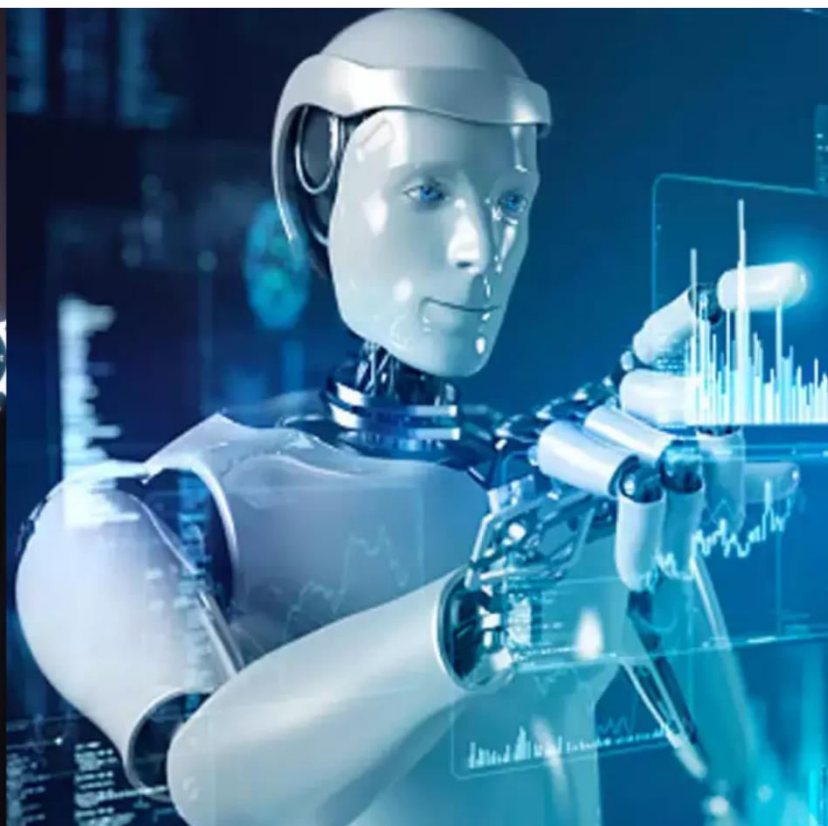




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# **A Study on Supply Chain Performance of Rice Mills as Agro-Industries in the Procurement of Paddy in Odisha**

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**ABSTRACT:** Paddy covers about 69 per cent of cultivated area and is the major crop covering about 63 per cent of total area under food grains. It is the staple food of almost entire population of Orissa; therefore, the state economy is directly linked with the improvement in production and productivity of rice in the state. Entrepreneurship is considered as an important parameter for economic development of a state. It not only boosts the organization but also it promotes the economic development of the sector. In late 1960-70's due to green revolution the agriculture scenario came with a drastic change with huge production and productivity of food grains specially paddy and wheat. It makes our country self-sufficient in food grains. This was also a time where agri- entrepreneurs from different states of India came into timeline. It accelerates the processing of paddy to make it consumable for the population. It converts the paddy grain to consumable rice. It plays an important role in paddy procurement. Odisha in latter 80's became self-sufficient in paddy production and dominates other crops. This era brought revolution in the paddy milling industries of Odisha. In late 90's there were around 796(OSCSC) nos of rice milling units in Odisha which in 2010-15 reduced by 24%. Many mills are closed and some are running in loss due to certain constraints and challenges. The main objective of this paper is to analyse the constraints and the challenges faced by the rice millers. For this study Bargarh, Cuttack, Jagatsinghpur and Sambalpur are taken as the area for research as the paddy production is higher than that of other districts of Odisha. About 95 nos samples mill owners have been contacted to complete this paper. Then the data are analysed and interpreted. From study it is found that the situation of the early 90s and now has changed in respect of various factors such as stringent rules regulations of govt. enforcement of licensing part, delay in payment to the millers, infrastructure availability quality of the paddy procured and different schemes formed by govt..This study tried to understand the constraints and enlighten ideas to those upcoming entrepreneurs who want to build their career in rice milling sector in Odisha.

**KEYWORDS:** Cultivated area, Procurement, processing, milling units, licensing, infrastructure

## **I. INTRODUCTION**

The green revolution in India started in the late 1960s and with its success India attained food self-sufficiency within a decade. On the contrary, the agricultural growth in the 1980s (the second 'wave' of the Green Revolution) involved almost all the crops including rice and covered the whole country.

It makes our country self-sufficient in food grains. This was also a time where agri- entrepreneurs from different states of India came into timeline. It accelerates the processing of paddy to make it consumable for the population.

Odisha in latter 80's became self-sufficient in paddy production and dominates other crops. Many mills are closed and some are running in loss due to certain constraints and challenges. The processing of paddy is carried out in our country in a variety of mills like huller mills, battery of huller mills, huller-cum-sheller mills, sheller mills and modern rice mills. It is a fact that the modern mills give the highest yield of rice with least broken and better quality of by products. Milling is a general term used for the processing of food grains into consumable form keeping in mind the nutritive quality of the product as well as the consumer's preference. It facilitates storage of food grains and reduces wastages. Paddy is milled in order to remove husk, bran, germ and aleuronic layer. Government regulation can provide both risks and benefits to business. However, unpredictable government policies force business decision-makers to receive risks

in investment. Governments influence regional development in agricultural production, and their approaches have changed remarkably over the years including the milling performances.

### Objectives

- To study the status and performance of rice mills in paddy procurement process in Odisha.
- To analyse the supply chain constrains and the challenges faced by the rice milers
- To give suggestions for smooth functioning of rice mills and sustainable development

### II. RESEARCH METHODOLOGY

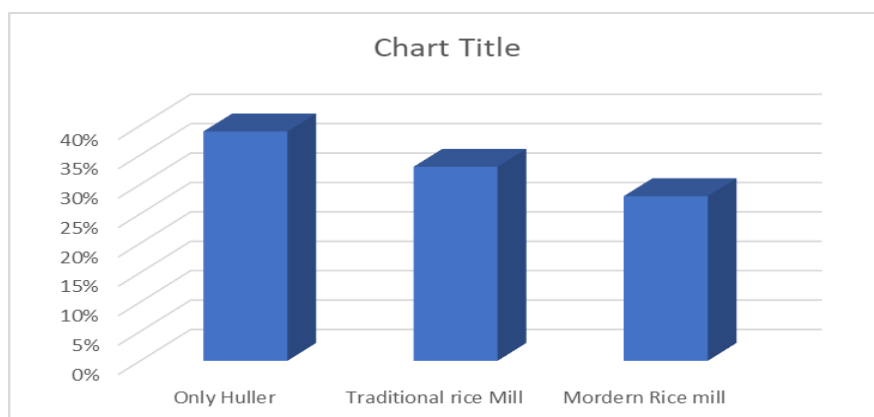
- Study design -Quantitative research methods attempt to maximize objectivity
- Sampling design--
  - ✖ Sample unit - Rice Millers
  - ✖ Sampling procedure-Non random convenience sampling
  - ✖ Sample size –95 millers
  - ✖ Sampling area – Bargarh, Jagatsinghpur, Cuttack, Sambalpur
- Data collection-  
Data is collected through Scheduler and mailed questionnaire
- Data Analysis – Data are analysed by using various statistical tools. Mostly MS excel and SPSS are used to analyse the data.

### Hypotheses

- H1. Licensing & Registration put impact on performance of Rice mill
- H2. Storage space and infrastructure facilities available have relation on performance of Rice mill
- H3. Fair Average Quality of paddy and rice are important performance indicators of Rice mill
- H4. Government policies decide the performance of Rice mill
- H5. Proper processing of paddy decides the performance of Rice mill
- H6. Timely Payment and mode of payment have relationship on performance of Rice mill

### Data Analysis and Interpretation-

Figure-1 Status of rice miller in Odisha

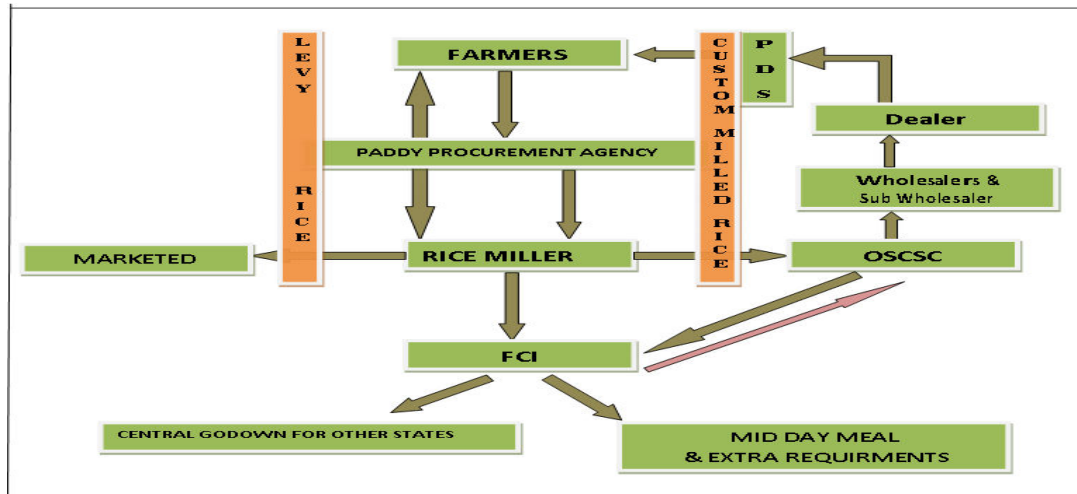


Source-Field survey

Figure no-1 interprets that 28 % of the mills are modern rice miller having modern equipments for milling. 39% of millers are small and having only hullers in order to de-husk the paddy in rice. These hullers are mostly located in the rural and village area in order to mitigate the local needs of the farmers. Rests 33% of the mills are traditional among which many also are registered and participated in the custom milling rice.



Figure-2 Supply chain of paddy in Odisha



Source-Field survey

As per figure 2 Odisha State Civil Supplies Corporation Ltd. Hold all the responsibilities in procuring paddy, mill those into rice for (a) distribution against Government allocations under TPDS (b) delivery of surplus rice to FCI, under the decentralized procurement (DCP) scheme of Government of India as per procurement targets fixed by State Government from time to time. At present marketing of rice is not at all a problem because FCI is purchasing 75% of the total production against levy quota. Open market has the demand for consuming rest 25% of the production. If the levy system will be out then marketing will be the major problem.

Here in both the cases in paddy supply chain millers play an important role in processing the paddy as per the target and deliver those to govt. as per scheduled date.

Table1-Constraints affecting the performance of Rice mill in Odisha

Model	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	$\beta$	Std. Error	Beta		
(Constant)	3.733	1.138		3.234	.001
Licensing & Registration put impact on performance of Rice mill	.465	.079	.238	3.228	.029
storage space and infrastructure facilities available have relation on performance of Rice mill	.499	.078	.324	1.674	.015

Fair Average Quality of paddy and rice are important performance indicators of Rice mill	.308	.076	.242	1.446	.023
Government policies decide the performance of Rice mill	.840	.032	.468	2.671	.039
Proper processing of paddy decides the performance of Rice mill	.391	.050	.237	2.092	.033
Timely Payment and mode of payment have relationship on performance of Rice mill	.404	.047	.238	3.012	.045
a. Dependent Variable: Performance of rice mill					

Source-Field survey

Table no 1 shows the regression analysis of Licensing & Registration, storage space and infrastructure facilities, Fair Average Quality of paddy and rice, Government policies, Proper processing of paddy, Timely Payment and mode of payment have impact on the overall performance of Rice mills in the context of Odisha.

The Regression analysis based on the data collected from the respondents participating in the performance in Odisha we found that, Licensing & Registration part has impact on performance of rice mill and had significantly positive effect ( $p < 0.05$ ;  $\beta = .238$ ). Thus, H1.a, proposing that Licensing & Registration put impact on performance of Rice mill Odisha by this study. As the small rice millers specifically due to different clearance and license from different department which becomes tedious to them for registration

Similarly, on proper storage space and infrastructure facilities available had significantly positive effect on performance of rice mill ( $p < 0.05$ ;  $\beta = .324$ ). Hence the hypothesis H2 was also supported by the study. The storage structure influences the supply chain of paddy in all the part starting from the supply side, processing part and the demand side. In the supply part the storage structure and infrastructure is very much essential in the mandi in order to store the paddy from the rainfall and security regions. In the processing side there should be adequate storage facility near the processor for storing both the unprocessed paddy for milling properly and the processed paddy safely with quality until it is lifted by the government agencies. The government should also have the adequate ware house for storage in his control both by the state government and the central government so that they can store the processed paddy(rice) properly without any quality deterioration and in right time so that the miller would not affect by it and the processing.

Fair Average Quality of paddy and rice had significantly positive effect on performance of rice mill ( $p < 0.05$ ;  $\beta = .242$ ). Hence the hypothesis H3 was also supported by the study. The Fair average quality (FAQ) of the paddy and the rice that is processed paddy, both are very important. In the case of paddy, the farmers who are selling their paddy in the mandi have to sell with proper FAQ as fixed by the government. in order to get the MSP. So, this FAQ plays a vital role upon the procurement. Similarly, when the millers are processing or miller the paddy to rice, they also have to take care of the quality as per the standards fixed by the government or else it creates problem while lifting the processed paddy by the government. as it is to be distributed by the government to the beneficiaries through different schemes. But due to unavoidable circumstance they are bound to lift below FAQ which has impact on the processing.

From the above table no 1 it is also confirmed that government policies had significantly positive effect on performance of rice mill ( $p < 0.05$ ;  $\beta = 0.468$ ). Hence the hypothesis H4. was also supported by the study. The whole process is mostly affected by the government. policy as government plays a key role to decide the price and guidelines for millers. Government also fixed the target for procurement by considering the demand side that is the distribution of paddy to beneficiaries' government also decides the time of procurement, Fixing target for the miller and also the overall supervisions.

Proper processing of paddy and timely delivering to the concerned dept. had significantly positively effect on performance of rice ( $p < 0.05$ ;  $\beta = 0.237$ ) Hence the hypothesis H5. was also supported by the study. Processing plays as an intermediary between the supply and demand of the supply chain. The processor processes the paddy into raw rice which is to be distributed to the beneficiaries through various schemes. So, paddy processors have to uplift as per the target assigned to them and same has to process in time with maintaining the quality as per guideline. The processor also has to maintain the milling capacity and the store house for storing the paddy and rice in proper condition so that it would not break the flow of supply chain.

Similarly, Timely Payment and mode of payment have relationship on performance of Rice mill ( $p < 0.05$ ;  $\beta = 0.238$ ). Hence the hypothesis H6 was also supported by the study. As the supply chain of paddy running in Odisha is a demand driven so mostly the target is fixed taking the amount of paddy to be consumed by the beneficiaries. In this supply chain of paddy in Odisha mostly OSCSC plays a major role as primary agency of state government. First it fixed the target of the rice required for various schemes in PDS distributed to beneficiaries in each month. Then decide the target for procurement. The OSCSC then retain the amount of paddy and rest FCI lift for the central pool and for mitigating further emergency situation also plays a major role in fulfilling the demand for mid day meal and any shortage in PDS for state of Odisha.

### III. FINDINGS

- Milling capacity decides the target for milling mostly the miller who are having the milling capacity more than 12-60 tons are participating in both for custom milling and levy rice.
- The policy regarding the quality which they have to deliver to the government is not at par to the guideline of the standard FAQ of what they procure from PPC.
- Miller, many times are facing the problem of gunny bags which are used to pack the milled rice and delivered to the government agencies.
- Govt is charging 68% of the total paddy milled to the paddy procured.
- Payment for the particular season is delayed and held up to the next season.
- Open market is not allowed as a result miller only stick to the custom milling rice and many small millers prefer milling illegally rather than getting registered
- Many small millers are interested to participate but due to different license and certification they are not interested for registrations.
- Lifting of the processed paddy is mostly delayed by the Govt. agencies which ultimate result in pilling of the processed paddy in the miller storage yard. This finally breaks the flow of further processing as there are no other spaces for storage with miller.

### IV. CONCLUSION

Rice mill is the important agro-industry of Odisha. It not only reduces the post-harvest loss of rice but also helps in eradicating surplus rice and reduces fluctuation of price of rice. Rice mills have a strong forward and backward linkage starting from lifting paddy from farmers, processing to delivering processed rice to concerned organisation.

The rice mills have triggered development process in terms of improvement agriculture practices Mills are to be established where facilities for storage, drying of cereals are available. Existing modern millers and new agri – entrepreneurs should not emphasis on the milling only, rather should look for the marketing of the byproducts and add value to the paddy so that they can make the business a sustainable and profit oriented. Government being the controlling body also need to reform all the policy for miller (new & existing small) in such a way that the flow of the Paddy in the supply chain should not break at any point starting from the production, milling by millers till the lifting of

the processed paddy by government agencies. This not only will help in running the mills smoothly but also create employment opportunity for the upcoming generation.

#### **V. SUGGESTION**

Small millers and the new entrepreneurs should avail the schemes and benefits provided by govt. They should follow the minimum registration and licensing needed for running a rice mill. In this era of innovative agribusiness, a miller should also try to focus on value addition.

- Licensing and registration should be hassle free and easy going for the millers to handle
- Govt. must allow millers for open market with certain guidelines. The millers who are small and traditional miller mostly sell the processed paddy illegally as they are not registered to participate in custom milling. They should be allowed to participate with some legal guidelines so that at least they will get some profit and run their rice mill without closing it.
- Miller should also concentrate on the byproducts. The husk ash, which can be used as organic fertilizer in agri-farming. It can also be used in manufacturing of cement and extraction of silicon. husk board industry, building material, refractors and ceramic industries.

Bran can be used for extraction of Bran oil is edible having low cholesterol. This bran after extraction can also be used in poultry and cattle feed for its high protein content.

Broken rice which comes out during processing are not accepted which can be used by diff. processed food industries for preparation of RTS products.

#### **REFERENCES**

1. [www.OSCSC.com](http://www.OSCSC.com)
2. [www.AORMA.com](http://www.AORMA.com)
3. RIDF schemes and project reports, Agricultural department Press, Government of Odisha. 2022
4. Vishal Sharma, Sunil Giri, Supply Chain Management Of Rice In India: A Rice Processing Company's Perspective, International Journal of Managing Value and Supply Chains (IJMVSC) Vol. 4, No. 1, March 2013
5. Ellram, M. (1991). Supply-Chain Management: The Industrial Organisation Perspective. International Journal of Physical Distribution & Logistics Management,
6. Gadai, N., Shrestha, J., Poudel, M. N., & Pokharel, B. (2019). A Review on Production Status and Growing Environments of Rice in Nepal and in the World. Archives of Agriculture and Environmental Science, 4, 83-87.
7. Kisanga, P. S. (2015). Performance of Rice Value Chain in Kahama District, Tanzania. Tese de Mestrado, Sokoine University of Agriculture.





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