

Final Report

On

PUBLIC DISTRIBUTION SYSTEM

AT

ANGUL, GAJAPATI & PURI

For



***P&C DEPARTMENT, GOVT. OF ODISHA
ODISHA SECRETARIAT***

by



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1.0 INTRODUCTION:

The green revolution in India during mid 1960's had brought an unprecedented impact on transforming agricultural scenario in the country. During 1965 to 1995, the food production and its productivity has been more than doubled. The intensity of hunger and poverty has been halved. It was mainly due to synergy of development of technology, policies, services and farmer's interest. But by the end of the next decade i.e. 2007, even if the national G.D.P registered a high growth rate of more than 8%, the agricultural growth rate was hardly 2% and the total factor productivity growth had stagnated. Fortunately during last 3 to 4 years, the agricultural growth rate of 3.2 to 4.1 percent has been attended registering record production of food grains of 265 million tons.

Despite of such spectacular change in agricultural production, more than 40 percent of world's undernourished children are in India. Income gap between the farmer and non-farmer has widened. Despite the stock of food grains in the central pool much more than the existing buffer stock norms for food grains, the country is experiencing food inflation. These issues clearly indicate the concern of food security to a major category of people in India. Besides there is high price spread between the price paid by the consumers and the actual price received by the farmers for their produce. Cost involved and margins appropriated by the intermediaries for their services in the supply chain are unduly high. The public distribution system (PDS) which aims to supply of food grains at reasonable price for providing food security to a major class of people is studied in respect of its services rendered to the beneficiaries.

The present study aims to study and critically examine the present supply chain management practices followed for paddy/rice in Chhendipada block of Angul district, Nimapada Block of Puri district, Gumma Block of Gajapati district and to develop policy options to support and improve the efficacy of the existing system of distribution of food grains.

1.1 Public Distribution System (PDS):

Public Distribution System has been operational for more than five decades, yet, barring a few southern states of India, access to resources and utilization of commodities has still

remained at low level and it has hardly impacted in providing food and nutritional security to targeted population. In the past decades the system has been revised and modified number of times to improve the efficacy and to meet the objectives of providing food security to the targeted population of the country.

1.2 Categories of Public Distribution System in India:

There have been monumental changes in the current Public Distribution System since its inception. There is a continuous change made for refinement in the system to improve not only the efficacy but also to satisfy the targeted population. The section reveals the changes made in the system since independence and presented their impact over the beneficiaries.

1.2.1 Revamped Public Distribution System (RPDS):

The Revamped Public Distribution System (RPDS) was launched in June, 1992 with a view to strengthen and streamline the PDS as well as to improve its reach in the far-flung, hilly, remote and inaccessible areas where a substantial section of the poor live. It covered 1775 blocks including agriculturally unfavourable regions like drought prone area.

1.2.2 Targeted Public Distribution System (TPDS):

In June 1997, the Government of India launched the Targeted Public Distribution System (TPDS) with focus on the poorest section of the society. Under the TPDS, States are required to formulate and implement full proof arrangements for identification of the poor for delivery of food grains and for its distribution in a transparent and accountable manner at the FPS level. The scheme, when introduced, intended to benefit about 6 crore poor families for whom a quantity of about 72 lakh tons of food grains was earmarked annually.

1.2.3 PDS for General BPL:

In this scheme, the BPL families are issued ration cards by the department of food supplies and consumer welfare to avail the essential items on monthly basis. Besides, the government also creates space of different subsidized policy to the beneficiaries within the same scheme by looking into the matters of vulnerability on different aspects.

1.2.4 PDS for APL:

The families found above the poverty line through the BPL survey are the APL families. When an APL family is issued a ration card by the department of foods supplies and consumer welfare, by that time the family becomes a beneficiary under the APL scheme. Usually, the subsidized prices for the essential items under the scheme are almost same with the prices of other schemes except the food grains prices.

1.2.5 Antyodaya Anna Yojana (AAY):

As per National Sample Survey report five percent of the total population in the country sleeps without two square meals a day. This section of the population can be called as “hungry”. In order to make TPDS more focused and targeted towards this category of population, the “Antyodaya Anna Yojana” (AAY) was launched in December, 2000 for one crore poorest of the poor families. AAY has been expanded multiple times and its coverage is to a tune to 2.5 crore households.

1.2.6 Annapurna Yojana:

The beneficiary under the scheme is not a family rather an individual. An individual being a helpless, destitute, widow, divorced or same tune of plight is considered a beneficiary under the scheme and gets free of food grains of a certain quantity.

1.3 Objective of the Study:

- To understand the existing supply chain of public distribution system and identify the gaps in implementation.
- To identify the resource requirement for effective management of the supply chain
- To explore various supply chain models in tandem to strengthening and /or bringing efficiency in different level of the supply chain.
- To evaluate the socio- economic implications of the existing supply chain and propose efficient models.
- To study the existing resource deployment in managing the supply chain and identify the gaps for achieving the proficient supply chain.
- To propose policy measures for procurement, supply and distribution of rice under the PDS.

2.0 DATA ANALYSIS:

The data relating to Public distribution system including Revamped Public Distribution System, Targeted Public Distribution System, PDS for General BPL, and PDS for APL, AAY and AY are collected from district OSCSC office at Gajapati. The data relating to procurement, milling, storage and distribution to consumers through Fair Price Shops (FPS) have been collected from different agencies involved in Public distribution system for the Gajapati, Angul & Puri district in the Gumma, Chendipada and Nimapada blocks respectively. Beneficiaries have been contacted for analysing problems faced by them starting from procurement till it reaches to the ultimate consumers. The cost of transportation, storage, and milling, gunny bag including interest, administration and VAT charges are collected from the Govt. (Circular No. 192(23)/2014-FC .ACs, Government of India, Ministry of Consumer Affairs, Food and Public Distribution, Department of food and Public Distribution, Krishi Bhavan New Delhi, Dated 03rd Nov. 2014). This information is used in estimating the cost incurred per quintal of Paddy/rice in the existing supply chain of the PDS as well as in the proposed supply chain for paddy/rice in different models.

3.0 PUBLIC DISTRIBUTION SYSTEM IN ODISHA:

Odisha is the 11th populous state in India. It has a population of about 41 million. The state of Odisha accounts to about 3.4% of the total population of India. The state is spread over an area of 150000 sq. km, which makes it the 9th largest state in India. This state has a population density of 260 sq. km and has a literacy rate of 72.87% (male literacy stands at 81.59% while female literacy is at 62.46%). Its sex ratio is 978. Out of the total population of Odisha only 16.69% people live in the urban areas while rest 83.31% of the population live in villages (Census 2011).

In Odisha the distribution of food grains is made under various schemes as mentioned below:

Table 1: Consumer price for different category of Rice

Sl. no	Scheme	Scale of Distribution	Consumer rate per kg.
1	BPL Rice	25 kg per card	Rs.1/-
2	AAY rice	35 kg per card	Rs.1/-
3	Annapurna rice	10 kg per card	Free of cost
4	RDP rice	10 kg per card	Rs.1/-
5	SC/ST hostel	Bulk consumer	Rs.1/-
6	Welfare Institute	Bulk consumer	Rs.6.30/-
7	APL jail rice	Bulk consumer	Rs.9.30/-
8	APL wheat	10 kg per card	Rs.7/-

4.0 SUPPLY CHAIN OF RICE IN PUBLIC DISTRIBUTION SYSTEM

The existing distribution system for paddy/rice involves number of agencies like (1) OSCSC ltd, (2) PACS, (3) WSHGs and (4) Pani Panchayat for procurement of paddy, miller for milling of paddy to rice, RRC for storage of rice and FPS for distribution of rice to the beneficiary/ consumers.

The existing supply chain system for rice is shown in Figure 1.

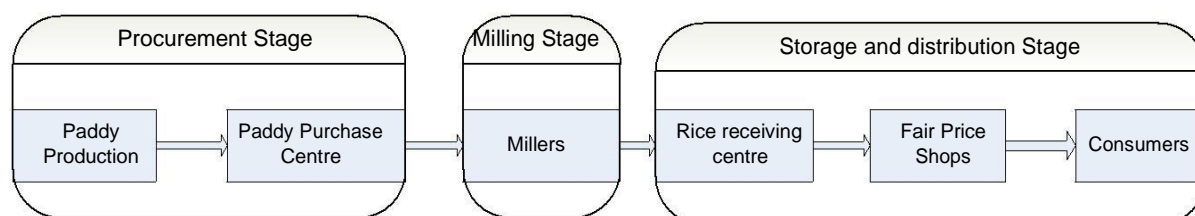


Figure 1: Supply Chain of PDS Rice

The Supply Chain System for rice operates in three stages i.e. :

1. Procurement Stage
2. Milling Stage
3. Storage and distribution stage

4.1 Procurement Stage

In this stage, paddy is procured by the Designated Paddy Purchase Centre (PPC) which are managed by PACS, SHGs, Pani Panchayats and OSCSC. Every farmer has been attached to a PPC for selling their paddy. The PPC procures paddy directly from farmers at Minimum Support Price (MSP) prescribed during the period in Khariff/ Rabi Marketing Season

(KMS/RMS).

The detail month wise procurement data is not available for understanding the procurement load on the PPC. The achievement of paddy procured for three districts against the target given during last 3 years is given below in Table-2.

Table 2: Target and Achievement of Paddy Procurement in Gajapati, Angul & Puri

District	KMS/Quantity in MT	2012-13	2013-14	2014-15
Gajapati	Target	32353	37313	NA
	Achievement	29722	28912	12947.85
Puri	Target	1029411	808823	12,36,955
	Achievement	902426	699410	12,27,691
Angul	Target	48562	54347	58,823
	Achievement	42339	41246	46,352

4.1.1 Paddy procurement for KMS 2014-15 in Angul District:

Angul is a Deficit district as the requirement is above the Procurement. Angul being an industrial district, there is a paradigm shift of the livelihood pattern towards the commercial business and working in industries rather on agriculture. The paddy procured for Angul district is 46352.59 MT of as against the target of 58823.94 MT. The differential rice requirement for Angul is met from the districts producing surplus rice.

4.1.1.1 Paddy Procurement for KMS 2014-15 in Chhendipada Block:

During KMS 2014-15, 5374.63 M.T of paddy was procured from Chhendipada block from different agencies as mentioned in the **Table 3**.

Table 3: Paddy Procurement of Chhendipada Block

Name of Block	Target in Qtl.	Achieved in M.T
Chhendipada	5879.61	5374.63

4.1.2 Paddy Procurement for KMS 2014-15 in Puri District:

From the Field Study and response collected from Official, it is understood that Puri is also a Deficit District. Puri is a costal district, the cropping area of the district is prone to flood and water logging, this makes the farmer difficult to apply fertiliser in time. The fertiliser

absorption also gets affected due to water logging, thus affects the yield of paddy. The Procurement of Paddy for Puri district is 1227691.21MT as against the target of 1236955.83 MT. The differential rice requirement for Puri is met from districts producing surplus rice.

4.1.2.1 Paddy Procurement for KMS 2014-15 in Nimapara Block:

During KMS 2014-15 6009.55 M.T of paddy was procured from Nimapara block from different agencies as mentioned in the Table 4.

Table 4: Paddy Procurement of Nimapara Block

Name of Block	Target in Qtl.	Achieved in M.T
Nimapara	6054.90	6009.55

4.1.3 Paddy Procurement for KMS 2013-14 in Gajapati District:

Most of the geographical area of Gajapati district being the hilly terrain and the majority of the farmers are tribal, thus it affects the paddy Production. The agricultural land are mostly hilly slope and water carrying capacity is less, which makes the farmers unwilling for rice cultivation and the yield in this type of land is comparatively low as compared to plain land. The Paddy Procurement for Gajapati district is 27853.96 MT as against the target of 38358.21 MT. The differential rice requirement for Gajapati is met from districts producing surplus rice.

4.1.3.1 Paddy Procurement for KMS 2014-15 in Gumma Block:

During KMS 2014-15 1340.68 M.T of paddy was procured from Gumma block from different agencies as mentioned in the **Table 5**.

Table 5: Paddy Procurement of Gumma Block

Name of Block	Target in Qtl.	Achieved in M.T
Gumma	N.A	1340.68

4.1.4 Status of Paddy Procurement in three Selected District

Sl. no.	Angul	Puri	Gajapati
1	Angul is a Deficit district as the requirement is above the Production.	Puri is also a Deficit District in production.	Gajapati is also a Deficit District in production.
2	The paddy procured for Angul district is 46352.59 MT as against the target of 58823.94 MT.	The Procurement of Paddy for Puri district is 1227691.21MT as against the target of 1236955.83 MT.	The Paddy Procurement for Gajapati district is 27853.96 MT as against the target of 38358.21 MT.
3	The differential rice requirement for Angul is met from the districts producing surplus rice.	The differential rice requirement for Puri is met from districts producing surplus rice.	The differential rice requirement for Gajapati is met from districts producing surplus rice.

4.1.5 Paddy Procurement Centre:

According to government norms some basic infrastructure and instruments are to be available at PPC which includes:

1. Sufficient godown facility
2. Road for transportation
3. Weighing scale
4. Moisture meter
5. Sample Divider
6. Analysis Kit
7. Mini Grader
8. Furniture/water/other facilities

On field study, it is found that some equipment required to test the sample are not available at Paddy Purchase Centre. It has also been observed that no technical personnel were so far engaged by the PACS to assess the quality of paddy brought by the farmers to the PPC,

presently the Secretary of the PACS are carrying out all activities concerned to paddy procurement. The Secretaries also have no specific skill set to perform the procurement, as no training was imparted to them. Due to non-availability of equipment, and technical personnel, it becomes difficult to know the quality of paddy and the level of FAQ. As a result, the millers may sometime have to purchase poor quality of paddy. Farmers also insist to procure their stock irrespective of quality. Sometimes the millers had to bring their own equipments for testing of FAQ quality.

Table 6: Expenses incurred in Paddy Procurement Centres

Sl. No.	Paddy Procurement Cost	Total Cost in INR
1	Cost of transportation from farmers point to Procurement centre	0
2	Mandi labour charges	9.17
3	Commission to Societies	31.25
	Procurement Cost (A)	40.42

4.1.6 Problems faced at Paddy Procurement Stage:

In this stage farmers face problem in transportation and stocking of their paddy at PPC. As per the existing practice, the transportation cost is borne by the farmer to bring their produce to PPC. Most of the small farmers are not willing to bring their stock to such a long distance incurring self-expenditures. Besides they have to wait for long hours to sell their paddy, as there is no such scheduling of farmer/ village wise procurement is made. As a result some poor marginal and small farmers sell their stock to private traders at their village level.

Stocking of Paddy at PPC is another major problem at this stage. No proper godown facility is available at PPC for storing the paddy. Farmers bring their own temporary storage materials like tent to protect their paddy until it is sold. As a result the paddy quality deteriorates and creates problem in meeting the Fair Average Quality (FAQ) standard. The infrastructure details of the PPC were not available for assessment.

As per practice, a PPC is to procure paddy from 8 to 10 neighbouring villages. But it does not make a proper planning in terms of scheduling the villages for procurement. As a result the farmers have to wait for a long hours for sale of their stock. Further details on PPC about the procurement cycle, scheduling, stocking period are not available.

4.1.7 Capacity Planning of Paddy Purchase Centre:

Proper planning is necessary for PPC to create a conducive atmosphere for procurement. As observed, there is no capacity planning so far done at PPC level, that lead to a difficulty and/or error in target fixation for PPC by the OSCSC. There is no available storage space for safe keeping of paddy. Farmers bring their paddy and store at PPC at their own risk. As a result, much of the paddy gets damaged and does not meet the FAQ standards.

If storage capacity is to be planned and proper infrastructure, equipment, technical manpower is provided at PPC then the procurement will improve. Damage of paddy caused earlier due to lack of safe storage may also be reduced.

4.2 Milling Stage:

Milling is a process where paddy is converted into rice/ Par Boiled Rice. Rice is roughly composed of 20% rice husk, 13% bran layers and 67% total milled rice. Paddy having FAQ quality will produce quality milled rice. As per the contract, the millers have to produce 67 % of rice from the supplied paddy. However, the conversion percentage is below 67% if the paddy supplied to miller is below the FAQ standard.

Millers normally keep the processed stock in their own ware houses and send it to the RRC within 45 days of receipt of the stock. Transportation costs from the PPC to miller and from mill location to the RRC are borne by the millers and govt. reimburses the costs according govt. norms. The Custom Millers and their Capacity block wise are mentioned in Table 7.

Table 7: Number of Custom Millers in Three Blocks and their Capacity

Districts	Block	Name of the Custom Miller	Milling Capacity Per 8 hrs (in MT)	Paddy Storage Capacity (in MT)	Rice storage capacity (in MT)
Angul	Chhendipada	Saralia Foods(P) Ltd., Benagadia	11	160	160
		Baba Gangaram Food Products (P) Ltd., Mukundapur, Parang	16	6000	6000
Puri	Nimapara	M/S RITIKA AGENCIES PVT.LTD	NA	6000	6000
		Basudev Rice Mill	16	2000	2000
		Balunkeswar Food Product	18	50000	50000
Gajapati	Gumma	M/S. LAXMINARAYANA RICE MILL	16	160	160
		SRIRAMA LINGESWARA RICE MILL	7.4	224	224
		SANKAR RICE MILL	9.6	256	256

4.2.1 Problems Faced at Milling Stage

In this stage the millers lift the stock (Paddy) from PPC and mill it to rice. The cost occurred during lifting, transportation and milling is borne by the Government. FAQ standard is not maintained at PPC due to lack of technical equipment. Millers have no alternative other than to purchase paddy below FAQ standard due to resistance from villagers. In this process the millers incurred some losses to meet their target before the Government.

Besides, these millers have to pay security deposits to Government to store the paddy and milled rice. Most of the millers are not happy with the system of keeping safe custody of Paddy which not only blocks the working capital but also deteriorates the paddy quality. Thus the millers prefer not to take any risk.

Table 8: Expenses incurred in Rice Paddy Procurement Centres

Paddy Processing Cost (Par boiled common rice)	Cost in INR
Milling Charges	20
Transportation Charges	34.2
Interest charges for 4 months	55.45
Custody & Maintenance Charges for 4 months	9.60
Processing Cost(B)	119.25

4.3 Storage & Distribution Stage:

Rice Receiving Centre (RRC) is a storage point for milled rice. It maintains stocks of rice received from the millers/other sources and distributes it to different FPS (Fair Price Shops). The RRC in Angul, Gajapati & Puri with the capacity to store is mentioned in Table 9 of the report. It's also understood that there is some storage loss accrued at the RRC level due to pilferage & handling. The data on the loss accrued at RRC is not available for further analysis.

Table 9: RRC and their capacities in Angul, Puri & Gajapati

District	RRCs	Location	Capacity (in MT)	Tagged Block
ANGUL	ANGUL	Angul	1000	Angul
	OSWC	Angul	3200	Chhendipada
	OSWC, Talcher	Talcher	500	Talcher
	DSC Kishorenagar	Kishorenagar	300	Kishorenagar
	DSC Athmallik	Athmallik	300	Athmallik
	DSC Kaniha	Kaniha	415	Talcher
	DSC Pallahara	Pallahara	250	Pallahara
PURI	OSCSC Ltd	Astaranga	500	Astaranga
	OSCSC Ltd	Sakhigopal	500	Sakhigopal
	OSCSC Ltd	Brahmagiri	500	Brahmagiri
	OSCSC Ltd	Pipili	500	Pipili
	OSCSC Ltd	Gop	500	Gop
	OSCSC Ltd	Krushnaprasad	500	Krushnaprasad
	OSCSC Ltd	Kakatpur	500	Kakatpur
	OSCSC Ltd	Puri sadar	500	Puri
	OSWC	Nimapara	5000	Nimapara
Gajapati	OSWC	Parala khemundi	1000	NA
	RMC	Parala khemundi	1700	Gumma
	RMC	Kasinagar	600	Kasinagar
	TDCC	Parala khemundi	1200	NA

Detailed expenditure incurred per quintal at RRC is mentioned in Table-10. There is an expenditure of Rs. 104.91 per quintal at storage and distribution centre in respect of transportation, handling charges, storage cost, cost of storage loss and interest on acquisition cost for two months.

Table 10: Expenses incurred in Rice Receiving Centres

Sl. no	Item	Charges for FAQ Rice per qtl. In INR
1	Storage charges@ ₹6.14 per qtl rice per month for 2months	12.28
2	Transportation and Handling charges	37.70
3	Interest charges@ 11.79% of acquisition cost per quintal for 2 months	46.70
4	Transit and storage loss @ 0.35 % of Acquisition cost	8.23
	Total Expenditure	104.91

4.3.1 Problems faced in Storage and Distribution Stage:

In this stage, the Custom Milled Rice (CMR) is transported from the millers to different RRC and FCI points. There is no proper maintenance of warehouses in RRC for protection against rain and/or other natural calamities. Very few watch guards are present for safe keeping of rice. The detail infrastructure data for the RRC is not provided.

4.4 Fair Price Shops (FPS):

In order to facilitate smooth Public Distribution System, Fair Price Shops are setup at the consumer end. A Fair Price Shop (FPS) is generally to be opened for a population of 1,500 or above, the norms should also be such that no consumer shall have to travel a distance of more than 3 kilometres to the nearest FPS. These shops mainly deals with PDS commodities such as BPL, AAY, Annapurna Rice, APL Rice, Wheat, Levy Sugar, Kerosene Oil, etc. being issued to consumers/ beneficiaries through valid ration-cards/ BPL Cards. Some of these shops are also providing Non-PDS items such as Potato, Onion, Pulses, Edible Oil, Soaps, and Salt etc. at a reasonable/ cheaper price to the consumers throughout the year. This FPS is run by SHGs, individuals, panchayat etc.

4.4.1 Distribution of PDS Rice Schedule:

Table 11: PDS Rice Distribution Schedule

Last week of the previous month	Payment of advance money for lifting off Rice from RRC
First week of the month	Distribution Phase -1 is done (40%)
Second week of month	Distribution Phase 2 is done (60%)
Third week of Month	Distribution Phase 3 is done (100%)

4.4.2 Observations:

- It is observed that due to timely non-payment of advance to OSCSC, the supply of rice to the FPS is delayed which hampers the distribution of rice to the beneficiary/consumer.
- It's also observed the real time assessment of the rice stock available at FPS is not retrievable; this leads to a difficulty in the replenishment of the stock over the required amount.
- The actual beneficiary as on date is as per the census 1998 for the BPL list does not tally with the actual no. of beneficiary and/or BPC families, thus this creates major supply demand imbalance at the FPS level. Thus, this leads to either shortage or surplus of grains at the FPS level. In either case it causes major issue in the supply chain.

4.4.3 Recommendations:

- The BPL family database may be created in such a way that BPL Card can be issued for each family with Bio-metric signature proof of the head of the family.
- An ERP enabled system with high-end communication network with all networking of all FPS has to be established. The stock status at FPS and RRC can be fairly tracked.
- A web based system may be developed which gives on-line real time transaction mechanism with data from the centralized server, which provides to general public about the status of distribution. That is, the data would show how much quantity of grains has distributed to each Fair Price Shop from the godowns till date.

5.0 EXISTING SUPPLY CHAIN OF PADDY/RICE OF PUBLIC DISTRIBUTION SYSTEM:

There is involvement of four intermediary agencies in the existing supply chain for paddy/rice which includes

- (i) Paddy Purchase Centre (PPC),
- (ii) Millers,
- (iii) Rice Receiving Centre (RRC) and
- (iv) Fair Price Shops (FPS).

The detailed supply chain has been depicted in **Fig.1**. It functions in three stages covering procurement, processing & storage and distribution. This supply chain is operating for distribution of rice to the consumers of Odisha over the years. Still it has some issues/problems which the stakeholders expressed during the study. The problems faced by the stakeholders in different stages have been discussed in earlier section. The major problem includes non-payment of transportation cost to the farmers up to PPC, lack of infrastructure including storage and instruments at the PPC, minimizing the loss incurred at RRC, adding efficiency to the logistics.

Cost incurred per quintal of paddy/rice in the existing supply chain of PDS has also been estimated and depicted in **Table 12**. It indicates that **Rs.471.87** is incurred during the entire process of distribution starting from procurement till it reaches with the ultimate consumers.

Table 12: Cost of Existing Supply Chain Model

Sl. No.	Particulars	Rate per Qtl. Of paddy	Total Cost in INR
A	Paddy Procurement Cost		
A1	Cost of transportation from farmers point to Procurement centre	0	0
A2	Mandy labour charges	9.17	9.17
A3	Commission to Societies	31.25	31.25
Procurement Cost (A)			40.42
B	Paddy Processing cost (Par boiled common rice)		
B1	Milling Charges	20	20
B2	Transportation Charges	34.2	34.2
B3	Interest charges for 4 months	57.55	57.55
B4	Custody & Maintenance Charges for 4 months	9.6	9.6
Processing Cost (B)			121.35
C	Storage and distribution cost (Par boiled common rice)		
C1	Storage charges for two months	12.28	8.35
C2	Transportation and handling charges	37.70	25.63
C3	Interest charges for 2 months	45.95	31.24
C4	Transit and Storage loss	8.09	5.50
Storage & Distribution Cost (C)			70.73
TOTAL COST (A+B+C)			233.25
D	Other charges		
D1	Market fee 2% of MSP	28.20	28.2
D2	VAT @5% MSP	70.50	70.5
D3	Draige @1% MSP	14.1	14.1
D4	Administration charges @ 1 % MSP	14.1	14.1
D5	Cost of new gunny bags @ 1.64/qtl	85.94	85.94
D6	Gunny depreciation for new gunnies	25.78	25.78
TOTAL COST (D)			238.62
GRAND TOTAL			471.87

6.0 PROPOSED SUPPLY CHAIN:

By examining the cost incurred per quintal in the existing distribution system for paddy/rice and problems faced by the farmers during the process starting from procurement till it reaches to the ultimate consumer/ beneficiary. Five alternate models have been developed to increase the efficacy of the supply chain of paddy/rice in PDS. These models have been identified keeping in view of the payment of transportation cost to the farmers, reduction of cost to be incurred per quintal in the distribution system, and addition of some management/ professional acumen in the supply chain. The detail models (MODEL 1 to MODEL 5) have been presented in Figure 2 to Figure 6. An attempt has been made to reduce the number of intermediary agencies and also the cost to be incurred in the proposed supply chain system.

6.1 Model 1:

In **Model 1**, there is an involvement of three intermediary agencies like Millers, Rice Receiving & Storage Centres and Fair Price Shops. In this model the farmers will bring their produce to the millers, the millers will receive the stock and will mill it and transfer the stock to RRC. RRC will issue the stocks to the FPSs for distribution to the beneficiaries. The total cost will be **Rs.455.87** per quintal towards procurement, processing, storage & distribution and other charges.

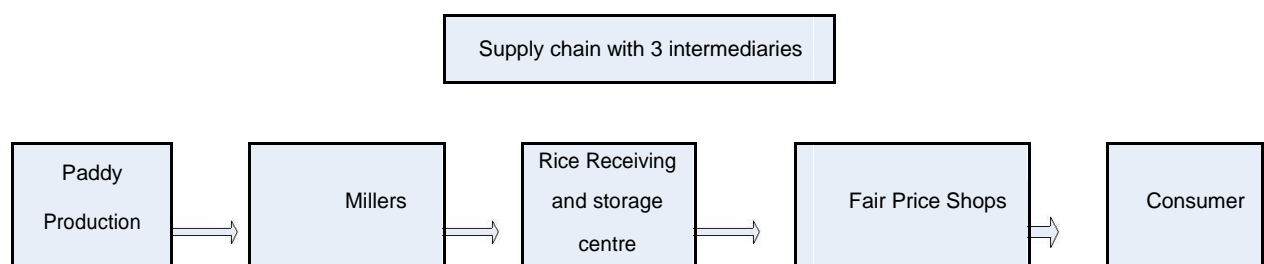


Figure 2: Model 1

6.2 Model 2:

In **Model 2**, there is involvement of three intermediary agencies like PPC, Millers with storage facilities and FPS. In this model, the farmers will bring their produce to the PPC, who receives the stock and transfer the stock to the millers who mills and store it for distribution to the beneficiaries through FPS. RRC has been removed from the supply chain and the storage responsibility is borne by the millers. In this model the total cost will be

Rs.457.67 per quintal towards procurement, processing, storage & distribution and other charges.

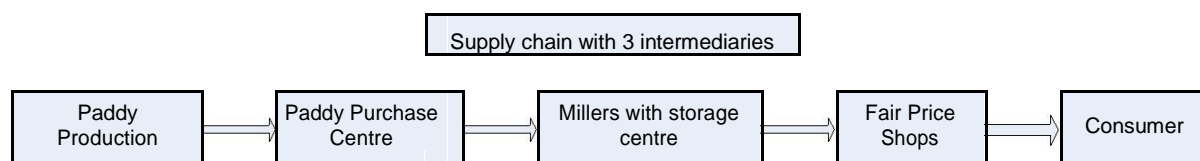


Figure 3 : Model 2

6.3 Model 3:

In **Model 3**, there is involvement of two intermediary agencies like Millers and FPS. The role of PPC and RRC is performed by the Custom Millers. Here millers procure the stock from the farmers for milling and store it for distribution to consumers through FPS. In this model the total cost will be **Rs.414.40** per quintal towards procurement, processing, storage & distribution and other charges. This model brings efficiency in terms reducing the number of intermediaries but the success of this model is solely dependent on the professional management skill of the millers. The risk being the entire stock (paddy & Rice) is solely managed by the millers, thus the stocks may be under dual custody of miller and Govt. and also the millers may be asked to deposit required amount of security deposit for militating against any unfair practice.



Figure 4: Model 3

6.4 Model 4:

In this model, there is an involvement of three intermediary agencies like a professional Stock Management Agency (SMA), millers and FPS. In this supply chain model, the paddy and the Custom Milled Rice would be managed by the SMA; however the physical storage would be at the Millers warehouse. The millers will only mill the stock but the agency is accountable for entire management of the stock (Handling, storing, issuing) and will issue the stock to the FPS for distribution to the consumers. The SMA will be accountable to Govt. for any loss or mismanagement. In this model the total cost will be **Rs.414.40** per quintal towards procurement, processing, storage & distribution and other charges. The advantage

in this model, being the SMA is a professional agency in inventory & stock management and this model shares the responsibility between the millers and SMA, thus shares the risk for any unfair practice. The SMA may keep security with the Govt. for compensating any loss incurred by it during the management of the stock. This also creates a multi custody involving SMA, Miller and Govt. thus creating a higher level of accountability.

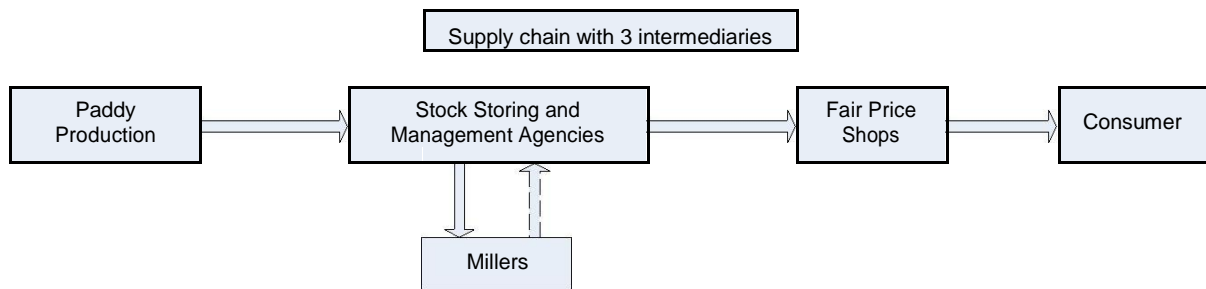


Figure 5: Model 4

6.5 Model 5:

In **Model 5**, there is involvement of two intermediary agencies like Millers and PPC. The role of RRC is performed by the Custom Millers. Here PACSs will procure the stock from the farmers and would act as PPC. Further they would receive the CMR from the Miller and would act as FPS for distribution of rice. In this model the total cost will be **Rs. 418.22** per quintal towards procurement, processing, storage & distribution and other charges. This model brings efficiency in terms reducing the number of intermediaries but the success of this model is solely dependent on the professional management skill of the PPC. The risk being the entire stock (Paddy & Rice) is solely managed by the millers and PPC.

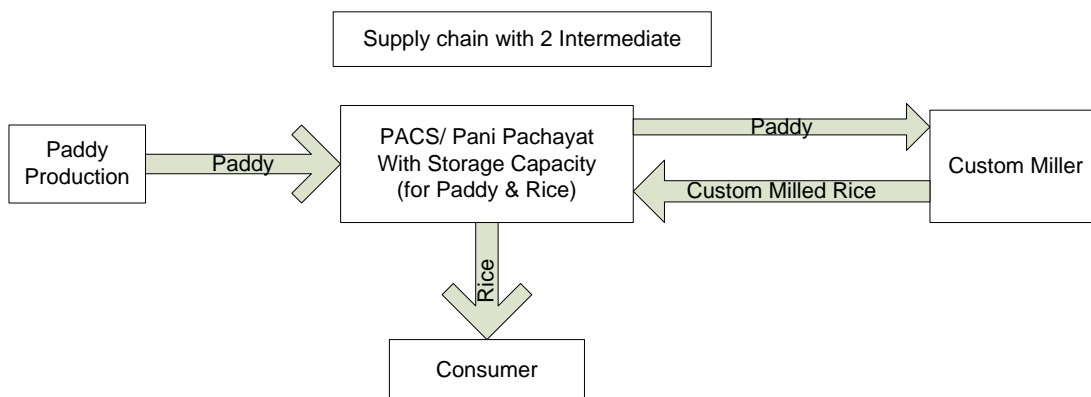


Figure 6: Model 5

The Model 1, Model 2 and Model 4 are having involvement of 3 intermediary agencies, while the Model 3 and Modal 5 is having 2 intermediaries. The detailed cost to be incurred in the proposed supply chain of Model 1, Model 2, Model 3, Model 4 and Modal 5 has been estimated and presented in **Table 13**. By examining the detailed cost per quintal, it is observed that the cost per quintal is **Rs. 455.87** in Model 1, **Rs.457.67** in Model 2 and **Rs.414.40** in Model 3 and Model 4 and **418.22** in Model 5.

By comparing all five proposed supply chain models (Model 1- Model 5) against the existing supply chain, it is found that in the proposed **Model 1** there will be reduction of Rs. 16.00 per quintal as compared to existing supply chain for distribution of paddy/rice. In Model 2 the reduction of cost of **Rs.14.20** per quintal while in Model 3 & Model 4 the reduction cost is **Rs.57.47** & in Model 5 the reduction of cost will be of **Rs.53.65** per quintal. The detail of the comparison is mentioned in **Figure 7** of the report.

6.6 Comparison of Supply Chain Models:

Table 13: Cost of Five proposed supply chain models

Sl. No.	PARTICULARS	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5
		RATE PER QUINTAL OF PADDY/RICE				
A	Paddy Procurement Cost					
A1	Transportation cost given to farmers	20	0	20	20	20
A2A	Mandi labour charges	0	9.17	0	0	0
A3	Commission to Societies	0	32	0	0	32
	PROCUREMENT COST (A)	20	41.17	20	20	52
B	Paddy Processing cost (Par boiled common rice)					
B1	Milling Charges	20	20	20	20	20
B2	Transportation Charges	14.2	20	0	0	14.20
B3	Interest charges for 4 months	55.45	57.55	55.45	55.45	55.45
B4	Custody & Maintenance Charges for 4 months	9.6	9.6	9.6	9.6	4.80
	PROCESSING COST (B)	99.25	107.15	85.05	85.05	94.45
C	Storage and distribution cost (Par boiled common rice)					
C2	Storage charges for two months	8.35	8.35	8.35	8.35	0
C3	Transportation and handling charges	25.63	25.63	25.63	25.63	12.03
C4	Interest charges for 2 months	31.24	31.24	31.24	31.24	15.61
C5	Transit and Storage loss	5.50	5.50	5.50	5.50	5.50
	STORAGE & DISTRIBUTION (C)	98	70.73	70.73	70.73	33.14
	TOTAL COST (PROCUREMENT, PROCESSING, STORAGE, DISTRIBUTION) i.e. (A+B+C)	217.25	219.05	175.78	175.78	179.60
D	Other charges					
D2	Market fee 2% of MSP	28.2	28.2	28.2	28.2	28.2
D3	VAT @5% MSP	70.5	70.5	70.5	70.5	70.5
D4	Driage @1% MSP	14.1	14.1	14.1	14.1	14.1
D5	Administration charges @ 1 % MSP	14.1	14.1	14.1	14.1	14.1
D6	Cost of new gunny bags @ 1.64/qtl	85.94	85.94	85.94	85.94	85.94
D7	Gunny depreciation for new gunnies	25.78	25.78	25.78	25.78	25.78
D8	TOTAL (OTHER CHARGES) (D)	238.62	238.62	238.62	238.62	238.62
	GRAND TOTAL : (A+B+C+D)	455.87	457.67	414.40	414.40	418.22

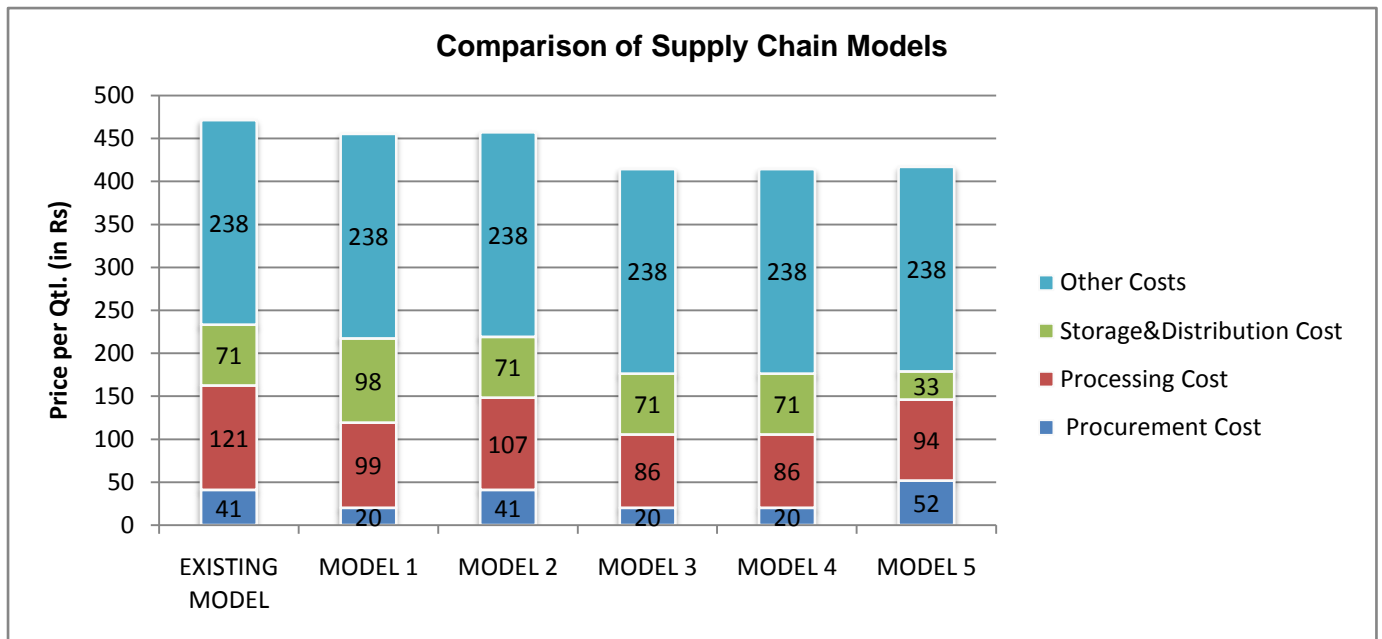


Figure 7 : Comparison of Supply Chain Models

The above comparison reveals that the cost in either of the component of the supply chain is less as compared to the existing model, and every proposed model also has provision for benefiting the farmers in terms of supporting their transportation cost for bringing paddy to the PPC and/or any other paddy procurement centre.

7.0 CONCLUSION

The supply chain for paddy/rice in public distribution System has been studied in 1 blocks each in Angul, Puri and Gajapati district. In the process of the study, the District Civil Supply Officer, Assistant Civil Supply Officer, Inspector of Civil Supplies and the agencies involved in the supply chain system for paddy/rice have been contacted.

In the entire Supply Chain System the problems faced by the stakeholders e.g. from farmers till the beneficiary, millers and even the storage agencies are discussed below:

- Lack of temporary storage space at PPC for farmers to keep their stock till it is handed over to PPC.
- Non-provision for providing the transportation cost to the farmers up to the procurement point.
- Lack of technical personnel at PPC level to test the quality of paddy.
- Lack of basic facilities like drinking water, furniture and others at the PPC for the

farmers for their stay for the whole day of procurement.

- Non maintenance of FAQ level at PPC causes certain loses to the millers.
- Poor maintenance of storage godown (RRCs) where milled rice is stored for a long period for distribution to beneficiaries through fair price shops.
- Security deposits by the millers with the Govt. for the stock for a longer period cause the blockage of working capital.

8.0 SWOT ANALYSIS:

In this study an attempt has been made to study the Strength, Weakness, Opportunities and Threat of the Public Distribution System under taken by the Department of Food and Civil Supplies in the state with an idea to take policy decisions to strengthen the system and also to convert weakness to opportunities. While executing the programme, proper watch to be given on the factors concerning for success of the Public Distribution System in the State.

8.1 Strength:

- Paddy production in the state is more than the consumption need of the state
- Civil supply department which undertakes PDS in the state has official network operating at the block level.
- FCI has a strong network for procurement of paddy in the state

8.2 Weakness:

- Lack of temporary storage space at PPC for farmers to keep their stock till it is handed over to PPC.
- Non-provision for providing the transportation cost to the farmers up to the procurement point.
- Lack of technical personnel at PPC level to test the quality of paddy.
- Security deposits by the millers with the Govt. for the stock for a longer period cause the blockage of working capital.
- Poor maintenance of storage go-down (RRCs) where milled rice is stored for a long period for distribution to beneficiaries through fair price shops.
- There is no facility for milling non-aromatic long grain rice in many rice mills.

8.3 Opportunities:

- Govt. of India has now adopted food security Act through which various Food grains will be supplied at very subsidized rate, the Civil supply department should avail such opportunity.
- We have now availability of management skilled students, Civil Supply department should avail their services for better management of PDS.

8.4 Threat:

- Lack of technical personnel at PPC level to test the quality of paddy.
- Lack of basic facilities like drinking water, furniture and others at the PPC for the farmers for their stay for the whole day of procurement.
- Non maintenance of FAQ level at PPC causes certain loses to the millers.
- The staffs of the civil supply department have poor managerial ability to maintain PDS.
- The staff of the civil supply department do not analyse the supply chain System which sometimes add more cost to the system

9.0 POLICY OPTION:

By examining the existing supply chain management practices as well as the problems faced by the Farmers and storage agencies, the following policy options have been developed.

1. By comparing all four proposed Supply Chain Models (Model 1 to Model 4) against the existing supply chain in terms of reduction of cost and elimination of intermediary agencies, it is found that the Model 1, Model 2 and Model 4 are having involvement of 3 intermediary agencies, while the Model 3 is having two indicating the elimination of 2 intermediary agencies in Model 3 and one intermediary in Model 1, Model 2 and Model 4. In the proposed Model 1 there will be reduction of cost of Rs.16.00 per quintal as compared to existing supply chain for distribution of paddy/rice. In Model 2 the reduction of cost will be of Rs.14.25 per quintal while in Model 3 & Model 4 the reduction of cost will be to the tune of Rs.57.42 per quintal and in Model 5 the reduction of cost will be of 53.07 per quintal. In this context, the existing supply chain

management practices can be replaced by a supply chain proposing model 3 or in model 4. **(Refer 6.6)**

2. Model 5 empowers the PACS/ LAMPS for carrying out the function of storage of Paddy and Rice. Thus necessary infrastructure and equipment may be provided by the Govt. as Loan/ Financial Assistance and/or grant. **(Refer 6.6)**
3. Over the last 3-4 years period, the PACSs are managing the Rice procurement, which has revived the financial position of the society. Thus any corpus may be utilised for the development of infrastructure and capacity of staff for effective management of the supply chain. **(Refer 7.0)**
4. Necessary training may also be provided for the skill up gradation of the workers involved in the Paddy Procurement and management of Rice. **(Refer 7.0)**
5. PACS and LAMPS being the cooperative agencies, thus strengthening of the same would also strengthen the Farmers socio-economic status. **(From Field Observation)**
6. By examining the problems, temporary storage facility along with some basic facilities like drinking water, furniture and others can be provided for the farmers at level so that farmers can stock their paddy till it is sold. **(From Field Observation)**
7. Proper infrastructure including instruments and technical manpower are to be provided at PPC level for professionally management of paddy procurement. **(From Field Observation)**
8. The Rice Receiving Centres should be renovated for proper storage of rice which can protect the storage loss. **(From Field Observation)**
9. Scheduling of procurement indicating date and time of procurement for different villages can be planned in advance for smooth procurement. **(From Field Observation)**
10. Food and civil supply department should develop milling facility for non aromatic long grain rice. **(From Field Observation)**