The Future Of Maharashtra's Sugar Industry: Policy Recommendations for Sustainable Growth

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Abstract

Sugar industry's maintenance in India has grown quite well. Millions of people in India are associated with this industry. India is currently the world's largest sugar producer and consumer, beating Brazil. It is also the second largest sugar exporter in the world. Around 45 million sugarcane farmers are associated with this industry and it is their source of livelihood. Maharashtra's sugar industry is one of the largest in the country, and the state's share of sugar production is also higher than that of other states. If we see numerically then in the 2021 to 2022 time period, India produced 5000 lakh metric tonnes (LMT) of sugarcane in the sugar season, of which 3574 lakh metric tonnes (LMT) was crushed in sugar mills to produce 394 lakh metric tonnes (LMT) of sugar. During 2020-2021, India exported 109.8 lakh metric tonnes (LMT) of sugar abroad, generating 40,000 crore foreign exchange for the country. Needless to say, most quantities of sugar are produced in the north and south-west regions of India of which Uttar Pradesh and Maharashtra produce. If we see then, 40% of India's total sugar production comes from Maharashtra. Maharashtra mills produced 10.5 million tonnes of sugar under tenure during 2022-23.[1]However, Maharashtra sugar industry is facing various problems like deficiency in rainfall, various problems in mills, labor-capital gaps, various politico-economic hustles have been faced by the Maharashtra Sugar Industries. Moreover Maharshtra being the one of the richest states in India but most of its parts are driven by various issues, one of which is the ingrowing solution of the Sugar Industry and its future diaspora. Facing all these issues related to Sugar Industry this paper will broaden the thesis of urging for betterment of the Sugarcane Industry for a sustainable life by the Farmers of Maharashtra and in prior to it's antithesis as the multifaceted character of state actors. This paper will search for the quest of sustainable future as a synthesis below.

Keywords: Sustainable Growth, Maharashtra, Sugarcane Industry, Economy.

Introduction

The agricultural Sector of India contributes to 18.3% of India's total GDP.[2] Sugarcane crop plays an important role in the economic development process in India. Sugarcane crop is especially famous in North India (e.g. Uttar Pradesh, Bihar, Haryana, Punjab and Uttarakhand) and South West regions of India(e.g. Maharashtra, Karnataka, Tamil Nadu, Gujarat, Andhra Pradesh). Maharashtra is a leading state in sugarcane production. In this fiscal year 2020, about 122 billion Indian rupees have come to the Indian economy from the sugar industry of Maharashtra.[3]

[1] thehindubusinessline.com
[2] newsonair.com
[3] statista.com

Maharashtra produced 137.28 lakh tonnes of sugar in the recent year, which is 30.88 lakh tonnes more than the previous year. Earlier sugarcane morai period used to be 90-120 days but this year it has increased to 240 days. About 200 sugar industries in the state have joined sugarcane processing in this year which is much more than the previous year. This year the industries have crushed about 306.67 lakh tonnes more sugarcane than last year. If seen on the basis of state regions, Kolhapur produced 30.04 lakh tonnes, Pune 29.12 lakh tonnes, Solapur 28.43 lakh tonnes, Aurangabad 12.92 lakh tonnes, Nanded 15.32 lakh tonnes, Amravati 0.96 lakh tonnes and Nagpur 0.38 lakh tonnes of sugar this year (2022-23).[4] Sugarcane industries in Maharashtra are facing considerable crisis. This year sugarcane production has decreased by 20-25% compared to previous year due to change in monsoon direction and lack of rain during summer this year. Where there was so much production during the period 2022-23.[5] Pune, known as the sugar hub of Maharashtra, has 19 percent water storage in the dams now compared to the previous year.[6] If we look at the Policy approach then some of the policies implemented by the government is an important problem among them, for example the FRP (Fair and Remunerative Price) System, which will be described below.

Needless to say, after independence, cooperative sugar factories played a special role in the development of rural areas of the state. Co-operatives do business with the state government through shares, so the entire burden of production does not fall on the government alone. In 2011 there were only 202 sugar factories in the state, after 2011 when cooperative movement took place in Maharashtra and the number of factories increased by about 32%. Dhananjaya Rao Gadgil, Bithalrao Vikhe Patil and some names emerging from the private sectors like Walchand Group, Somaiya and Dahanukers, revolutionized the Sugarcane Industry in Maharashtra. The participation of private companies in multifaceted industrial systems like the sugar industry has brought about recent changes. Around the sugar industry came the development of jaggery and khandsari, small MSMEs, milk industry, ethanol, and various other crude industries.

As a result of rampant globalization, the sugar industry of Maharashtra is facing not only regional but global competition, shortage of rifles, lack of proper and adequate machinery, lack of proper planning, problems related to water consuming capacity, role of private players in sugar industry, corporatization of sugar industry etc. Bullets have created several obstacles to the growth of the sugar cane industry. Sugar is a commodity whose use is a daily necessity in human life, the fluctuation in the price of sugar not only creates problems in human life but also creates variation in India's annual GDP. Sugar production in India and its sustainability is a matter of great

[4] economictimes.indiatimes.com
[5] thehindubusinessline.com
[6] thehindubusinessline.com

importance for present and future generations, and the following paper will try to draw a parallel discussion on this.

Data Methodology

Based on the sugar industry of Maharashtra, the article is mainly written using secondary data. The main research goal of which is the future sustainable development of the sugar industry in Maharashtra which will help the future generations to sustain their economy. The main approach used in secondary research is literature review. The following few papers attempt to go deeper into the mentioned topic and give a new dimension to the paper. 'Sugar Cooperatives in Maharashtra: A Political Economy Perspective' written by Mala Lalvani, this paper provides a comprehensive picture of the politics surrounding the sugar industry in Maharashtra. 'The Current Sugarcane Pricing Policy & its Critical Analysis' by Mr. Tarun Sawhney, in his paper presents a holistic picture of the whole system of sugarcane industry in Maharashtra. This writing of his is basically a presentation based writing. State Intervention: A Gift or Threat to India's Sugarcane Sector? written by Abnave Vikas, B.M. Devendra Babu, is one of the most important papers which has drawn on the sugarcane industry not only in Maharashtra but in India as a whole. From which an intermediate picture of the whole of India emerged in Lekhni. Studies on extraction of sugarcane wax from press mud of sugar factories from Kolhapur district, Maharashtra, by Bhosale P. R., Chonde Sonal G. and Raut P. D., the authors here show how low cost sugarcane cultivation is possible by proper use of press mud. An Economic Analysis of Sugarcane Cultivation and its Productivity in Major Sugar Producing States of Uttar Pradesh and Maharashtra by Priyanka Upreti* and Alka Singh, this paper is an economics based paper. In the paper, his statement about production, productivity, costs, returns and profitability of sugarcane industry has been published. Apart from the mentioned papers, government documents and political, economic articles have been used to flesh out the essence of the paper.

Sugar Cooperatives of Maharashtra: A historical Context

Sugar Cooperatives emerged after India's independence. Before independence, the sugar Industries were in the hands of the British. Economist D.R. Gadgil and industrialist Vithalrao Vikhe Patil's five-year struggle resulted in the emergence of the sugarcane industry in Maharashtra. At this time though Bihar and Uttar Pradesh were quite far ahead in sugar production. D.R. Gadgil and Vithalrao Vikhe Patil started the first cooperative system in Maharashtra. Needless to say, the canal system started under the leadership of Marathas during the 1930s. Canal irrigation in rain shadow

areas like Maharashtra attracted many outside farmers, as a result many farmers wanted to come and farm in Maharashtra. The cooperative system takes a supportive role in this regard. D.R. Gadgil and Vithalrao Vikhe Patil took the initiative to establish such cooperative societies to unite small farmers. The main objective of the cooperative was to empower small farmers. In 1954 cooperatives were given license to develop the sugar industry in Maharashtra. In 1950, 14 new sugar factories were built based on this cooperative system.[7]

Before independence the sugarcane industry was mainly managed by the British. After independence, various states where sugar was produced levied subsidies as per their own benefit. In 1951, the Industries (Development and Regulation) Act passed, according to which the Government of India took responsibility for the sugar sector. In 1955, the Essential Commodities Act passed, by which levy quotas were imposed at prices below the market value. Later modifications happened three times in 1991, 1996 and 2013. However, on 1st October 2012, the central government stopped this levy system. In the 1960s and 1970s, these cooperatives focused on raising the social status of the peasant community. Then the Sugar (Control) Order was passed in 1966, which brought free sugar export under control. State Advisory Prices (SAP) was adopted in 1970, which gave special priority to the sugar industry, compared to jaggery and khandasari industries. Since the State Advisory Price (SAP) was state-based, it was always higher than the FRP adopted by the central government.

In the mid-70s, the first private influence shifted away from private to towards cooperatives, where mill owners sought to dominate and influence these cooperatives and try to control them. During the tenure of Chief Minister Vasant Dada Patil, he tried to make small cooperatives bigger. As the colonies grew, so did the number of factories and the number of cooperative banks for loans, which were specifically run by various politicians. In the 70s, the chairman of a certain sugar company while giving an interview to a certain news media said, 'Half of the ministers of Maharashtra are politically connected with the sugarcane factories. For example, 10 factories held by Janata Dal, 5 factories held by NCP, 15 factories held by the then Pawar group, and the rest by Vasantdada who is also known as Sugar Dada.[8] That is, the shadow of the dark side of politics within the sugar industry created many problems and tensions. But the scenario changed a bit when Chief Minister Sharad Pawar, the de facto leader of the sugar industry, came to power. He promised to spend up to 25 lakh rupees in each lameness prone area of the state. He requested the Central Government that the farmers involved in the sugar industry should be given an opportunity to make council gradually without giving special emphasis or pressure towards the loans given to them. He even

[7] swarajyamag.com
[8] swarajyamag.com

said, whether he is in power or not, "he wanted sugar prices not to fall so much that the mills cannot pay the government the mandated Fair and Remunerative Price (FRP). And have to go back to the government for financial assistance".[9]

In 1982, the government adopted the 'Sugarcane Development Fund', which created a research and development group to look into the problems of the sugar industry. In 1998, delicensing of the sugarcane industry resulted in the sugarcane industry getting rid of the surplus sugarcane problem. Fair and Remunerative Price (FRP) was adopted in 2009 to provide a reasonable margin to sugarcane growers. However, after the promulgation of so many laws, the political influence in the sugarcane industry has not decreased. In an article in Frontline in 2005, a sugar industry official said, 'There is no sugar cooperative that is free from political heat'. In 2000, the sugar industry faced a huge problem when global sugar prices began to fluctuate. In 2002 to 2007 severe drought and many other state failures continued to provide benefits to the government and farmers. 90% of the farmers in the state were small farmers so due to fluctuations in the industry, their interest in farming shifted quite a bit. The government has to take many extra initiatives to maintain the ecosystem. After 2007, the problems related to water have reduced a lot. New problems started in 2012, the government adopted the Ethanol Blending Programme, which had a positive side but also had a more negative side. As ethanol helps reduce pollution, excess ethanol production also leads to water scarcity.

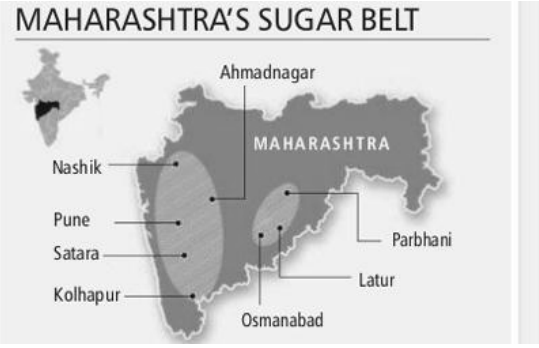
Maharashtra faced two major droughts in 2014 and 2015 during the tenure of Chief Minister Devendra Fadnavis. Scheme for Extending Financial Assistance to Sugar Undertaking was adopted by the government in 2014 for timely settlement of sugarcane dues. The central government issued 6000 crore rupees to the farmers without any interest. Fluctuations Of various diaspora in the sugarcane industry are still present in the current context based on political parties etc which have been hindering the development of sugarcane industry in Maharashtra.

Sugar Industries in Maharashtra: Sugarcane Pricing System

Sugar industry is providing livelihood to more than 50 million farmers and enrolling many people as laborers in sugar mills. There are a total of 732 sugar factories in India, of which 327 are co-operative, 362 private and 43 public. Co-operative sugar extension generally helps in improving sugarcane production, agricultural support to farmers, extension and supply of appropriate agricultural inputs to farmers, and also in increasing irrigation facilities. The first cooperative

[9] economictimes.indiatimes.com

movement in the sugar industry in India started in the 1960s in Maharashtra. A central committee was formed by the Bombay State Cooperative Bank under the chairmanship of economist Dhananjayrao Gadgil to develop cooperative industries. Maharashtra's co-operative sugar industry has gained momentum since its arrival. Sugar production in Maharashtra contributes about 40% of the total sugar production in India. Below have mentioned the main Sugar Belt areas of Maharashtra.



Source: [iasparliament.com]

There are many policies that have been taken by the Government where the dual pricing system affected Industrial Growth. Dual Pricing System provoked the 'SAP' or 'State Administrative Price' (adopted by the State Government) and 'FRP' or 'Fair and Remunerative Price' (adopted by the Central Government). The Central Government adopted the Sugarcane (Control) Order, 1966, the Statutory Minimum Price (SMP) of sugarcane was replaced by the Fair and Remunerative Price (FRP) by the State Government of Maharashtra. Under the system of FRP, farmers did not have to wait for levy until the end of the season, they would be given money by the Mill owners in two tranches in one year. The equation between the gap of FRP and SAP followed below.

Fair Remunerative Price (FRP)

⇓

CACP aka Central Government of India

⇓

Factors:

1. Saving the cost of sugarcane.
2. Ensuring the Availability.

State Administrative Price (SAP)

⇓

State Government of Maharashtra

⇓

Factors:

1. Assuring the Price welfare.
2. Protecting the interest of

the Farmers.

3. Recovery of Sugar from Sugarcane. 3. Minimum Conversion of cost.[10]

viz, Fair Remunerative Price (FRP) ≡ State Administrative Price (SAP)

Maharashtra Sugar Cooperatives Political Implications

Sugar has had both an appropriate sweet and bitter impact on the lives of politicians in Maharashtra. Chief Ministers and many political leaders have exerted their influence in the sugar industry. Needless to say, many new politicians have emerged around the sugar business. Sugardada of Maharashtra, former Chief Minister Vasantrao Banduji Patil (also known as Vasantdada Patil) was heavily involved in the politics of the sugar industry during his total 3-4 years as chief minister. Members of State Legislative Assemblies or MLAs are particularly involved with the sugar industry. Among the entire country, Maharashtra is particularly notable for its sugar industry. But its negative political side has adversely affected the production. More than 5 lakh acres of land is allotted for sugarcane cultivation. In the 1950s, the first cooperative sugarcane industry was established. But unfortunately it was also under capitalist politicians.[11] Chief Minister Sharad Pawar himself was the owner of two sugar cooperatives, Malegaon and Chatrapati factories. Sharad Pawar's brother himself owned two sugar factories and another brother owned another factory. That is, first of all, they are running their own factory and more than 10,000 workers working in the factory are getting their votes.

A recent Deccan Herald article highlighted that "16 ministers of the Uddhav Thackeray government are associated with these sugar factories. Most of them belong to western Maharashtra, which is ruled by Sharad Pawar's NCP government".[12] Moreover, major sugar producing areas of western Maharashtra are Kolhapur, Sangli, Pune, Ahmednagar and Satara. In these areas, politicians included in the sugar lobby have set up various cooperative factories and cooperative banks, over which they have a huge influence. In a recent case, the Bombay High Court stayed the case initiated against Baramati Agro-Ltd. He is associated with NCP MLA Rohit Pawar, who is Sharad Pawar's grandson. The main reason for the complaint against the company is for violating the policy given by the government.[13]

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[10] civilsdaily.com
[11] indiatoday.com
[12] deccanherald.com
[13] indiatoday.in

The current Chief Minister of the state Eknath Shinde recently mentioned a letter to the Prime Minister Narendra Modi, where he mentioned, "It is known that a quota system will be implemented for sugar import for this year. The system will cause a loss to our factory owners, by march, the sugar crushing season will end in the country. The season in Brazil starts on April 1, and creates competition that benefits other sugar exporting countries. The government has no financial ability to support this system. The quota system also allows factories that are not interested in exporting to transfer their quota to others to make money without actually exporting. A quota System which is creating unnecessary administrative hurdles and lack transparency. There will be no free and fair opportunities".[14] So India needs an open policy which was applied in the year 2021-22, which resulted in an increase in exports especially during that time. So, we can mention that the politicians made several impacts on the Sugar Industry of Maharashtra that can be seen.

Demand-Supply Consequences in Sugarcane Industry in Maharashtra

In today's highly competitive market the supply of farmers depends on the buyer and the demand on the buyers, thus the distribution of the profits of the two groups connected in between, which is called the demand-supply chain. Farmers need to keep two and a half points in mind to keep Supply-Demand in mind. Viz, The Relation between Supply and Demand will determine the market price of goods or services. For example, when a farmer lowers his purchase price, the demand for his product increases. On the contrary, if he sets the purchase price of his product higher, then the demand for his product decreases. 2. The Market Price will decide the Supply and Demand of Products and Services. For instance, If the market price is high, the producer's interest in the particular product increases, i.e. supply increases. And if the market price is low, consumer interest increases, that is, demand increases.[15]

1) **Cause of labor supply-demand gap: The main reasons for the creation of gaps based on labor supply-demand**

    a) Harsh and inhumane working conditions for laborers: Sugarcane cultivation is an agricultural industry which is carried on almost year-round. Planting, cutting and processing sugarcane is very tiring. Special use of the machine is not possible. It takes a lot of human labor. In summer, sugarcane is adequately monitored and sent to the factory within 24 hours, which requires a lot of human labor. Farmers do not

[14] timesofindia.in
[15] agrivi.com

get the money they deserve despite their hard work. As a result of which many times they are reluctant to work which is creating the Supply Gap.

b) Traditional way of cutting sugarcane: Many farmers or common people in the village cut the green tops of the newly grown sugarcane, often to feed their domesticated goats, cows, which takes time for the sugarcane plants to regrow. Which makes quantity issues in future to produce more.

2) Cause of Economic supply-demand Gap: The main reasons for the creation of gaps based on economic supply-demand

a) FRP (Fair and remunerative Price) and MSP (Minimum Selling Price) at proper pressure: Farmers have to produce crops with proper labor throughout the year. They do not get the amount of money they eat after selling the crop in the market. For example, after the APMC or 'Agricultural Produce Livestock Market Committee' is issued, farmers cannot directly sell produce to the general public. They have to sell the produce to a specific Mandi, from where the commodity has to be sold at 'Minimum Selling Price' (MSP). Among them are some middle men who are appointed by the state, who buy the goods according to the fixed auction price and send them to the market. That is, if the commodity is sold at 70 rupees in the market, then the farmer gets a profit of 7-8 rupees. The rest goes to this middle man, auction etc. As a result, a kind of demand-supply gap is created in terms of money.

b) Mahatma Gandhi National Rural Employment Guarantee Act: With the introduction of MGNREGA scheme, many farmers have engaged themselves in 100-day work ignoring the extreme pruning required for sugarcane production. As a result, the problem of lack of farmers and less labor in the production of cane, which make a demand-supply gap in sugar production.

Drawbacks in sugar industry of Maharashtra

The sugar industry in India is plagued with several serious problems that require immediate attention. Some of these draws are listed below:

1. **Low Yield of Sugarcane:** One of the positive aspects of India is that India has the largest amount of land for sugarcane cultivation but the production is quite low compared to some other countries. For example the yield in Java is 90 tons and in Hawaii 121 tons while in

India 64.5 tons.[16] In the annual year 2021-2022 where sugar production in Maharashtra was 13.7 million, it fell by 14% in the 2023-2024 crop year.[17] Mainly due to lack of rains in the current year, various problems have arisen, less than 59% rainfall in August resulting in high yield, early maturing, high sucrose sugarcane variety change, harmful insects and other such problems are being tried to solve.[18]

2. **Issues related to Water scarcity in Maharashtra:** Farmers aim to produce more yield and earn more profit. For higher yields, farmers depend on irrigation systems through which groundwater is used for irrigation purposes. According to data from the Department of Agriculture, the percentage of agricultural land in the 1950s was 67%, which increased to 96% in 2015.However, despite the use of underground water, the irrigation medium has not been developed equally in all the districts of the state. Out of 37 districts of Maharashtra, only 8 districts have higher production rate. For example, Pune produces 16% of the total sugar, Ahmednagar 14% of the total sugar production, Solapur 13% of the total sugar production, etc. Only the production rate in these regions is relatively higher than other districts. Marathwada region produces 15% of sugarcane in the state. Out of which Aurangabad, Beed, Jalna, Osmanabad, Nanded, Latur, Parbhani come in these districts. But due to lack of water in Marathwada region many times problems arise. This stagnant is the least rainfall. In 2019, the region received a total of 85 cm of rainfall. Due to low rainfall, the irrigation system of the land is facing issues. As the depth of wells in this region is more than 10 meters below, a problem arises in using groundwater.[19]

3. **High production costs:** High price of sugarcane, inefficient technology or non-use of proper technology etc. have created problems in sugarcane production in Maharashtra. For the development of sugarcane, it is necessary to use technology with high productivity. Proper research is needed to improve sugarcane production. Use of expensive pesticides to increase soil productivity, cost of irrigation system, use of labor like mills during sugarcane production season, use of paper pulp to increase soil fertility etc. increase the sugarcane market.[20]

4. **Small Mill Industries:** Most of the sugarmill industries in Maharashtra are small-scale with capacities ranging from 1,000 to 1,500 tonnes per day, according to the sugar demand

[16] tps college patna
[17] reuters.com
[18] reuters.com
[19] blog.isb.edu
[20] tpscollegepatna.org

which is quite low at the economic level.[21] Also tension in the relationship between the union and the workers within the mill, various issues surrounding MSP pricing have created problems in the internal environment of the mill.

5. **Lack of new equipment and use of old equipment:** The sugar mills are very old, about 40-60 years ago the use of sugar coke causes problems in production.
6. **Regional heterogeneity in distribution:** Most of Maharashtra's sugar is exported to foreign countries, resulting in imbalances in exports or distribution among regional states.

Strategies for further improvement of sugarcane yield

Sugarcane is a cash crop belonging to the poaceae family. Basically, for growth of sugarcane, the temperature of that region, soil condition, etc. are highly dependent. Irregular rainfall is one of the reasons why sugarcane yield in India is very low compared to other countries in the world. Sometimes more than required rainfall is around 500 mm which is much more than the normal 200 mm. Sometimes there is a lack of rain, which results in higher costs and more water consumption through drip irrigation. Sugarcane growers in areas such as Satam, Sangli and Solapur are worried about insufficient crop production. However, it is possible to solve such problems through drip irrigation.The productivity of sugarcane industry in Maharashtra can be increased through various methods. Important among them are:

1. Sugarcane can grow in different types of soil, such as loam, clayey loam, black cotton soil etc, but it must have a moisture content. Phosphorus, nitrogen and oxygen must exist in sufficient quantities, so that there is a possibility of good harvest.[22]
2. Organic waste materials and press mud, provide significant amounts of nitrogen and phosphorus to the plant body. Korndorfer and Anderson (1997) mentioned in their small study that vinasse and filter cake were used for better production of sugarcane in Brazil. Vinasse was mainly used on the cane part of the plant and on the ratoon plant, with the aim of better production.
3. Sugarcane production requires more Phosphorus than Nitrogen which helps in yield production. It helps in plant metabolism and photosynthesis. Potassium, Zinc, Sulphur, Manganese, Boron, Magnesium, Copper are also required. Fertilizers like Neem Cake Blended Urea, Azospirillum etc. containing nitrogen are required, supply of which is essential.[23]

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[21] tpscollegepatna.org
[22] agrifarming.in
[23] agritech.tnau.ac.in

4. The yield-gap analysis shows that there is a considerable gap between sugarcane yield and potential yield. In 2015-16 the recovery rate was 10.60%, in 2017-18 the recovery rate was 9.5%. In 2022, the sugarcane yield in Maharashtra was 78.8 tons/ha even though it doubled in size, which was 80.20 tons/ha in 2017-18. This gap in production creates problems for even the temporary development of the sugarcane industry.
5. High yield varieties can help in the development of cultivation. Co 0238 is a high yield variety derived from Cross Co LK 8102 * Co775. Which increases the production of gall by 15 tons/ha over normal. Its use is justified in subtropical climates.
6. Crop yields are greatly reduced when nutrient concentrations drop drastically. That is, to pay special attention to that.
7. Sugarcane production is good in fertile land where there is no shortage of water. An important aspect is maintaining soil pH level, which in turn maintains soil moisture.
8. It is better to grow sugarcane in the land where carrots, roots, and cauliflower have been cultivated before, because these crops increase the fertility of the soil.
9. The two-row plantation method helps in growing sugarcane with at least 150 cm gap in between, thereby leaving room for drip irrigation in drought-prone areas.
10. Use of trench method in sugarcane production. This method helps in the production of sugarcane with low cost and less water. {The sets are planted in the middle of the trenches and covered with light thickness of soil. Irrigation is given after completion of planting. This method is suitable for loamy (Domat) soil and sufficient availability of farm inputs. This method gives higher yield but requires more labor}[24] etc.

Machine Harvesting: An Adoption from Brazil

Sugar is used around the world. The US imports 50% of sugar from Florida. The method Florida uses for sugar production is that Florida burns previously cultivated land to produce better sugar cane before replanting it again. However, the people living there are facing respiratory problems. In India, on the other hand, low rainfall due to global warming and especially dependence on nature is posing a crisis to the sugar industry. But if we look at Brazil, Brazil is the largest sugarcane producer in the whole world, Sao Paulo State is one of the most notable regions where 90% of farmers are dependent on the sugarcane industry. Since 1960, Brazil has also used the burning method in sugarcane, but as a result of the increase in human mortality and asthma related problems. From 2017 Brazil started using hand cutting and machine harvesting methods which resulted in clearing the land in a short

[24] upcane.in

time and without harming people. Machine harvesting is a method that facilitates the production of raw sugarcane. Machine harvesting is a technical method where tractors are used for cutting or chopping the previously produced sugarcane plants to do farming again in that land, it also increases soil fertility. Since machine harvesting is not dependent on climate or any natural supply, it is relatively easy in any country. But machine harvesting requires advanced industry and infrastructure along with finance. If India adopts the machine harvesting method, Maharashtra will benefit because it is one of the wealthiest states in the country and close to ports and states like Telangana, Karnataka which are mainly industrial hubs will facilitate transportation, also ease of trading routes will imply the positive progress in Maharashtra.

Alternative policy Actions

Sugarcane is not only a future crop, sugarcane can also be used as fuel. Ethanol can be produced from sugarcane which contributes to the production of crude oil or gasoline. The World Energy Council (WEC) expects that in the next 15 years the energy demand will increase, with most of the energy demand coming from developing countries like India and China. In that case ethanol will be quite effective as an alternative.

Sugarcane should be considered not only as a raw material for the production of sugar or molasses, but also as a source of energy. Sugar also plays an important role in the production of various chemicals. For example, the chemical organic substances produced by sufficient industrial application of sugar are acetic acid, citric acid, citrates, lactic acid, lactates, acetone, butanediol and Polyhydroxybutyrate (PHB) etc.

Sugarcane farmers have been suffering from financial problems for several years. Diversification of farm enterprises can solve this problem. Instead of thinking of income in one way, income can be thought of in different ways. Generally, the use of nitrogen fertilizer is very low, around 30-40%. Use of fertilizers will reduce the damage in cultivation. Fertilizers should be used properly, so that the soil is fertile and it can maintain its efficacy. Various factors which specifically affect sugarcane cultivation may be political, economic, sociological etc. Political factors include prevailing prices and payment delays, market stimulation and export policies, inadequate investment in agriculture etc. Financial reasons include high cost of cultivation and low mechanization etc. causing problems in the sugarcane industry. Social factors include changes in consumer preferences and also demographic factors that contribute to poor crop yields.

Needless to say, The year 2013-2014 was one of the most important periods for the sugar industry in India. Under the leadership of Rangarajan's committee, the central government deregulated the sugar industry. The system of duty on sugar factories was stopped. This deregulation brought about a distinct change in the sugar industry, the sugar industry improved financially and workers got enough time to pay their wages. According to the report of the committee, the committee refused to ban the export of sugar. There will be no restrictions on the sale of products, the market price should be fixed so that both the farmer and the mill owner benefit. But one of the reasons why the report has not been implemented at the grass level is that the Commission for Agricultural Costs and Prices (CACP) issues fair and remunerative prices (FRP) where the price of sugarcane is fixed and the farmers will apply the fixed price in two trenches. is highlighted. As a result of which there is a lot of trouble in the sugar producing areas of western Maharashtra in opposition to the government. Here to think about the Rangarajan Committee again can help farmers in a certain way, where decentralizing the Sugar Industry would be much more gratified towards the growth in business and production as well.

Conclusion

Finally it can be said that the development of a particular state in terms of economic as well as people's livelihood requires an adequate executive system. Maharashtra is one of the richest states where on one hand Mumbai is a glittering city, well-developed car transport system, one-of-a-kind economic sector, IT sectors, and on the other hand an agricultural system. Mostly 30-40% of the people of the state depend on it for their livelihood. In that case, the Central Government should also pay special attention to the agricultural aspect, so that Maharashtra does not lag behind in terms of both infrastructural and agricultural aspects. In fiscal year 2020, Maharashtra earned a total of INR 122 billion through the sugar industry alone. Although this value is less than previous fiscal years. Needless to say, 15% of Maharashtra's economy is dependent on the sugar industry. In that case, starting from sugarcane cultivation to the executions of the company and its entire processing, it is desirable to see it as if there is no political, social, ethnographic reason, problem or disadvantage standing in front of it.

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