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2 Scope Of Micro And Small Enterprises In Jharkhand Through Rice Mills - "A Case Study Of Jharkhand"

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Abstract

Rice production is an important source of livelihood for around 140 million rice-farming households and for millions of rural poor who work on rice farms as hired labour. It is a strategic commodity as the overall economic growth and political stability of the region depend on an adequate, affordable and stable supply of this staple crop. For further processing of Paddy, there are more than 120 Rice Millers in this state. Managing rice processing and the resulting by-products into more sustainable applications would be beneficial for a variety of reasons. Rice processing involves several milling, polishing and sorting activities to produce the final products. Different by-products generated in paddy processing include husk, bran and broken rice. Due to lack of rice value addition and By-products industries, the socio-economic life of people of Jharkhand is suffering. Hence there is a need to explore these topics and identify the scope of growth in this sector to promote the socio-economic life of the people of Jharkhand. Due to non-promotion and non-establishment of industries for producing Value added rice products and for processing of By-products of rice milling, the Rice Millers do not get remunerative price of their products and by-products and there is lack of initiative on the part of entrepreneurs to put up additional rice mills to process paddy which could have triggered a chain of industries for producing value added products of rice and processing by-products of Rice which can add new dimension to the industrial development of Jharkhand and which can contribute to the socio-economic development of the people of Jharkhand. Thus it is important that the government of Jharkhand also devices the policies and related support infrastructures to promote the establishment of additional Rice mills for processing the paddy

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and the support industries for producing value added products of rice and processing the by-products of Rice Milling. The agricultural, industrial and infrastructural initiatives shall lead to the improvements in the earning potential of the rural population of Jharkhand and enhance their social and economic wellbeing.

Keyword: *Employment, Growth, Economic development, Rice, Processing*

Introduction

Rice is the staple of Asia, and it is central to the food security of about half of the world population. Asia accounts for more than 90 percent of world rice production and consumption. Rice production is an essential source of livelihood for around 140 million rice-farming households and for millions of rural poor who work on rice farms as hired labour. It is a strategic commodity as the overall economic growth and political stability of the region depend on an adequate, affordable, and stable supply of this staple crop. (Source: A regional rice strategy for sustainable food security in Asia and the Pacific- Ref: VII.)

As regards the Paddy scenario in India, as per the Indian Government Body - Food Safety and Standards Authority of India (FSSAI), India is a leading rice-producing country, with 22% of the total global rice production and 65% of India's population consumes Rice on a daily basis.

Since 2016-17, there were 4.988 million tonnes of Paddy produced in the state of Jharkhand, according to the Jharkhand Economic Survey- 2020-21. This number dropped significantly due to a weak monsoon season and decreased cropped land.

Jharkhand is relatively a recently born state formed about two decades ago by carving out the southern part of the state of Bihar. For further processing of Paddy, there are more than 120 Rice Millers in this state. Managing rice processing and the resulting byproducts into more sustainable applications would be beneficial for various reasons. Rice processing involves several milling, polishing, and sorting activities to produce the final products. The milling and polishing process

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is the essential step in rice production because it determines the nutritional value, cooking, and final appearance of the final produce of Rice. As the dehusked Rice goes through the milling and polishing process, byproducts are generated, such as bran which has been shown remarkable beneficial impacts on human nutritional health. Different byproducts generated in paddy processing include husk, bran and broken Rice. Rice bran has proved to be the most attention for its functional properties.

Raw rice millers use only a power supply source for different milling process steps. However, few of the Millers use the byproduct - husk in the Boiler as fuel to feed the Boiler for generating steam used in producing Boiled Rice. The husk generated in the raw rice milling process by other Mill Owners is completely sold as a byproduct.

However, the competitiveness of Rice Mills in Jharkhand is adversely affected due to the compulsion for Rice Millers to sell the byproducts of Rice Milling at non-remunerative price because the industries which process these byproducts for value addition are located outside Jharkhand. The state also lacks the units that use Rice to produce value-added products from Rice. All these units are mostly low investment units and if encouraged, it can lead to a vital development of many micro and small enterprises, which are the backbone of any economy.

In this review, various enterprises that can be promoted to produce the value added products from Rice or the units that can process the milling process's byproducts to convert waste to wealth have been elaborated. Moreover, the value addition and processing of byproducts of the rice milling process can certainly provide an economic boost to the economy of Jharkhand.

Objective of the study

Study and explore the possibility of adding new Micro and Small undertakings for producing value-added products of Rice and processing Byproducts of Rice Mills to create additional employment opportunities and promote the Socio-economic development of Jharkhand

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Significance of study

According to Census 2001, 77.7 % total population of Jharkhand is rural population and 26.3% of the total population of the state is Tribal Population. On top of it, Paddy is the largest growing crop in the state, covering 75-80% of net cultivated area and a large percentage of rural households is dependent on this crop. However, due to the lack of rice value addition and byproducts industries, the socio-economic life of the people of Jharkhand is suffering. As a result, research into these topics and assessing the potential for growth in this area are necessary if Jharkhand's people are to benefit socioeconomically.

Problems of Rice Mill

In Jharkhand, the Rice Mills get the Paddy for processing in two ways:

For producing Rice from Paddy for their own marketing, they procure the Paddy from private traders, who buy and store Paddy directly from farmers. Since it is a fully un-organised source of supply, there is neither any control on the Price of Paddy nor on the quality of Paddy. The consistent availability of the requisite quantity of Paddy at a suitable price is also uncertain.

However, as per local government guidelines, a certain portion of their plant capacity is to be dedicated to converting Paddy into Rice for FCI (Food Corporation of India) on a conversion basis for meeting local government demands of Rice for Public distribution. To make this conversion, FCI procures the necessary Paddy from farmers through agencies on behalf of the state government. As per Jharkhand Economic Survey, 2020-21, the Government Agencies, including FCI procured 2.54 Lac Ton Paddy during Kharif Year 2019-20. The procured Paddy is distributed to the registered rice mill for further processing. The Rice from the mills is taken back by the government for the public distribution system (PDS) of the Government of Jharkhand. The government fixes the processing charges from time to time to take care of the expenses towards processing Paddy to produce Rice. However, the charges paid by the government are highly un-remunerative and non-rewarding.

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The industries are paid to the tune of Rs 200 per tonne of Paddy towards processing charges; in addition, the transportation cost is also reimbursed to the industries separately as per the existing rates. As per the conversion agreement entered between FCI and the Rice Millers, the processing charges are based on a yield ratio of 0.68 i.e. the rice mills are reimbursed based on an output of 680 kg of Rice per 1000 kg of Paddy.

Milling and processing activities in a Rice Mill consists of multi stage processing consisting of stoning, dehusking, Milling, Polishing and sorting activities. This method involves close quality control measures to minimize grain breakage. Based on the statistical analysis of the output of Rice Milling and Processing, it consists of approximate 20% rice husk, 10-11% rice bran, and 69-70% of Rice of various sizes and quality. The Prime Rice produce is typically packaged in 25-50 Kg bags as per customer specification and sold for direct consumption. The remaining 30-31% of the Paddy input becomes byproducts or waste.

However, due to non-promotion and non-establishment of industries for producing Value-added rice products and for processing of Byproducts of rice milling, the Rice Millers do not get the remunerative price of their products and byproducts, and there is lack of initiative on the part of entrepreneurs to put up additional rice mills to process Paddy which could have triggered a chain of industries for producing value-added products of rice and processing byproducts of Rice which can add new dimension to the industrial development of Jharkhand and which can contribute to the socio-economic development of the people of Jharkhand.

Details of various units which can be put up in the state of Jharkhand for producing Value-added products of rice and processing byproducts of Rice Millers are given below:

Value addition of Rice

Value addition enhances the Rice base product value and enhances profitability. A wide range of value-added products is there which can be produced from Rice, viz. Fortified Rice, Parched

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Paddy or Puffed Rice (Lava), Beaten Rice (Chura), Expanded Rice (Murhi), Rice Flours, Rice Bear, Bio Ethanol from Broken Rice, etc.

1. Rice Fortification

It is a well-known fact that during the Milling and polishing process of the Rice milling, the nutritious value of the Rice gets deteriorated. As per FSSAI, the fortification of Rice makes it more nutritious by adding vitamins and minerals, many of which are lost during the milling and polishing process. Rice can be fortified using dusting, coating or extrusion technology. In extrusion technology, milled broken Rice is pulverized and mixed with a premix containing vitamins and minerals. Fortified rice Grains are produced from this mixture using an extruder machine.

Recently FSSAI has also issued some guideline on Fortified Rice. As per FSSAI, the Fortified rice grains which resemble the rice grains can be mixed with non-fortified Rice in the ratio of 0.5-2%. Since Fortified Rice is more nutritious, it fetches better price realisation, when sold in the market.

2. Parched Paddy or Puffed Rive (USING PADDY)

Sun-dried Paddy is filled in mud containers and is moistened with hot water. After 2-3 minutes, the water is discharged, and the jars are kept in an inverted position for 8-10 hours. Then, the Paddy is exposed to the sun for a short time and then parched in hot sand to prepare parched Rice. Puffed Rice is prepared by throwing pre-treated Paddy into sand heated to a high temperature in an iron pan. When heated, the paddy grains expand and burst into a soft milky product called Parched Rice. The dried grains are sieved to remove sand, and then the husk is separated. Parched Rice is a traditional convenience food widely consumed in rural areas either as such or with Jaggery (Gur). The parched Rice is produced mainly in domestic / cottage industries by skilled workers.

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3. Puffed Rice

The process of producing Muri, is very much similar to producing Popcorn. Traditional puffed Rice called muri (sometimes spelled mouri) is made by heating rice in a sand-filled oven. Rice grains are slow roasted with sand in huge iron kadai with a lot of patience, keeping the heat very slowly so that the rice grains do not burn. While the volume of the puffed Rice is greater than the quantity of Rice used as input for the same, the nutrient value of the puffed Rice is lower than Rice.

Puffed Rice is certainly found to be more useful for making tasty snacks like Bhel puri, masala muri and snacks for other needs. The most common usage Bhel puri - is a savoury snack and is also a type of chaat. It is made of puffed Rice, Boiled Potato and a tangy tamarind sauce. It is a popular street food in India. Very often muri is also used as prasad as an offering in temples of southern states of India. Market Outlook of Puffed Rice has a high demand in the national market. It has Export potential also; however, there has to be stringent control on the quality front such as uniform puffing, contamination-free, good colour, crispness etc. Puffed rice production in India is mainly limited to village levels in the cottage sector. However, in recent times, mechanised manufacturing of Puffed Rice has also started in Small Sector, which provides a good employment potential for the local population. With the increased availability of puffed Rice at a competitive price, its export potential can also be explored.

4. Rice Bear

Tribal populations make country liquor from Rice in their house itself by the fermentation process. However, in the urban population, Bear made from Rice has become more prevalent as a mild alternate alcoholic drink than liquor. Alcohol has also been attributed to its ability to increase the amount of good cholesterol (HDL) into the bloodstream and help decrease blood clots. Hence persons with low intensity of cardiac problems also prefer a moderate dose of Rice Bear as an alcoholic drink.

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Byproducts of Rive Milling

1. Biogas Production from Paddy Plant waste (Rice Straw)

Rice straw has huge potential to contribute to the growth of the dairy sector as it is widely used as animal fodder. Rice Straw is also decomposed to produce manure as fertilizer in farming. Rice Straw can also be used to generate bioenergy and to be used for electricity generation. Bioenergy production also has an environmental and economic benefit and the Government of India is also encouraging the establishment of Bio Gas production units. They have also urged the establishment of Bio Gas units through GAIL, a government of India undertaking, which is assuring the units to buyback the Bio Gas produced by those units. Bio Gas generation from Rice Straw is an excellent example of converting waste to wealth.

2. Bioethanol from Broken Rice

The government of India is also encouraging the establishment of Bio Ethanol Units. They have made it mandatory for Public Sector Oil Distribution Companies to blend specified percentage of Bio Ethanol in Petrol as import substitution units. They have already been buying Bio Ethanol to blend with Petrol as per the Government of India Regulatory Guideline. Ethanol can be produced from any Carbohydrate substance which contains starch or sugars. Starchy materials such as corn, cassava, sweet potato, potato, wheat and Rice can be the raw materials to produce ethanol in high yield, and cellulosic materials, which after pre-treatment can also be used for alcohol production. Regarding the potential use of Rice for bioethanol production, it is important to consider that due to its high concentration of starch, Rice is very suitable for the production of bioethanol.

3. Rice Husk

Rice husk is abundantly available in the state from the existing rice millers and village-based local dehusking units, which are also essential dry fodder for dairy animals. Rice husk has several uses, but the conversion of rice husk into fuel is one of the most important uses of rice husk. Once removed from the Paddy, Rice husk can be a source of energy because of the organic

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compounds present. Few rice mills also use the byproduct - husk in the Boiler as fuel to feed the Boiler for generating steam used in producing Boiled Rice. The steam generated from Rice Husk-fed Boilers can also generate electricity through power turbo generators. Burnt rice husk

4. Broken Rice

It is a well-known fact that breakage occurs during the Milling and Polishing Process, largely depending on the Strength of Paddy Grain and the moisture content. As per actual breakage observed in Rice Mills, Broken Rice accounts for approximately 10-14 % of Paddy Input. After Rice is polished, it is graded through Graders according to size and Rice that does not meet the required minimum size, is considered broken or undersized.

Whatever quantity of broken Rice is generated in the Rice mills is usually sold on 'as it where basis'. However, the broken Rice fetches very low realisation in case of an outright sale. Compared to prime Rice product, the broken Rice fetches around 40-50% realisation only. Hence there is an economic compulsion to explore the alternate venues for Broken Rice to maximise its value to improve the overall economics of Rice Millers.

Following are the various options to increase the economic value of Broken Rice

Rice Flour from Broken Rice: Broken Rice can be ground into Rice Flour and utilized as a food additive because of its human nutritional benefits as it is gluten-free. Many food products, baby food items are made from Rice Flour. In domestic uses, Rice Flour is also used for making chapatis instead of Wheat Flour by many households as it is gluten-free and helps in weight reduction. In southern India, broken Rice is used for making Idli Mix. Hence, converting the undersize and broken Rice into Rice Flour is most often found to be more viable commercially viable as compared to outright sale on 'as is where the basis'.

Fructose Syrup from Broken Rice: Glucose syrup is a popular sugar substitute. From a strictly chemical perspective, glucose syrup is the proper term for any liquid starch consisting of

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carbohydrates. It can be made from starch, including corn, wheat, Rice, or potatoes. Fructose Syrup has a characteristic of quickly getting bonded with dry and solid particles, hence food product producers prefer it for making canned, processed fruits, Jams and Jellies and candies.

5. Rice Bran Oil from Rice Bran

Rice Bran is generated during the polishing process in Rice Mill. The bran is separate during the polishing process from the outer layer of the dehusked Rice, which contains such nutrients which are biologically active compounds and are very beneficial for positive impact on human health. On average, rice bran contains 10–23% Rice Bran Oil. After the bran is stabilized, it goes through further processing to make it oil edible. After extraction, rice bran oil is divided into crude bran oil and defatted Rice. Crude Rice Bran Oil consists of 4% unsaponifiable (wax, fat, and oil), 4% free fatty acids, and 90% lipids. Crude RBO is refined through the removal of free fatty acids and is necessary to improve its sensory properties. In India, Rice Bran Oil has become the symbol of healthy and nutritious cooking oil.

Conclusion

Generation of prime saleable Rice as well as its various byproducts like undersize or broken Rice, bran, husk, etc. is inherent to the activity of rice milling. Lately, there has been an increase in the consumption and utilization of the value-added products of Rice as also the byproducts of the milling process, particularly using rice flakes, bitten Rice, broken Rice, rice bran oil, beverages made of Rice. Studies have shown that rice bran, RBO, rice husk, and broken Rice have potential health and alternative food uses. Rice bran, husk, and broken Rice have a variety of applications for food, agricultural, and fuel industries. While the industries based on value-added products of rice and industries processing byproducts of rice mills can lead the industrial boost to the industrial environment of Jharkhand. It also becomes a big driver to provide additional employment opportunities to the people of Jharkhand and improve upon the socio-economic life of Jharkhand.

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The government of Jharkhand has to implement policies and support infrastructures to encourage the establishment and expansion of more rice mills for processing the Paddy and support industries for producing value-added products of Rice and processing the byproducts of Rice. The agricultural, industrial, and infrastructural initiatives shall lead to improvements in the earning potential of the rural population of Jharkhand and enhance their social and economic wellbeing.

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