintenance of accounts, etc. An amount equivalent to the proceeds of the duty of excise levied and collected under the Act, reduced by the cost of collection as determined by the Central Government shall be credited to the Sugar Development Fund formed under Section 3 of the Sugar Development Act, 1982.

Sugar Development Act, 1982 and 2002

- 3.13 The object of the Sugar Development Fund, 1982 (briefly the SDF Act) is the formation of the Sugar Development Fund to be applied for the purpose of rendering financial assistance through loans at concessional rates for rehabilitation and modernization of sugar factories as well as for sugarcane development, and for encouraging research aimed at development of sugar industry by making grant. The Fund shall also be applied for defraying expenditure for the purpose of building up and maintenance of buffer stock of sugar with a view to stabilize price of sugar.
- 3.14 In May 2002, the SDF Act was enabled to provide concessional loans to sugar mills for the establishment of ethanol plants and power cogeneration units, to defray the expenditure on internal transport and freight charges on export shipments of sugar. In February, 2005, the centre announced a 5% point reduction in rate of interest on loans disbursed to Sugar mills from the SDF from 9% to 2% points below the bank rate to 4%.

Sugar Development Funds Rules, 1983

- 3.15 The Sugar Development Fund Rules, 1983 were made in exercise of the powers conferred by Section 9 of the SDF Act, 1982, to provide for:
- the manner in which any loss or grants out of the Fund and the terms and conditions thereof;
 - the manner and the form in which applications are to be made;
 - the composition of the committee and the procedure to be followed by it in the discharge of its functions; and

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- the form in which and the period within which statistical and other information may be furnished by sugar factories.

From 1st November, 1982, the amount of cess payable by sugar factories is Rs. 14/- per quintal of sugar.

Levy Sugar Price Equalization Fund Act, 1976

- 3.16 The Levy Sugar Price Equalization Fund Act, 1976 (briefly LSPEF Act) was enacted to provide for the establishment, in the public interest, of a Fund to ensure that the price of levy sugar may be uniform throughout India and for matters connected therewith or incidental thereto.

The LSPEF Act provides for establishment of a fund called the Levy Sugar Price Equalization Fund (briefly LSPEF) into which shall be created:

- the amounts representing all excess realizations made by the producers either before or after the commencement of the Act; and
 - the amounts of loans advanced or grants made, if any, by the Central Government for carrying out the objects of the Fund.
- 3.17 The Fund shall be administered by the Central Government (Section 3). Money remaining unclaimed for a period of six months from the date on which they are credited shall vest in the Central Government and shall be utilized, having regard to the interests of consumers of levy sugar as a class and the need to ensure that the retail issue price of levy sugar in uniform throughout the country (Section 8).
- 3.18 The LSPEF Act also empowers the Central Government to recover excess realizations made by sugar factories as 'Arrears of Land Revenue' (Section 11). Penal provisions, prescribing imprisonment or fine or both, in respect of defaulting sugar mills in the matter of crediting excess realizations are also contained in the Act (Section 13).
- 3.19 Section 16 of the Act provides for power to make rules. In exercise of such power, the Levy Sugar Price Equalization Fund Rules, 1977, were made, to provide for the manner of:
- (i) crediting moneys to the Fund;
 - (ii) accounting and transactions of the Fund;

- (iii) inviting applications from buyers for refund; and
- (iv) utilisation of the Fund by the Central Government, etc. besides prescription of forms for various purposes in terms of the LSPEF Act.

The Act was amended in 1984 to provide for certain modifications in the principal Act, with a view to obviating litigations on the subject in the light of the experience gained during the administration of the LSPEF Act, 1976.

Molasses Control Order, 1961 and Decontrol, 1993

- 3.20 The prices and distribution of molasses and prices of alcohol were regulated by the Central Government under the Molasses Control Order, 1961 and the Ethyl Alcohol (Price Control) Order, 1971 respectively up to 10th June, 1993. These orders have since been rescinded. Both these Orders were issued under Section 18(G) of the Industries (Development and Regulation) Act, 1951.
- 3.21 The rationale for this policy was that distilleries should obtain molasses at reasonable prices and thereby supply alcohol at controlled prices to chemical units based on alcohol. Implementation of these Orders was with the State Governments. The prices under these Orders were revised from time to time. Inter-State allocations were done by the Molasses Controllers of the States concerned. The Department of Chemicals and Petrochemicals in Central Government used to make Inter-State allocations of molasses and alcohol from surplus States to deficit States, on a non-statutory basis, on the advice of the Central Molasses Board (CMB) consisting of the Excise Ministers of all State/Union Territories and the representatives of the concerned Industry Associations.
- 3.22 This regime of controls was inhibiting the free movement of molasses and was not keeping with the economic liberalization programme of the Government which was initiated during the early nineties. There were also reports about inordinate delays in obtaining allocations and consequent wastage of molasses. The downstream users of molasses were also not able to fully utilize their capacity. Taking all these factors into account and with a view to falling in line with the liberalization policy of the Central Government in other sectors of economy, the Molasses Control Order, 1961 and the Ethyl Alcohol (Price Control) Order, 1971 were rescinded on 10th June, 1993.

State Sugar Policies

3.23 Most of the states have some parallel regulations similar to Central Government which is binding on all the Sugar producers in the state. Uttar Pradesh being the largest producer of Sugar/Sugarcane, following are some of the major acts existing in Uttar Pradesh:

1. **UP Sugarcane Regulation of Supply and Purchase Act, 1953:**

It contains provisions for tagging a percentage of advances given by banks for payment of cane price, together with interest thereon, by the Collector, on the basis of recovery certificate issued by the Cane Commissioner, as if it were an arrear of land revenue. Similar provisions also exist in State legislations of Madhya Pradesh, Andhra Pradesh, Bihar and Tamil Nadu. It also contains provisions for penalties for contravention which include fines and imprisonment.

This Act further empowers State Governments to reserve certain area for each mills through a reservation order and farmer is also bound to supply to the factory which has been assigned his corresponding area.

2. **The UP Sugarcane Supply and Purchase Order, 1954**

3. **The UP Sugarcane (Purchase Tax) Act, 1961**

4. **The UP Restriction of Sugarcane Purchase Order, 1966**

5. **The UP Vacuum Pan Sugar Factories Licensing Order, 1966**

6. **The UP Khandsari Sugar, Sugar Manufacturing Licensing Order.**

Power Purchase Agreements

3.24 The purchase of excess power generated in the cogeneration unit is regulated by power purchase agreement between State Electricity Boards and the factory. These agreements may vary over tenure of 10 years or more depending on the incentives provided to the factories in setting up the unit.

Environmental Norms by State Pollution Control Board

3.25 Sugar factories, Cogeneration Units and Distilleries are subject to strict environment norms pertaining to discharge of waste streams, which depends on the installed capacity. All corresponding clearances have to be obtained from State Pollution Control Board.

Key Processes in Sugar Industry

4.1 This chapter explains the underlying business processes in sugar manufacturing. The key processes in sugar industry are shown below in the “Sugar Business Value Chain”:

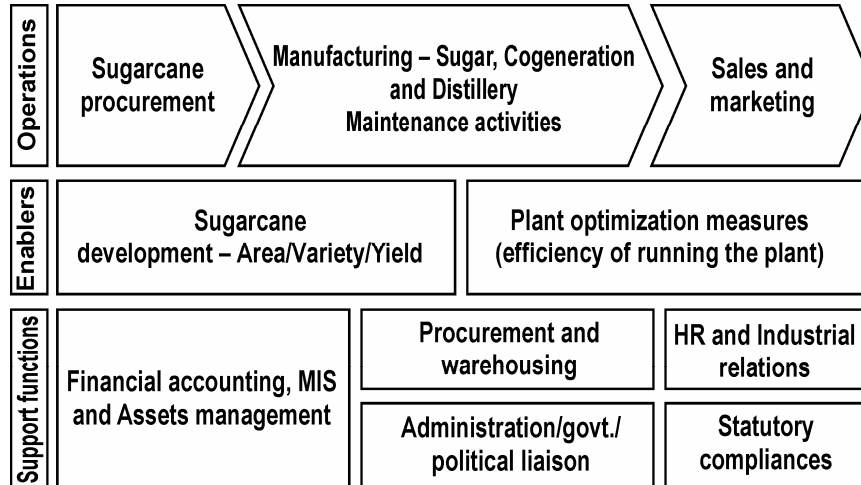


Figure 3: Sugar Business Value Chain

Sugarcane Development and Procurement

- 4.2 Given the huge competition for cane following capacity expansion of most of the mills, a mills’ efforts in terms of cane development activities has a key bearing on cane availability. Hence cane development and procurement department is one of the key departments for any sugar factory.
- 4.3 Typically, factories co-ordinate with about 25,000 to 1,00,000 growers/farmers for procurement of sugarcane. Since area allotted to factory is fixed by the Government so as to ensure consistent supply of cane, it becomes all the more important to develop harmonious and good relations with these growers so that they do not switch to alternate cash crops.

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Hence, generally as cane development initiatives a factory might come up with the following measures:

- Distribution of seeds at subsidized rate/free to cane growers.
- Distribution of loans for seed and irrigation facilities.
- Distribution of agricultural supplements.
- Distribution of fertilizers, insecticides and pesticides.
- Conducting general awareness through village meetings.

4.4 The Government also carries out some of these initiatives through various Cane Societies set up by them. These societies are co-operative in nature and bridge the gap between the factory and the growers. Normally, in states where these societies exist, a grower need to first become member of these societies in order to supply cane to the factory.

The process of cane procurement starts almost 6 to 7 months in advance starting with survey process. It is highly regulated by state government and every phase is monitored closely.

These phases have been discussed in the following paragraphs which would help in carrying out effective internal audit.



Figure 4: Key Steps in Cane Procurement

Cane Survey

4.5 Cane Survey is the process conducted by team of Sugar Mill's member and Co-operative society member (or Government Representative) to assess the amount of cane grown by the growers. Typically, sugarcane crops take about 10 months to 13 months to mature. The survey is carried out close to 5 months before the start of the crushing season, i.e., when the crop has reached almost half of its life. In survey following are the key things to be recorded:

- (i) Grower's Name
- (ii) Father's Name

- (iii) Village
- (iv) Crop Type (Plant/Ratoon)
- (v) Crop Variety
- (vi) Crop Season (Autumn/Spring)
- (vii) Measurement of all four sides of field
- (viii) Total Plot Area

It takes about 2 months for one factory to complete the survey of all the villages. Once survey is completed it is fed in the software (if used, else done manually), then the village-wise 'Display' list is generated.

- 4.6 The display list of a village needs to be displayed in the village with prior intimation of date of display to the villagers. During the display stage, growers can identify any changes or, alternatively, give their consent on the survey of their fields. After display there is window of specified days where a grower can submit an application for any changes in the society, before the survey is finalized.

Calendaring

- 4.7 After finalization of display, Calendaring is done on the basis of bonding with the grower. Bonding is the quantity of cane that Sugar Mill agrees to purchase from the grower and is based on the following parameters:
- **In case of normal yield:** The current year yield is based on the average yield data provided by the Cane Commissioner or average 2 years supply by the farmer whichever is lower is taken as the yield.
 - **General increase:** Increasing trend is allowed based on the information provided by the society.
 - **Additional increase:** If some farmer expects exceptional increase in the yield, additional increase would be entered in the system based on the request of the farmer to the Society and its evaluation.
- 4.8 Depending upon daily crushing requirement, a calendar is prepared by the Sugar Mill as per the Bonding Policy ('Satta Niti'), issued by the State Government. General principles of the policy are as follows:

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- Farmers can be divided into three categories based on land: Small farmer (0 – 1 Hectare); Marginal farmer (1 – 2 Hectares); Big Farmer (2-5 Hectares).
- Based on supply, farmers are divided into two categories: Small (up to 60 quintals); Medium (greater than 60 quintals).
- Only 85% of the production can be bonded for any farmer, subject to average quantity supplied by him in the last two years.
- Ratoon crop need to be bought within 45 days from start of factory, whereas plant crop need to be bought within 45 days from February.
- Bonding with farmer is subject to a cap of 750 qtls, 1500 qtls and 3500 qtls for small, marginal and big farmers.

These principles are liable to change from time to time and, accordingly, the internal auditor should refer to the latest Policy issued by the Government. Once a calendar is prepared then it is given to growers of that area.

Supply Ticket/Purchy

- 4.9 Once the crushing season starts, mill personnel generate supply ticket specifying grower, grower name, variety, quantity to be supplied and supply date, and send it to the societies. Respective societies are responsible for distribution of supply tickets to growers, on the basis of which cane can be supplied to the Sugar Mill.

Payments

- 4.10 Post supply of the cane, payment is transferred to grower's bank account on fortnightly basis or as directed by the Government. The mill is allowed to make deductions on account of any loans given to grower before making the payment.

Cane Out-centers

4.11 Cane out-centers are set up by the mill as directed by the Government, for the convenience of the growers.

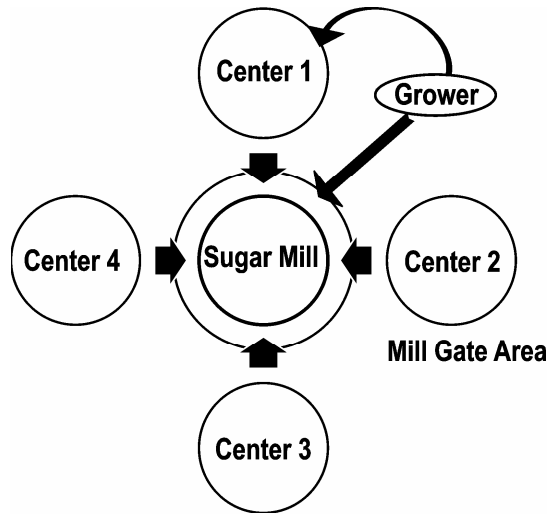


Figure 5: Procurement through Mill Gate and Out-centers

A grower can supply cane either at the mill gate or at the out-centers. Sugarcane needs to be crushed within 24 hours of harvesting, else it starts deteriorating (driage of cane, resulting in reduced recovery of sugar from the sugarcane). The distance of out-center from the mill can vary from 10 kms to around 70 kms or more. Hence, there is need for out-centers so that cane can reach factory/mill at the earliest. Out-center should maintain facilities of weighing bridge and labour for loading and unloading the cane.

Manufacturing

4.12 Sugar industry is energy intensive industry, therefore, apart from sugarcane, steam and electricity are essential for running the mill. For this reason, most of the sugar mills have a cogeneration unit for supply of steam and electricity.

Sugar Unit

4.13 Sugar Mill consists of the following three major areas:

- Milling Section
- Boiling House
- Dryer House

Though milling section and dryer house are continuous processes, boiling house processes mainly occur in batches. Thus, we can term sugar industry as semi-continuous. It takes about 2 to 3 days to complete the whole cycle from cane milling to packing. These lags should be kept in mind while analyzing any production related data. The norms set up by the management and benchmarking with other sugar industries should be referred to evaluate manufacturing process of sugar unit, so as to provide reasonable value addition to the management.

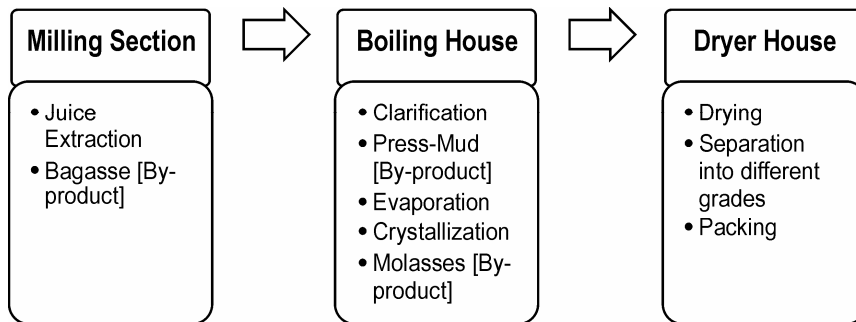


Figure 6: Overview of Sugar Manufacturing

Milling Section

4.14 Sugarcane is cut into pieces, chopped and fed to mills for extraction of juice. Sucrose (Sugar content), being perishable in nature, starts decomposing right from this stage. It becomes important to add certain chemicals at milling stage to prevent the degradation. Cane is passed through sets of 3 or 4 mills so as to have maximum extraction, before discarding the fiber content as bagasse. Sugar content and moisture are two key parameters for which bagasse needs to be monitored at regular intervals. Bagasse so generated can be directly fed to boiler of cogeneration unit or stored in the yard for use later on. Bagasse is also consumed by the paper industry and can be sold in the open

Key Processes in Sugar Industry

market. The juice extracted in the milling section is sent to clarifiers for further processing.

Boiling House

- 4.15 The first process of boiling house is clarification. This involves adding chemicals to the juice to remove dirt and other impurities. These impurities are then discarded as press mud which can be used as fertilizer. Clear juice so produced is further concentrated by evaporation through application of steam.
- 4.16 Through the centrifuge, molasses is discarded as by-product. The molasses from first set is subject to about three more sets of evaporators and centrifuges before being discarded as molasses, so as to extract maximum amount of sugar. The key parameter to be noted in molasses is the amount of sugar content in molasses, so as to ensure efficiency of boiling house.

The concentrated juice is sent for crystallization through centrifugal vacuum pans or any alternate methods. The sugar crystals are then sent to dryer house.

Dryer House

- 4.17 Sugar crystals are dried in dryer house and passed through grader so that it can be separated into different grades depending upon the size of the crystals. Quality of the sugar being packed is determined on the basis of ICUMSA (International Commission for Uniform Methods of Sugar Analysis). An ICUMSA rating is an international unit for expressing the purity of the sugar in solution, and is directly related to the color of the sugar. Whiter the sugar, lower is its ICUMSA value. Apart from these three processes, there may be additional refining processes to meet the specific customer requirements.

Effluent Treatment Plant (ETP)

- 4.18 Sugar industries have very stringent guidelines for treatment and disposal of effluent discharged prescribed by State Pollution Control Board (SPCB). A NOC needs to be obtained / renewed from SPCB depending upon the capacity of mill to crush the cane per day before the start of the season. Operational efficiency of ETP should be closely monitored.

Cogeneration Unit

4.19 Cogeneration unit consist of following three major areas:

- Reverse Osmosis (RO) Plant
- Boiler
- Turbine

RO Plant

4.20 Water is required for production of steam; however ground water cannot be directly used as it contains minerals which can damage the boiler when water is converted to steam. Accordingly, it is very important to treat this water in a RO plant or Demineralization of water. The cost of treatment is quite high, hence it is important to check that steam in the process is condensed and used, so as to minimize the amount of make-up water from RO plant. Normally, different factories fix norms/standards for make-up water so as to measure efficiency of the production process.

Boiler

4.21 There are different types of boilers used in the sugar industry. The type of boiler is determined by the type of fuel used and its capacity to produce steam. Normally, bagasse-fed boilers are very common, but there is an increasing trend to use multiple fuel boilers, so that in off-season alternative cheaper fuels can be used to produce electricity. By products from the boiler are boiler ash and flue gas, for which there are prescribed standards by pollution control board so as to minimize damage to the environment.

Turbine

4.22 Steam generated from the boiler is passed in turbine to produce electricity, before being sent to sugar unit. Electricity, thus, generated is used in-house and any excess generation can be sold to State Electricity Boards.

A cogeneration unit cannot be run in off-season because if sugar plant is not running, steam generated will have to be vented in atmosphere, which will cause pollution. Hence, these days' cogeneration units have installed condenser units so that steam can be condensed back to water in off-season.

Distillery Unit

4.23 The key raw material for distilleries is molasses and steam. Molasses is first fermented in fermentation tank by the application of yeast. Fermentation is the process by which sugar content in the molasses is converted to alcohol. Fermented liquid is then passed through several distillation columns to draw the products as per the requirement.

Distillery is highly regulated by the excise laws and all the raw material and finished product are closely monitored by the excise officer [this being a prime raw material for local and branded liquor].

Sales and Marketing – Sugar

4.24 Sales and marketing in sugar industry is highly regulated by various laws as discussed in Chapter 2 earlier. Sales of sugar is controlled by Sugar Orders released by Directorate of Sugar every month. These orders are available at website of Department of Food and Public Administration. A sample order has been shown in **Appendix 1**. On a weekly basis, any sales made needs to be reported to Directorate of Sugar in prescribed format (Performa II) which is given in **Appendix 2**.

4.25 Some of the key channels through which sugar is sold are:

- Sugar handling agents
- Purchase of levy sugar by government and its various agencies
- Sugar trading on commodity exchanges
- Sale to industrial users
- Retail sale.

Sugar Handling Agents

4.26 Maximum amount of free sugar is sold through network of agents spread across the country. To save on the transportation cost, major amount of sugar sale happens in local or nearby markets. Agents bridge the gap between retail stockist and sugar producer and work on commission basis. Most of the sugar is sold on ex-factory basis through the agents.

Purchase of Levy Sugar by Government and its Various Agencies

4.27 Sugar producer needs to sell levy quota to various government agencies or government for sale through public distribution system (*in line with the Government notification*).

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Sugar Trading

- 4.28 Sugar is traded at the commodity exchanges in India namely, National Commodity and Derivatives Exchange Ltd, Multi Commodity Exchange of India Ltd and National Multi Commodity Exchange of India Ltd.

Sale to Industrial Users

- 4.29 In certain food processing industries like, beverages, hotels, etc. there is huge demand for high quality sugar. Mill owners produce desired quality of refined sugar for these industrial users.

Retail Sale

- 4.30 Mill owners also have the option of doing retail sale of sugar (again subject to regulatory requirements such as those mentioned in Chapter 2 or otherwise as prevailing in the country). This requires building up marketing capability/value chain so as to ensure returns commensurate with the increased cost of production and marketing overheads.

Sales and Marketing – Others

- 4.31 This includes the sale of Electricity, Distillery products and by-products like Bagasse, Molasses and Press-mud.
- (a) Electricity - Sale of electricity can be either in-house consumption at the plant or township, or transfer to Grid.
 - (b) Distillery products - Sale of distillery products is regulated by excise laws in India. Currently, it is sold to breweries or chemical manufacturers. In India, though Government has prescribed certain timelines for blending of ethanol with petrol, it is still not mandatory. Once it is done mandatorily, it will give a boost to demand of alcohol.
 - (c) Molasses - Again highly controlled by Government due to its usage in local hooch manufacture, wherever, mill owners have not put up their own distilleries, it is being sold either to other distilleries or to alternate users like, hooch manufacturers or breweries, etc.
 - (d) Bagasse - Due to its requirement in boiler running coupled with high cost of transportation, it is being sold by the mill owners to different industrial users (usually on as is where is basis).
 - (e) Press-mud - It is usually provided free of cost or at a nominal price to the farmers/growers by the mill owners as part of cane development activities.

Internal Audit Process

- 5.1 With the integration of separate business processes (sugar manufacturing, cogeneration and distillery) and continuously evolving regulatory requirements, the sugar industry in India has undergone a sea change in processes and systems. Effective internal audit provides a tool to ease out complexities and acts as a fuel to wholesome improvement in systems and processes and, therefore, in growth and sustainability.
- 5.2 “*Preface to the Standards on Internal Audit*”, issued by the Institute of Chartered Accountants of India defines the term “Internal Audit” as follows:
- “Internal Audit is an independent management function, which involves a continuous and critical appraisal of the functioning of an entity with a view to suggest improvements thereto and add value to and strengthen the overall governance mechanism of the entity, including the entity’s strategic risk management and internal control system. Internal audit, therefore, provides assurance that there is transparency in reporting, as a part of good governance”*
- 5.3 Internal audit is a valuable resource to executive management and the board of directors (BoD) in accomplishing overall organizational goals and objectives, and simultaneously strengthening internal control and overall governance. Internal audit activity evaluates risk exposures relating to the organization’s governance, operations and information systems, in relation to:
- Effectiveness and efficiency of operations
 - Reliability and integrity of financial and operational information
 - Safeguarding of assets
 - Compliance with laws, regulations, and contracts as well as policies laid down by the management
 - Accomplishment of objectives and goals of the organization through ethical and effective governance.

Standards on Internal Audit

5.4 Internal Audit Standards Board of the Institute of Chartered Accountants of India has, till date, issued seventeen Standards on Internal Audit (SIAs) which are as follows:

- SIA 1, Planning an Internal Audit
- SIA 2, Basic Principles Governing Internal Audit
- SIA 3, Documentation
- SIA 4, Reporting
- SIA 5, Sampling
- SIA 6, Analytical Procedures
- SIA 7, Quality Assurance in Internal Audit
- SIA 8, Terms of Internal Audit Engagement
- SIA 9, Communication with Management
- SIA 10, Internal Audit Evidence
- SIA 11, Consideration of Fraud in an Internal Audit
- SIA 12, Internal Control Evaluation
- SIA 13, Enterprise Risk Management
- SIA 14, Internal Audit in an Information Technology Environment
- SIA 15, Knowledge of the Entity and its Environment
- SIA 16, Using the Work of an Expert
- SIA 17, Consideration of Laws and Regulations in an Internal Audit

These Standards codify the best practices in the field of internal audit. “*Framework for Standards on Internal Audit*” promotes professionalism in the internal audit activity and comprises of four components, viz., the Code of Conduct, the Competence Framework, the Body of Standards and the Technical Guidance.

Basic Principles Governing an Internal Audit

5.5 Standard on Internal Audit (SIA) 2, “*Basic Principles Governing an Internal Audit*” establishes standards and provides guidance on the general principles governing an internal audit. This Standard explains the principles, viz., integrity, objectivity and independence,

confidentiality, due professional care, skills and competence, work performed by others, documentation, planning, evidence and reporting which govern the internal auditor's professional responsibilities.

Terms of Internal Audit Engagement

- 5.6 The terms of internal audit engagement define the scope, authority, responsibility, confidentiality, limitations, reporting, compliance with standards and compensation of the internal auditors. The terms of internal audit engagement lay down clarity between the internal auditors and the users of their services for inculcating professionalism and avoiding misunderstanding as to any aspect of the engagement.
- 5.7 Standard on Internal Audit (SIA) 8 "*Terms of Internal Audit Engagement*" provides guidance in respect of terms of engagement of the internal audit activity whether carried out in house or by an external agency. SIA 8 requires that the terms of engagement should indicate areas where internal auditors are expected to make their recommendations and value added comments. It should also clearly mention the responsibility of the auditee vis-à-vis the internal auditor. Further, the management of the auditee is responsible for providing timely and accurate data, information, records, personnel, etc., and for extending co-operation to the internal audit team.
- 5.8 Engagement letter should clearly state the scope that will be covered, along with quarters/period when the internal audit will be conducted. Sugar Industry is seasonal in nature with calendar of activities spread throughout the year, therefore, the period in which specific process is to be covered should accordingly be planned. Suitable period for covering key areas is as follows:
- (i) Cane Development – (July/August – once the cane survey has finished)
 - (ii) Cane Procurement – during the crushing season
 - (iii) Manufacturing – during the crushing season
 - (iv) Off-season Maintenance – just after finish of crushing season
 - (v) Sales – throughout the year
- 5.9 It may be noted that length of sugar season varies in different parts of India. Timelines/period indicated above will depend upon occurrence of the event with respect to sugar crushing season. Care should be

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taken to develop internal audit plan such that all supporting processes get covered in respective periods. Engagement letter should clearly state the implications of doing online audits so that internal auditor can provide some value addition to the management. Hence, it is very important to conduct the internal audits in aforesaid periods.

- 5.10 Limitations on scope, coverage and reporting requirement, if any, in carrying out the internal audit assignment should also be brought into the letter. The engagement letter should also clearly lay down the requirements as to the manner and frequency of reporting and the list of intended recipients of the internal audit report.

Knowledge of the Entity and its Environment

- 5.11 Standard on Internal Audit (SIA) 15 “*Knowledge of the Entity and Its Environment*” lays down that ***in performing an internal audit engagement, the internal auditor should obtain knowledge of the economy, the entity’s business and its operating environment, including its regulatory environment and the industry in which it operates, sufficient to be able to review the key risks and entity-wide processes, systems, procedures and controls. The internal auditor should identify sufficient, appropriate, reliable and useful information to achieve the objectives of the engagement. Such knowledge is used by the internal auditor in reviewing the key operational, strategic and control risks and in determining the nature, timing and extent of internal audit procedures.***
- 5.12 *Knowledge of the entity’s business is a frame of reference within which the internal auditor exercises professional judgment in reviewing the processes, controls and risk management procedures of the entity. Understanding the business and using this information appropriately assists the internal auditor in:*
- *Assessing risks and identifying key focus areas.*
 - *Planning and performing the internal audit effectively and efficiently.*
 - *Evaluating audit evidence.*
 - *Providing better quality of service to the client.*

The internal auditor should prepare the flow of events, transactions and processes in the entity on the basis of discussion with key management persons, internal documentation produced by the entity,

management policy manual, procedure manuals of accounting and internal control systems, etc. In Chapter, detailed process maps of key processes in sugar industry are given.

Audit Planning

- 5.13 After acquiring knowledge of the business and various laws and regulations applicable to the sugar industry, in general and to the client in specific, the internal auditor should plan out the internal audit activity. An internal audit plan is a document defining the scope, coverage and resources, including time required for an internal audit over a defined period.
- 5.14 Standard on Internal Audit (SIA) 1, *“Planning an Internal Audit”* requires that ***the internal audit plan should be based on the knowledge of the entity’s business. While developing the internal audit plan, the internal auditor should have regard to the objectives of the internal audit engagement as well as the time and resources required for conducting the engagement. Further, the internal audit plan should be comprehensive enough to ensure that it helps in achieving of the overall objectives of an internal audit.*** SIA 1, *“Planning an Internal Audit”* specifies that ***the internal audit plan should cover areas such as:***
- ***Obtaining the knowledge of the legal and regulatory framework within which the entity operates.***
 - ***Obtaining the knowledge of the entity’s accounting and internal control systems and policies.***
 - ***Determining the effectiveness of the internal control procedures adopted by the entity.***
 - ***Determining the nature, timing and extent of procedures to be performed.***
 - ***Identifying the activities warranting special focus based on the materiality and criticality of such activities, and their overall effect on operations of the entity.***
 - ***Identifying and allocating staff to the different activities to be undertaken.***
 - ***Setting the time budget for each of the activities.***
 - ***Identifying the reporting responsibilities.***

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5.15 As mentioned earlier, specific care should be taken to design the internal audit plan in sugar industry. Figure below represents key activity timelines to be kept in mind while preparing the internal audit plan.

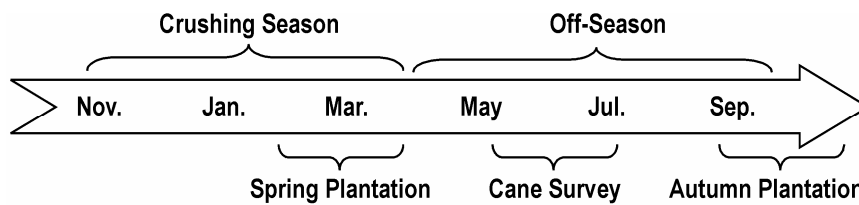


Figure 7: Sugar Industry Timeline

Sampling

5.16 The internal auditor should design and select an audit sample to perform audit procedures and evaluate sample. Standard on Internal Audit (SIA) 5, "Sampling" lays down that **when using either statistical or non-statistical sampling methods, the internal auditor should design and select an audit sample, perform audit procedures thereon, and evaluate sample results so as to provide sufficient appropriate audit evidence to meet the objectives of the internal audit engagement unless otherwise specified by the client.** Key steps in the construction and selection of a sample include:

- Determine the objective of the internal audit;
- Define the population to be sampled;
- Determine the sampling methods;
- Calculate the sample size;
- Select the sample.

Documentation

5.17 Standard on Internal Audit (SIA) 3, "Documentation" lays down that *internal audit documentation:*

- *Aid in planning and performing the internal audit.*
- *Aid in supervision and review of the internal audit work.*
- *Provide evidence of the internal audit work performed to support the internal auditor's findings and opinion.*

- *Aid in third party reviews, where so done.*
 - *Provide evidence of the fact that the internal audit was performed in accordance with the scope of work as mentioned in the engagement letter, SIAs and other relevant pronouncements issued by the Institute of Chartered Accountants of India.*
- 5.18 ***Internal audit documentation should record the internal audit charter, the internal audit plan, the nature, timing and extent of audit procedures performed, and the conclusions drawn from the evidence obtained. In case the internal audit is outsourced, the documentation should include a copy of the internal audit engagement letter, containing the terms and conditions of the appointment.***

Reporting

- 5.19 ***The internal auditor's report should contain a clear written expression of significant observations, suggestions/recommendations based on the policies, processes, risks, controls and transaction processing taken as a whole and managements' responses.*** Standard on Internal Audit (SIA) 4 "Reporting" lays down the following basic elements of the Internal Audit Report:

- *Title;*
- *Addressee;*
- *Report Distribution List;*
- *Period of coverage of the Report;*
- *Opening or introductory paragraph;*
 - *identification of the processes/functions and items of financial statements audited; and*
 - *a statement of the responsibility of the entity's management and the responsibility of the internal auditor;*
- *Objectives paragraph - statement of the objectives and scope of the internal audit engagement;*
- *Scope paragraph (describing the nature of an internal audit):*
 - *a reference to the generally accepted audit procedures in India, as applicable;*

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- a description of the engagement background and the methodology of the internal audit together with procedures performed by the internal auditor; and
- a description of the population and the sampling technique used.
- Executive Summary, highlighting the key material issues, observations, control weaknesses and exceptions;
- Observations, findings and recommendations made by the internal auditor;
- Comments from the local management;
- Action Taken Report – Action taken/ not taken pursuant to the observations made in the previous internal audit reports;
- Date of the report;
- Place of signature; and
- Internal auditor's signature with Membership Number.

Internal Control Evaluation

- 5.20 Internal control and Risk Management systems are of paramount importance for the processes in sugar industry. Any lapse of internal control can lead to huge losses. Internal control is the integration of the activities, plans, attitudes, policies, applicable laws and regulations, and efforts of the people of an organization working together to provide reasonable assurance that the organization will achieve its objective and mission. The internal audit function constitutes a separate component of internal control with the objective of determining whether other internal controls are well designed and properly operated.
- 5.21 Standard on Internal Audit (SIA) 12, "Internal Control Evaluation" lays down that **the internal auditor should examine the continued effectiveness of the internal control system through evaluation and make recommendations, if any, for improving its effectiveness. The internal auditor should focus towards improving the internal control structure and promoting better corporate governance.** The role of the internal auditor encompasses:
- Evaluation of the efficiency and effectiveness of controls.
 - Recommending new controls where needed – or discontinuing unnecessary controls.

- *Using control frameworks.*
 - *Developing control self-assessment.*
- 5.22 Internal control system extends beyond those matters which relate directly to the functions of the accounting system. Timely accounting entries of clients and exchange settlements, correct and timely reporting of margins, timely pay-in and pay-outs, or other reconciliations, etc. may depict good accounting controls but not sound internal controls. The internal auditor should gather fair understanding of control environments such as:
- Management's philosophy and operating style.
 - Integrity and ethical values.
 - Entity's organizational structure and methods of assigning authority and responsibility.
 - Organisational policies and procedures are in place and in operation, including policies on Risk Management, Prevention of Money Laundering, HR related policies, IT policies, Data Security Policies, etc.
 - There is a regular system of reviewing and updating the policies and procedures.
- 5.23 Internal controls may be either preventive or detective. The internal auditor should ensure that, in general, approval function, accounting function, and asset custody function is separated among employees of the entity. When these functions cannot be separated due to small department size, the internal auditor should ensure that a detailed supervisory review of related activities is in practice, as a compensating control activity. The internal auditor should use his professional judgment to assess and evaluate the presence and maturity of entity's internal controls. He should use narratives, flowcharts, questionnaires for obtaining understanding of each department and its business and accounting processes. The internal auditor should identify internal control weaknesses that have not been corrected and make recommendations to correct those weaknesses. When internal controls are found to contain continuing weaknesses, the internal auditor should consider whether:
- Management has increased supervision and monitoring;
 - Additional or compensating controls have been instituted; and/or
 - Management accepts the risk inherent with the control weakness.

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The internal auditor should communicate significant deficiencies and material weaknesses to management and those charged with governance.

Enterprise Risk Management

5.24 Risk is an event which can prevent, hinder or fail to further or otherwise obstruct the enterprise in achieving its objective. Risk can cause financial/operational disadvantage, for example, additional costs or lesser availability of raw material. It is the product of probability of occurrence of an event and the financial impact of such occurrence to an enterprise.

5.25 Following different types of key risks are associated with the sugar industry:

- **Strategic Risks:** Risk associated with the primary long-term purpose, objectives and direction of the business, capex expansion, etc. Since cane area allocated to each factory is fixed by the State Government, one should keep in mind option of new factories coming in the adjoining areas, thereby reducing catchment area for the factory.
- **Credit/Financial Risks:**
 - Relating to payments to growers : Working capital management.
 - Relating to enterprises: Process, techniques, instruments, etc., used to manage the finance of an enterprise.
 - Non-recoverable loans given to growers.
 - Customer bad debt/recovery from government agencies.
- **Process/Operational Risk:** Risk associated with ongoing day-to-day operations of an enterprise.
- **Information Technology Risk:** Risk associated with weak information technology environment and weak controls.
- **Regulatory Risk:** Risk associated with non-compliance of directions, rules and regulations of the Central and State government.
- **Uncontrollable Risk:** Climatic conditions like, excessive rainfall, drought, etc.

5.26 Standard on Internal Audit (SIA) 13, “Enterprise Risk Management” specifies that *the role of the internal auditor in relation to enterprise risk management is to provide assurance to management on the effectiveness of risk management. Due consideration should be given to ensure that the internal auditor protects his independence and objectivity of the assurance provided. The role of the internal auditor is to ascertain that risks are appropriately defined and managed. The scope of the internal auditor’s work in assessing the effectiveness of the enterprise risk management would, normally, include:*

- *assessing the risk maturity level both at the entity level as well as the auditable unit level;*
- *assessing the adequacy of and compliance with the risk management policy and framework; and*
- *for the risks covered by the internal audit plan:*
 - *Assessing the efficiency and effectiveness of the risk response; and*
 - *Assessing whether the score of the residual risk is within the risk appetite.*

Auditing in an IT Environment

5.27 In a sugar industry large amount of data is involved. Typically, a factory might be dealing with close to 50,000 to 1 lakh growers, and so it becomes essential to deploy IT resources to facilitate the process. Further most of the companies have multiple units. Thus, the use of ERP to manage processes across various units is very common these days. The overall objective and scope of an internal audit does not change in an Information Technology environment. However, the use of computer changes the processing, storage, retrieval and communication of information and the interplay of processes, systems and control procedures. Thus, this would affect the internal control systems employed by the entity.

5.28 Standard on Internal Audit (SIA) 14 “Internal Audit in an Information Technology Environment ” lays down that ***the internal auditor should consider the effect of an IT environment on the internal audit engagement, inter alia:***

- ***the extent to which IT environment is used to record, compile, process and analyse information; and***

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- ***the system of internal control in existence in the entity with regard to:***
 - ***the flow of authorised, correct and complete data to the processing centre;***
 - ***the processing, analysis and reporting tasks undertaken in the installation; and***
 - ***the impact of computer-based accounting system on the audit trail which would otherwise be expected to exist in an entirely manual system.***

5.29 ***The internal auditor should have sufficient knowledge of the IT system to plan, direct, supervise, control and review the work performed. If specialized skills are needed, the assistance of technical expert can also be sought, who may either be the internal auditor's staff or an outside professional. The internal auditor should consider the IT environment in designing audit procedures to review the systems, processes, controls and risk management framework of the entity. The internal auditor should review the robustness of the IT environment and consider any weakness or deficiency in the design and operation of any IT control within the entity, by reviewing:***

- System audit reports of the entity, conducted by independent information system auditors;
- Data integrity of manual records vis-à-vis system's records;
- Validation of statutory reports generated against manual records kept with cane department;
- General controls like segregation of duties, physical access records, logical access controls;
- Application controls like input, output, processing and run-to-run controls; and
- Excerpts from the IT policy of the entity relating to business continuity planning, crisis management and disaster recovery procedures.

5.30 The internal auditor should check whether an adequate IT policy is in place and also the degree of adherence to such policy. He can use checklist format for various IT controls such as, environment control, backups, virus protection controls, access controls, securities levels, etc. If required, the internal auditor should perform the system walk-

through and compare the results outside the system with independent workings.

- 5.31 ***The internal auditor should document the internal audit plan, nature and extent of audit procedures performed and the conclusion drawn from the evidence obtained. In an internal audit in IT environment, some or all of the audit evidence may be in the electronic form. He should satisfy himself that such evidence is adequately and safely stored and is retrievable in its entirety as and when required.***

Consideration of Laws and Regulations

- 5.32 As discussed in detail in Chapter 2, there are number of laws and regulations which govern the sugar industry. Since sugar is an essential commodity and distillery products are used in alcohol industry, so the government at regular intervals releases orders to control the supply and demand gap. Standard on Internal Audit (SIA) 17, “*Consideration of Laws and Regulations in an Internal Audit*” deals with the internal auditor’s responsibility to consider laws and regulations when performing an internal audit. For the purposes of this SIA. “*Non-compliance*” means acts of omission or commission by the entity, either intentional or unintentional, which are contrary to the prevailing laws or regulations. Such acts include transactions entered into by, or in the name of, the entity, or on its behalf, by those charged with governance, management or employees. Non-compliance does not include personal misconduct (unrelated to the business activities of the entity) by those charged with governance, management or employees of the entity.
- 5.33 *The effect on the functioning of an entity of laws and regulations varies considerably. Those laws and regulations, to which an entity is subject to, constitute the legal and regulatory framework. The provisions of some laws or regulations have a direct effect on the financial statements in that they determine the reported amounts and disclosures in an entity’s financial statements. Other laws or regulations are to be complied with by management or set the provisions under which the entity is allowed to conduct its business but do not have a direct effect on an entity’s financial statements. Some entities operate in heavily regulated sectors (such as banking, non-banking finance, insurance, telecom, etc.). Others are subject only to the many laws and regulations that relate generally to the operating aspects of the business (such as those related to*

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environment, occupational safety and health). Non-compliance with laws and regulations may result in fines, litigation or other consequences for the entity that may have a material effect on not only the reporting framework of the financial statements but also on the functioning of the entity and which in extreme cases may impair their ability to continue as a going concern itself.

5.34 *The key objectives of the internal auditor with respect to consideration of laws and regulations in an internal audit are as follows:*

- *To obtain sufficient appropriate audit evidence regarding compliance with the provisions of those laws and regulations generally recognized to have a direct effect on the determination of material amounts and disclosures in the financial statements.*
- *To perform specified audit procedures to help identify instances of non-compliance with other laws and regulations that may have a significant impact on the functioning of the entity; and*
- *To respond appropriately to non-compliance or suspected non-compliance with laws and regulations identified during the internal audit.*

5.35 *In conducting an internal audit of an entity, the internal auditor takes into account the applicable legal and regulatory framework. Owing to the inherent limitations of an internal audit, there is an unavoidable risk that some non-compliance with laws and regulations and consequential material misstatements in the financial statements may not be detected, even though the internal audit is properly planned and performed in accordance with the SIAs. In the context of laws and regulations, the potential effects of inherent limitations on the internal auditor's ability to detect non-compliance are greater for such reasons as the following:*

- *There are many laws and regulations, relating principally to the operating aspects of an entity that typically do not affect the financial statements and are not captured by the entity's information systems relevant to financial reporting.*
- *Non-compliance may involve conduct designed to conceal it, such as collusion, forgery, deliberate failure to record transactions, management override of controls or intentional misrepresentations being made to the internal auditor.*
- *Whether an act constitutes non-compliance is ultimately a matter for legal determination by a court of law.*

Ordinarily, the further removed non-compliance is from the events and transactions captured or reflected in the entity's information systems relevant to financial reporting, the less likely the internal auditor is to become aware of it or to recognise the non-compliance.

- 5.36 *SIA 17 distinguishes the internal auditor's responsibilities in relation to compliance with two different categories of laws and regulations as follows:*
- (a) The provisions of those laws and regulations generally recognized to have a direct effect on the determination of material amounts and disclosures in the financial statements such as tax and laws regulating the reporting framework; and*
 - (b) Other laws and regulations that do not have a direct effect on the determination of the amounts and disclosures in the financial statements, but compliance with which may be fundamental to the operating aspects of the business, to an entity's ability to continue its business, or to avoid material penalties (for example, compliance with the terms of an operating license, compliance with regulatory solvency requirements, or compliance with environmental regulations). Non-compliance with other laws and regulations may result in fines, litigation or other consequences for the entity, the costs of which may need to be provided for in the financial statements, or may even have a significant impact on the operations of the entity, but are not considered to have a direct effect on the financial statements, as described in paragraph (a). Non-compliance with laws and regulations that have a significant impact on the operations of the entity may cause the entity to cease operations, or call into question the entity's continuance as a going concern.*
- 5.37 *SIA 17 lays down differing requirements for each of the above categories of laws and regulations:*
- For the category referred to in paragraph (a), the internal auditor's responsibility is to obtain sufficient appropriate audit evidence, in accordance with the Standard on Internal Audit (SIA) 10, "Internal Audit Evidence", about compliance with the provisions of those laws and regulations.*

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- *For the category referred to in paragraph (b), the internal auditor's responsibility is limited to undertaking specified audit procedures to help identify non-compliance with those laws and regulations that may have a significant impact on the functioning of the entity.*

Understanding Key Process Audits

Cane Survey/Pre-procurement Process

6.1 A typical cane survey process map is given below:

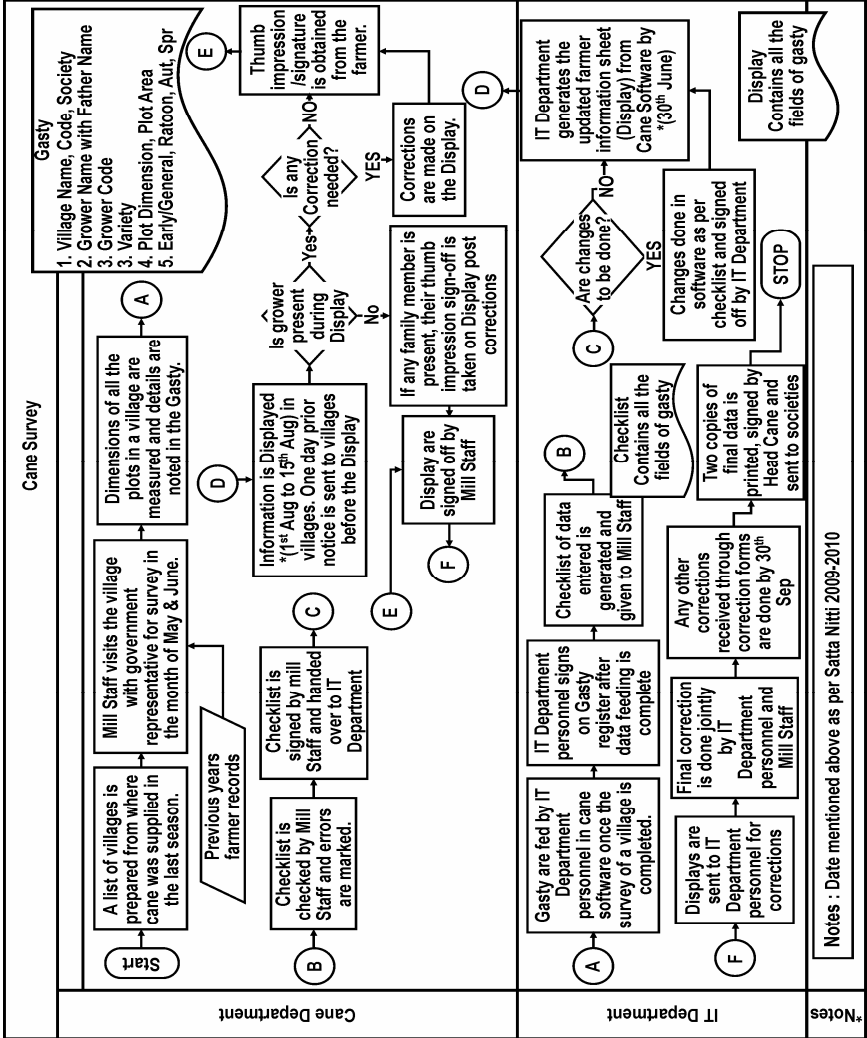


Figure 8: Cane Survey Process

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6.2 Key risks and their implications pertaining to cane survey process are as follows:

Risks	Implications
(i) Incomplete Cane Survey: As discussed in Chapter 4, certain fields need to be captured during the cane survey. Surveyor might not be capturing some of the fields.	(i) Grower dissatisfaction/cane not procured.
(ii) Incorrect information captured in survey.	(ii) Grower dissatisfaction.
(iii) Unauthorised changes in the survey data: Once survey is done, it is signed off by surveyor and government representative who is part of the survey. Hence, any changes to the survey needs to be duly authorised.	(iii) Statutory Non-compliance/Favorable treatment given to some growers may upset other growers.
(iv) Non-adherence to timelines.	(iv) Fine by state government.
(v) Data entry errors: Survey data is fed into software and there are chances of manual errors in feeding the data.	(v) Grower dissatisfaction/cane not procured.
(vi) Unauthorised addition / deletion of growers from the records.	(vi) Favorable treatment given to some growers may upset other growers.
(vii) Duplicate grower codes existing in the data.	(vii) Non-recovery of loans/Incorrect planning for procurement.
(viii) Unauthorised/Incorrect bonding being done with growers: As described in Chapter 4, bonding for supply of cane is done with each farmer as directed by cooperative / cane societies. To favor a grower there is risk of changing the data in software without proper authorisation.	(viii) Statutory Non-compliance.

Sugarcane Procurement Process

6.3 The process map for procurement process is given below:

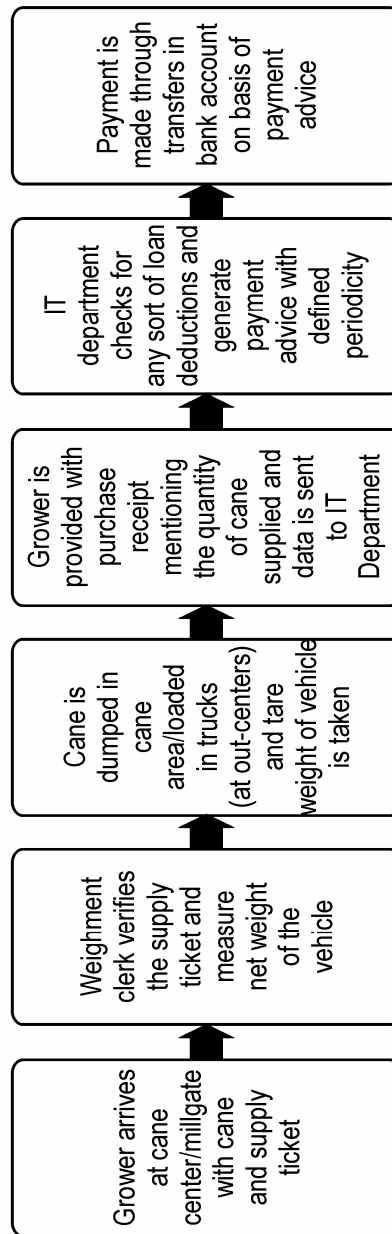


Figure 9: Sugarcane Procurement Process

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6.4 The following key risks and implications are associated with cane procurement:

Risks	Implications
(i) Cane being purchased from unauthorised/fictitious growers.	(i) Statutory Non-compliance.
(ii) Incorrect recording of purchase.	(ii) Incorrect payments.
(iii) Lower variety being purchased as higher variety.	(iii) Excess payments.
(iv) Excess loss being shown as driage while transporting cane from out-centers to mill.	(iv) Reduction in recovery/Excess payments.
(v) Biased distribution of supply tickets.	(v) Grower dissatisfaction/Fine by state government.
(vi) Clerks at out-centers doing incorrect weighing.	(vi) Statutory Non-compliance.
(vii) Supply on fictitious supply tickets.	(vii) Fraud/Incorrect payments.
(viii) Payment being done to growers without adjusting for loans.	(viii) Financial Loss.
(ix) Delays in transfer of cane from out-centers to mill due to lack of logistics planning.	(ix) Reduction in recovery due to excess driage.
(x) Improper planning in distribution of supply ticket leading to excess/shortage of cane on various days.	(x) Loss in recovery/increased cost of production.

Manufacturing Process

6.5 Manufacturing process has been explained in detail in Chapter 3. Some key risks in these processes are as follows:

- Operational inefficiencies;
- Statutory non-compliances;
- Non-compliance to Environment, Health and Safety (EHS) standards;
- Incorrect/excess over time being booked;
- Incorrect excise records;

- Excessive break-downs/downtime of plant; and
- Incorrect cost accounting.

Sales and Marketing Process – Sugar

6.6 The process map of sales process through sugar handling agents is given below:

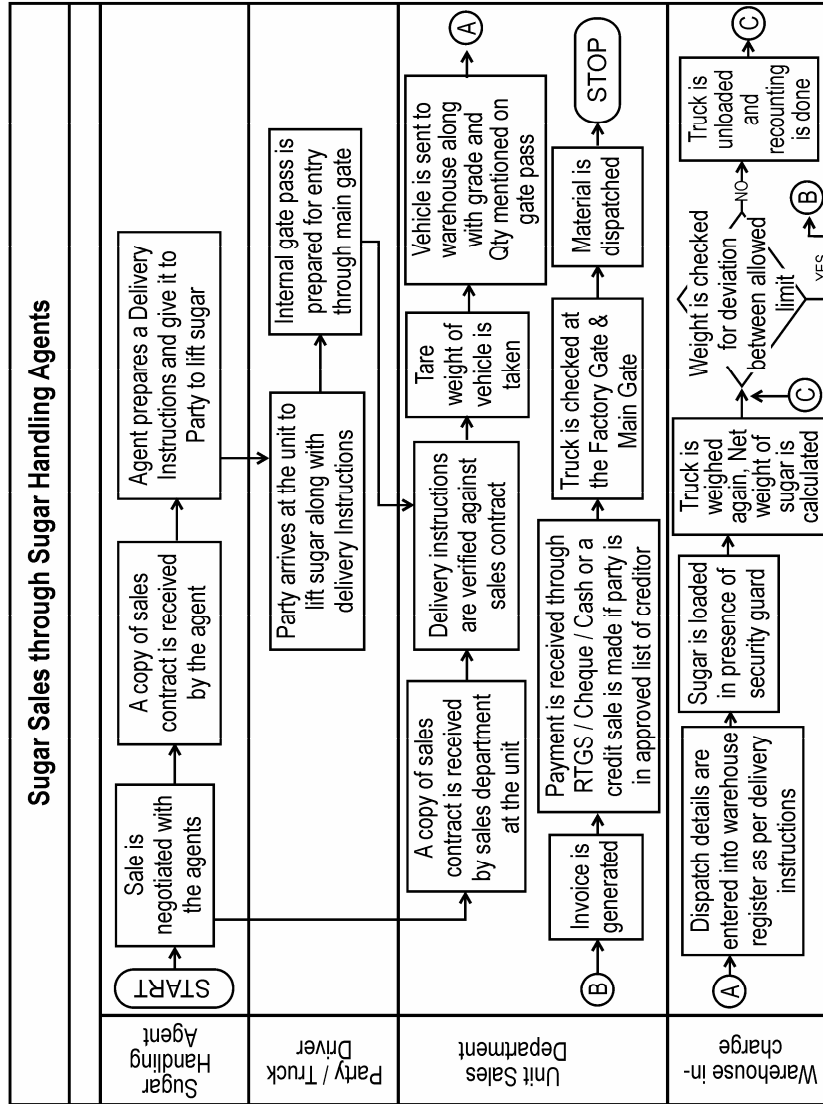


Figure 10: Sales of Sugar through Sugar Handling Agents

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6.7 The key risks and implications pertaining to sales process are as follows:

Risks	Implications
(i) Sales expenses incurred are in excess of budget.	(i) Budget overrun.
(ii) Unauthorised orders/transactions are executed.	(ii) Financial loss if payments are not received.
(iii) Units are unaware of the orders they are required to deliver.	(iii) Delays in dispatch.
(iv) Loss due to non-payment by customers/ bad debt.	(iv) Financial loss.
(v) Delay in processing of orders might lead to late delivery penalty.	(v) Financial loss.
(vi) Segregation of duties conflict.	(vi) Unauthorised transactions.
(vii) Duplication of processing of orders - lack of controlling on processing dispatch orders.	(vii) Financial loss.
(viii) Delay in processing of invoice - incompleteness of recording.	(viii) Bad debts/delay in payments.
(ix) Transactions are not recorded in an appropriate period.	(ix) Statutory Non-compliance.
(x) Incorrect processing of discount transactions.	(x) Loss of discount.
(xi) Incomplete/incorrect processing of accounts.	(xi) Financial loss.
(xii) Incorrect bank accounts disclosure.	(xii) Statutory Non-compliance.
(xiii) Incorrect provisioning of doubtful debts.	(xiii) Statutory Non-compliance.
(xiv) Incorrect/unauthorised write off of accounts.	(xiv) Financial loss.
(xv) Customer complaints feedback/ resolution not present.	(xv) Customer dissatisfaction.

Sales and Marketing Process – Distillery Products

6.8 The key risks pertaining to sales process are as follows:

Risks	Implications
(i) Unauthorised orders/transactions are executed.	(i) Financial loss, if payments are not received.
(ii) Units are unaware of the orders they are required to deliver.	(ii) Delays in dispatch.
(iii) Loss due to non-payment by customer/bad debt.	(iii) Financial Loss.
(iv) Delay in processing of orders might lead to late delivery penalty.	(iv) Financial Loss.
(v) Duplication of processing of orders - lack of controlling on processing dispatch orders.	(v) Financial Loss.
(vi) Delay in processing of invoice - incompleteness of recording.	(vi) Bad debts/delay in payments.
(vii) Transactions are not recorded in an appropriate period.	(vii) Statutory Non-compliance.
(viii) Incomplete/incorrect processing of accounts.	(viii) Statutory Non-compliance.
(ix) Incorrect bank accounts disclosure.	(ix) Statutory Non-compliance.
(x) Incorrect provisioning of doubtful debts.	(x) Statutory Non-compliance.
(xi) Incorrect/unauthorised write-off of accounts.	(xi) Financial Loss.
(xii) Availability of central excise permits with the buyers.	(xii) Statutory Non-compliance.

Internal Controls

- 7.1 This chapter contains illustrative lists of internal controls which an internal auditor should refer while reviewing a particular process; however Internal Auditors should not limit themselves to these lists only.

Cane Survey/Pre-procurement Process

- 7.2 Internal auditor should ensure that the following controls are operating effectively in cane survey/pre-procurement process:
- Whether a detailed listing has been prepared for all the villages to be surveyed.
 - Is all relevant information being captured in the survey?
 - Are all changes in the survey register duly authorised?
 - What are the controls to deal with data entry errors? A sample checking should be done for effectiveness of these controls.
 - Whether audit log is being maintained for all the changes in data fed into IT System.
 - Are all the timelines specified by the government being adhered to?
 - Whether proper verification process exists, before adding/deleting any grower code to database.
 - Whether relevant documents are being obtained from grower before addition?
 - Whether any check is being done to identify duplicate grower codes in the data?
 - Has the bonding been done as per the directions from the government?

Sugarcane Procurement Process

7.3 Internal Auditor needs to ensure that the following controls are operating effectively in cane procurement process:

- Have the sugarcane been purchased from growers not listed in growers list?
- Have some large payments been made to certain growers or family members of same growers?
- Do multiple growers have same bank account details?
- Check for records of calibration of weighing bridges.
- Check for serial numbering of purchase receipt at the out-centers.
- Check for the cancellation process of any wrong receipt, or if any receipt has been left blank.
- Check whether the tickets on which supply has been made have been issued by mill or society.
- Check if cane has been purchased in excess quantity than that mentioned on supply ticket, beyond tolerable limit.
- Check for the process of verification of cane variety on receipt of the same at mill gate or out-center.
- Reconcile purchase records of the out-center with receipt at the mill gate. Check if proper root causing has been done for any major variations.
- Check for time lag between purchases of cane at out-centers and receipts at mill-gate to see it is not too high.
- Check if root causing has been done for failure rate in supply tickets if it is beyond certain threshold.
- Reconcile payments made with supplies.
- Check if payments had been made to growers without adjusting for loans.
- Check for any large payments made in cash and analyse the reasons for the same.
- Verify transporter contracts and payments.

Manufacturing Process

7.4 Various controls that should be checked by an internal auditor are as follows:

- Actual to budgeted comparison for various efficient norms set by the management. Some key parameters to look at are:
 - Power/steam consumption per quintal of cane crushed.
 - Recovery ratio.
 - Sugar losses in bagasse and molasses.
 - Fuel consumption per unit of electricity generated (Power Plant).
 - Steam generated per quintal of fuel consumed (Power Plant).
 - Percentage of make-up water (Power Plant).
 - Steam/power consumption in Distillery.
- Statutory compliances with respect to operation of machineries like, boiler, vacuum pans, etc. and other clearances from the government.
- Environment, Health and Safety standards are adhered to in day to day functioning, running of ETP plant, disposal of boiler ash, flue gas and spent wash.
- Log books are being filled properly and are also capturing deviations.
- Recording of overtime by the workers.
- Recording of finished goods is as per excise rules.
- Control over gunny bags movement.
- Segregation of duties between production and quality.
- Root cause analysis for any break downs.
- Trend analysis with previous year results.
- Planning with regards to off-season and season maintenance schedule.
- Cost/budget of maintenance (year to year comparison).
- Whether annual maintenance contracts have been entered for key machineries.

- In case of power plant and distillery are separate entities, whether bagasse, sugar and molasses have been transferred at arm's length principle?
- Whether overheads have been allocated properly while accounting for cost of manufacturing?

Sales and Marketing Process – Sugar

7.5 Internal auditors needs to ensure that following controls are operating effectively in sales and marketing process:

- Check for budgeting the expenses for sales.
- Check if all the expenses are duly processed, accounted and approved as per DOA.
- Check if all expenses including the ones which are in excess of budget, are duly approved as per DOA.
- Check for sample of transactions that proper DOA has been followed in the sales contract.
- Check for the debit on agents for bad debts.
- Check for management's approval process for processing non-standard terms and conditions/orders.
- Check that data is processed with supporting documents.
- Review of process of intimating orders details to units on time.
- Review of process application controls related to order processing. Review list of order processed on a sample basis with the approval document for authorisation and compare the same with credit limit terms of customers.
- Check process of transfer of order entry data details for shipping/material dispatching department and to the invoicing department. Compare all the information for completeness and correctness and do 3-way match.
- Check appropriate approvals for all order modifications.
- Review the segregation of duties to avoid chances of overriding activities/controls.
- Review the process of dispatch orders and the process of controlling by issuing dispatch order numbers, etc.

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- Review the process of material dispatched and the scheduled time to process invoice for the same.
- Review the cash/bank receipts transactions for recording in appropriate period. Check for delay in recording the transaction.
- Review the process of recording cash/bank collection in books and the control of review to avoid any recording or processing error.
- Ensure that the collections are accounted for in the correct customer account.
- Review the process of cheque collection and timely processing the same for collection.
- Review the process of discount to customers. Review on a sample basis the discount given along with details of approval and correctness for the same.
- Ensure that the discounts are accounted in the correct customer accounts.
- Check that the credit notes are issued for appropriate reasons.
- Check the process of reviewing the accounts receivable details. Review aging of accounts receivable and the action taken for collection of the same.
- Review the process of reconciling Subsidiary Ledger- General Ledger (SL-GL) reconciliation on a periodic basis. Compare the same with standard policy. Check on a sample basis reconciliation for the same.
- Review bank accounts reconciliations. Ask for bank account as per books of accounts and the bank statement. Verify the bank balances from banks and check for pending unresolved/unclear transactions.
- Review the standard policy of provisioning of doubtful debts and the actual provision made. Compare the same with standard policy. Also check the authorisation/approval for the same.
- Review the standard policy of account's write- off. Compare the actual write off details with the standard policy and also check the authorisation/approval for the same as per DOA.
- Check for existence of process for resolution of customer's complaints.

Sales and Marketing Process – Distillery Products

- 7.6 In case of distillery products, following controls should also be checked by internal auditors to ensure proper functioning:
- Check for sample of transactions that proper DOA has been followed in sales contract.
 - Check for the debit on agents for bad debts.
 - Check management's approval process for processing non-standard terms and conditions/orders.
 - Check that data is processed with supporting documents.
 - Review of process of intimating orders details to units on time.
 - Review of process application controls related to order processing. Review list of order processed on a sample basis with the approval document for authorisation and compare the same with credit limit terms of customers.
 - Check process of transfer of order entry data details for shipping/material dispatching department and to the invoicing department. Compare all the information for completeness and correctness and do 3-way match.
 - Check appropriate approvals for all order modifications.
 - Review the process of dispatch orders and the process of controlling by issuing dispatch order numbers, etc.
 - Review the process of material dispatched and the scheduled time to process invoice for the same.
 - Review the cash/bank receipts transactions for recording in appropriate period. Check for delay in recording the transaction.
 - Review the process of recording cash/bank collection in books and the control of review to avoid any recording or processing error.
 - Ensure that the collections are accounted for in the correct customer account.

APPENDIX 1

**Copy of Non-Levy Sugar Order for
Month of February 2010**

Government of India
Ministry of Consumer Affairs, Food & Public Distribution
Department of Food and Public Distribution
(DIRECTORATE OF SUGAR)

Krishi Bhavan, New Delhi-110001

Dated the 29.01.2010.

No.SC-II/2009-10/FS/O/February, 2010/N

ORDER

In exercise of the powers conferred by Clause under Sub-section (3E) of the Essential Commodities Act'1955 {incorporated in the Essential Commodities (Amendment) Act, 2003 (No.37 of 2003 dated 02.06.2003) read with the provisions of the Sugar (Control) Order, 1966 and the Notification of the Govt. of India in the erstwhile ministry of Agriculture and Irrigation (Department of Food) GSR 462 (E)/Ess.Com./Sugar dated the 30th July, 1979, I, Sanjay Kumar, Deputy Director (Cost), Directorate of Sugar, Ministry of Consumer Affairs, Food & Public Distribution, hereby direct that the producers/owners of the sugar factories shall sell in India in open market from their respective factories the specified quantity of non-levy sugar as mentioned in column no. 4 of the following table, during the month of February, 2010, out of the production of the year 2009-10 (October, 2009 to September, 2010) or 2008-09 sugar season or earlier sugar seasons. In case any lapsed quantity of sugar of earlier season is also available, the same may also be sold but an equivalent quantity of sugar out of 2009-10 season's production be retained till a final decision in this regard is taken by the Government. This will be subject to the conditions listed in this order as per the details below:

Sl. No.	Plant	Plant Name	Qty. in M.T
1.	00101		
2.	00102		

3.	00201		
4.	00301		
5.	00401		
This table has been modified and is mere representative of actual order			
6.	00701		
7.	04701		

CONDITIONS FOR THE SALE OF SUGAR

1. The sugar to be sold shall conform to ISS Grade specifications. The sales invoice issued in respect of sugar shall indicate the name and full address of the consignee. The producer may use a quantity as he may consider necessary out of the quota released for the purpose of manufacturing sugar products/food products in which sugar is used in a factory owned by him.
2. There will be no restriction on Inter-State movement of the sugar including movement to Bhutan.
3. The clearance of normal free sale entitlement as well as additional free sale on account of incentives shall be made at the normal rate of excise duty.
4. The mill in whose case incentive under 1987 scheme have been granted on deferment basis at their request will not be entitled for the excise duty rebate.
5. The delivery/dispatch of the above-mentioned quantity of sugar shall commence with effect from 1.02.2010 and delivery/dispatch of the entire quantity shall be completed by 28.02.2010. **Further the sugar factory shall sell/deliver and dispatch entire released quantity for the month of February, 2010 within the prescribed validity period in the order, i.e., upto 28.02.2010, subject to the condition that, the sale and dispatch of non-levy quota released for the month of February, 2010, shall be made on fortnightly basis, in two equal installments and any quantity which remains unsold/undespatched in each fortnight would stand converted into levy stock. The sugar mills are also required to report actual sale and dispatch of sugar each fortnight which should reach the Directorate of sugar within 7 days i.e by 22nd of the month and 7th of the following month.**

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6. Violation of the condition No. 5 would constitute an offence and shall be punishable under the Essential Commodities Act, 1955, as amended from time to time.
7. Each company shall furnish a statement, latest by the 7th day of the following month, showing factory - wise, season-wise quantities sold against this Order.

(xxxx)

Deputy Director (Cost)

Copy to :

1. The Central Excise Officer concerned.
2. State Governments/Union Territory concerned.
3. The Senior Technical Officer, Central Economic Intelligence Bureau, Deptt. of Revenue, Ministry of Finance, 1st floor, B-Wing, Janpath Bhavan, New Delhi –
4. ISMA/Federation/E&V Cell.
5. Principal Information Officer, Press information Officer, New Delhi.
Ministry's website (i) <http://fcamin.nic.in>
(ii) www.contact@esugarindia.com

(xxxx)

Deputy Director (Cost)

& - Quota withheld due to non-payment of SDF dues.

% - Quota withheld due to non- Payment of Govt. Dues.

+ - Quota withheld due to excess of Non-Levy (Free Sale) Sugar.

! quota withheld due to non-submission of Utilization certificate.

\$ Quota withheld due to non delivery of levy sugar

APPENDIX 2

Performa II for Weekly Return

(This is a sample format prescribed by government and is liable to change from time to time)

Revised format of Performa-II (Periodicity: Weekly)

1. Plant short Name -
2. Plant Code-
3. Weekending

(Figures In Tonnes)

Period xx.xxx.20xx to xx.xxx.20xx	During the Week	Todate
4. Cane Crushed		
(a) Gate		
(b) Out station (Road/Rail)		
(c) Total		
5. Sugar Produced		
(a) From Cane		
(b) By Reprocessing unmarketable old sugar		
(c) From Imported Raw Sugar		
(d) Total		
(e) Recovery % of sugar on cane		
6. No. of hours worked		
7. Loss of sugar in reprocessing		
(a) New		
(b) Imported Raw Sugar		
(c) Old		
(d) Total		

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8. Levy Sugar despatches

Release Order No.	Date	Released	In favour of operated	FCI	Quantity
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Quantity States (States Name)

9. Freesale Despatches

Release Order No.	Date	Released	In favour of operated
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Quantity States (States Name)

10. Export Despatches

Release Order No.

1. Levy

2. Free

11. Miscellaneous despatches during the week

Release Order No.

(a) Gate Sale

(b) A.P.O.

(c) A.P.E.D.A.

12. Total Despatches out of production

(a) Earlier Season

(b) Current Season

13. Stock of Sugar

(a) Opening Stock

(b) Closing Stock

Tonnes BISS Sugar Send for Reprocessing is Included in Todate Despatch.