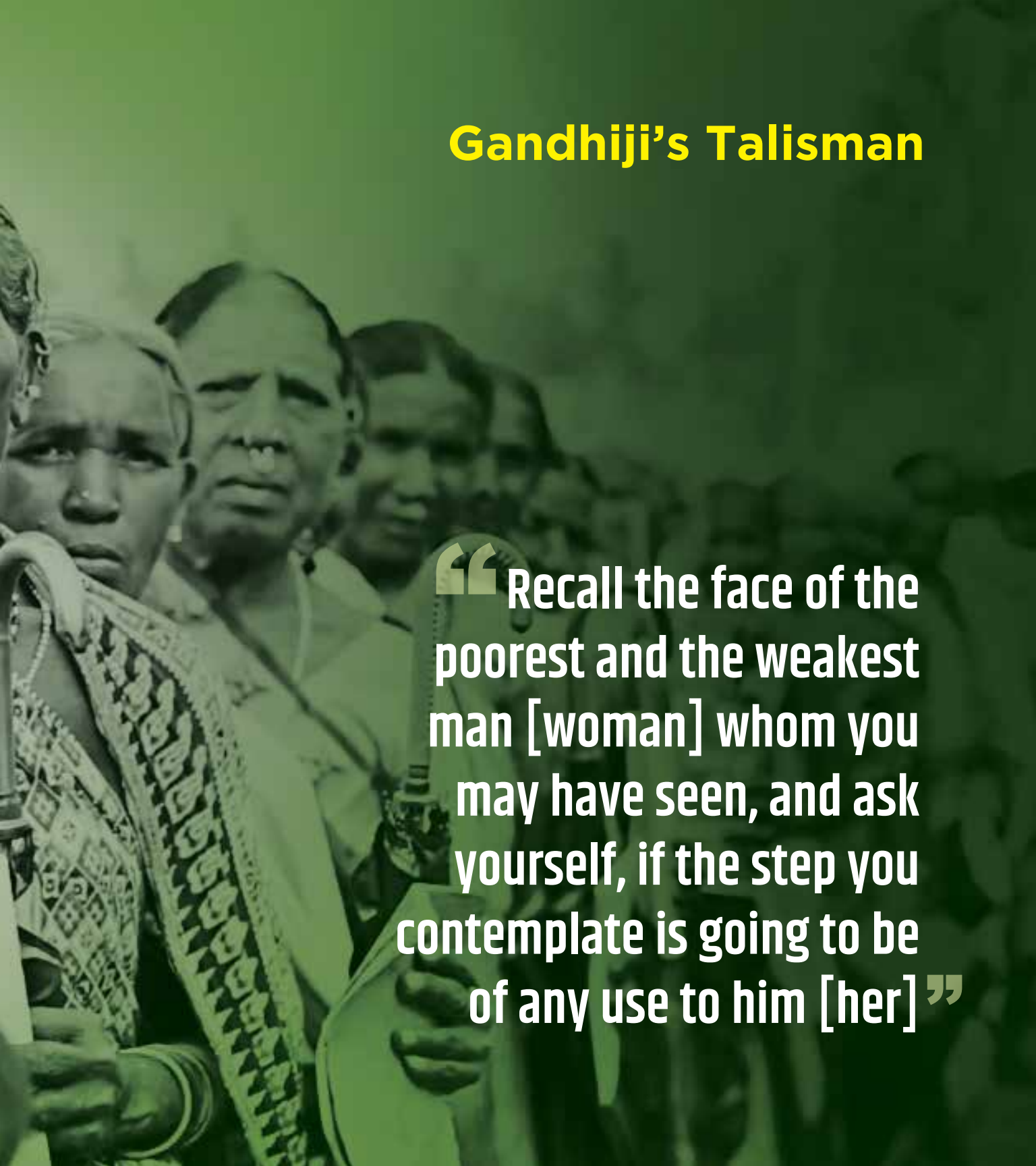
MAKING OF A FOOD SECURE ODISHA

Converging Transparency,
Technology & Teamwork
for Time-Bound Transformation

Government of Odisha

FOOD SUPPLIES & CONSUMER
WELFARE DEPARTMENT

Gandhiji's Talisman



"Recall the face of the poorest and the weakest man [woman] whom you may have seen, and ask yourself, if the step you contemplate is going to be of any use to him [her]"

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“ଜଣେ ହେଲେ ବି
ଗରିବ ଲୋକକୁ ମୁଁ
ଖାଦ୍ୟ ସୁରକ୍ଷାରୁ ବଞ୍ଚିତ
ହେବାକୁ ଦେବି ନାହିଁ । ”

– ନବୀନ ପଟ୍ଟନାୟକ
ମଖ୍ୟମନ୍ତ୍ରୀ, ଓଡିଶା

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“It is my endeavor that not a single poor man is deprived of food security. ”

— Naveen Patnaik
Hon’ble Chief Minister,
Odisha

Shri Naveen Patnaik
Chief Minister

MESSAGE

Odisha has come a long way from a food deficit state to a surplus state and charted a success story of its own, becoming the fourth largest contributor to the national paddy pool. Happy to be a part of this remarkable transformation Odisha has seen over the years, becoming the only state in India to raise farmers' income by 8.4% per annum between 2002 and 2016 and achieving one of the lowest levels of leakage nationally in its public distribution system.

It has been a relentless pursuit to ensure that not a single needy person is excluded from food security net. The challenge was to inspire confidence of farmers in the state-led procurement mechanism, introduce transparency and accountability across the supply chain and ensure that that allocated food reached the targeted beneficiaries without leakage. Guaranteeing food to everyone would not have been possible without a robust food supply backbone created over the decades.

I am sure that the book will take readers through the mammoth efforts undertaken in terms of policy interventions, creation of leakage-proof distribution system based on our 5Ts (transparency, technology, teamwork, time and transformation) to ensure seamless food supply.

Signature

Shri Ranendra Pratap Swain
Minister, Food Supplies
& Consumer Welfare,
Co-operation

MESSAGE

We are firmly committed to a Zero Hunger world enshrined in Global Goals for Sustainable Development. We believe that access to nutritious food is an inalienable right and Odisha is committed to guaranteeing that sufficient nutritious food is available for all. In order to fulfil the same, Odisha has taken numerous steps such as bringing more farmers into the formal procurement network, strengthening of storage system and building a robust & transparent supply chain system.

We already have made significant strides in our effort to ensure that not a single poor is deprived of food. Thanks to our farmers, we are now the fourth largest contributor to national paddy pool. The transformation from a food deficient state to food surplus state has been possible due to our progressive, pro-farmer and pro-poor policies, scientific approach to supply chain management and decision making backed by technology. Transparency introduced in the system ensures that the food reaches the right beneficiaries.

This publication chronicles our transformative efforts to realize the dream of hunger free society and provision of food enabling all to lead a life with dignity.

Ranendra Pratap Swain

Signature

PREFACE

The Government of Odisha has been resolute in guaranteeing food security for all its citizens. The proof of this commitment lies in the commendable performance of the State across several indicators such as expansion of coverage of beneficiaries in the remotest corners of the State, minimization of inclusion and exclusion errors, and control on diversion at different levels. Backing this public distribution system is Odisha's own supply chain network that undertakes procurement, storage and distribution of food grains at a massive scale. In less than two decades of becoming a decentralized procurement state, Odisha has not only been able to transform from a rice deficit to a surplus state but also generate demand for its quality produce in the national markets. A robust market mechanism for farmers to sell their produce to the State has been able to guarantee stable farm incomes, thus ensuring the sustainability of food availability in the long run.

The success, so far, can be attributed to an active, collaborative environment where the State Government, together with the private sector and civil society, has been able to improve its food security systems through various targeted interventions especially in the area of business process reengineering, end to end computerization, capacity building and creation of awareness of rights and entitlements of stakeholders. The Food Supplies & Consumer Welfare Department of the State Government in liaison with Odisha State Civil Supplies Corporation, the main implementing agency, has been successful in building convenient, transparent and accountable systems and policies that support effective governance and service delivery. Around 14.9 lakh farmers are registered in the system to sell quality paddy to the State at minimum support prices.

Nationally, Odisha stands at 4th position and procures almost 9.36% of the total paddy procured in the country. In KMS 2019-20, funds in excess of 13,000 Cr (INR) were pumped into farmers' accounts as direct payment for their produce. The rice obtained caters to almost 3.35 Cr beneficiaries in the State under National Food Security Act & State Food Security Mission. Allotments are also made to Integrated Child Development Scheme, Mid Day Meal Scheme and various other welfare interventions of the State Government.

Going forward, the State Government is committed to further advance its food security systems by focusing on digital authentication of beneficiaries, optimization of transportation costs and expansion in the network of registered farmers. Efficient deployment of workforce through restructuring and training is expected to reduce the disparities in achievements of food security within the State. Better convergence with other departments (such as Agriculture, Co operation, Women & Child Development, School & Mass Education) can go a long way in improving the determinants of food security.

I take this opportunity to congratulate the Food Supplies & Consumer Welfare Department for successfully bringing out the publication of "Making of a Food Secure Odisha : Converging Transparency, Technology & Teamwork for Time-Bound Transformation", which establishes Odisha as a model state for food security in India and can inspire others with its story of transformation documented in this book.

Shri Asit Kumar Tripathy, IAS
Chief Secretary & Development Commissioner

FOREWORD

By 2050, the world must get together to feed 9 billion people, the majority of whom reside in South Asia. Everybody needs food in order to live a life with dignity. But the sheer complexity of systems designed to deliver adequate food to a national population reinforces the need for a strategic approach to tackling this challenge efficiently. Such an approach implemented by the Government of Odisha in collaboration with stakeholders such as private sector, non profit organizations, administrative set ups and civil society has been able to turn around the food security scenario in the State. Targeted interventions by the State based on the 5Ts of transparency, technology, teamwork, time and transformation have been able to establish Odisha as a model state for food security in India.

With a vision of unraveling this story of metamorphosis to the world, I take immense pleasure in presenting before you "Making of a Food Secure Odisha : Converging Transparency, Technology & Teamwork for Time-Bound Transformation". We believe that food security for all is an inalienable human right and it is our endeavor to facilitate achievement of this goal through robust procurement, storage and distribution networks. We have made tremendous strides in bringing more farmers into the State led procurement network, guaranteeing the quality of produce, strengthening storage systems to arrest wastage and minimizing leakage or diversions through automated systems. We are committed to adapting to the dynamic environment and are constantly pushing for greater efficiency through technological innovations.

The State Government acknowledges the support of different partners – Department for International Development (UKAid), World Food Programme – in scaling up different food security programmes and building capacities of stakeholders. The keenness shown by technology providers and civil society organizations to participate in Odisha based projects is well appreciated.

I would like to express my gratitude to our Honourable Chief Minister, Shri Naveen Patnaik for his visionary leadership that has placed Odisha on the map as a model state for food security. I would like to thank Cabinet Minister, Food Supplies & Consumer Welfare, Co-operation, Shri Ranendra Pratap Swain for steering innovation in policies and initiatives taken up by the Department. I would like to thank Chief Secretary, Shri Asit Kumar Tripathy and key stakeholders in other departments for their valuable guidance and unstinted support in implementation of food security initiatives in the State. Finally, I would like to place on record my appreciation for members of the Odisha State Civil Supplies Corporation Limited and the different Directorates constituting the fulcrum of the Food Supplies & Consumer Welfare Department.

This publication is a product of active collaboration with CSM Technologies, the technology partner for the Food Supplies & Consumer Welfare Department of the Government of Odisha and we are delighted to release it.

Shri Vir Vikram Yadav, IAS
Commissioner-cum-Secretary
Department of Food Supplies & Consumer Welfare, Co-operation

EXECUTIVE SUMMARY

The book "Making of a Food Secure Odisha : Converging Transparency, Technology & Teamwork for Time-Bound Transformation" narrates the metamorphosis of the eastern state in guaranteeing food security to its citizens. Through its grit and commitment to the cause of its people, the State took up the initiative to transform the entire food security chain – procurement, transportation, storage and distribution of food grains. Today, Odisha is the 4th largest procurer of paddy nationally and one of the largest contributors of rice to the public distribution system in India.

Almost two decades ago, the State was plagued with a broken public distribution system. Multiple errors existed in the process of identification of beneficiaries. In the absence of transparency of on-ground operations and accountability of stakeholders, leakages were rampant thus affecting the delivery of food grains to those who deserved it. Acknowledging the critical role of public distribution system in providing direct assistance to the poor, Odisha went to the drawing board to completely overhaul the system.

During the implementation of National Food Security Act 2013, Odisha, unlike any other state, completely scrapped the archaic beneficiary database and started afresh to improve targeting. After defining its inclusion and exclusion criteria, it used the method of crowdsourcing and asked eligible people to apply. This data was mapped against Socio Economic Caste Census data and National Population Register to remove duplication, identify suspect beneficiaries and completely digitize the database. Verification drives were conducted parallel wherever there were objections to the list or data was missing. What happened then was not a one time effort. Today, the State has Ration Card Management Centres spread in the remotest corners that work relentlessly to ensure that no eligible beneficiary is left out from food security net.

Odisha also undertook major reforms such as abolishing the system of private storage agents to arrest the monopoly of traders and check diversion. With each passing year, it has been encouraging more and more grass root institutions such as Gram Panchayats, Women Self Help Groups and Co-operative Societies to take up ownership of Fair Price Shops. Rationalization of Fair Price Shops has made them financially more viable, further reducing the incentive for corruption. Automation of Fair Price shops outlets have led to massive improvements in the number of authenticated transactions. Economists and public policy experts in this field have lauded Odisha for tackling hunger through systemic reforms.

In 2003-04, Odisha became a Decentralized Procurement State and started undertaking paddy procurement in the state on behalf of the Government of India. The quantity of food grains procured initially by the State were not sufficient to meet the demands of the populace. One of the major reasons for this was farmers' lack of faith in the market mechanisms established by the State. Farmers stood in long queues with no assurance of getting the correct price for their produce from the paddy procurement centres. Power hierarchies forced the farmer to sell to the middleman at his gate at below optimal prices. This could not be effectively checked as there was no way to identify the genuine farmers and weed out the middlemen.

The State machinery had to manually co-ordinate with millers and societies to ensure that paddy was picked up on time and processed into rice. Storage infrastructure was not up to the mark– both in terms of tonnage and adherence to scientific storage norms. This led to significant wastage. Reconciliation of accounts took significant time and payment to farmers was extremely delayed. The State took the assistance of multiple national and international organizations such as Indian Institute of Information Technology, Bhubaneswar, World Food Programme and Department of Foreign Aid, United Kingdom to identify these challenges and work on a solution leveraging technology & team work to achieve transparency in the upstream (procurement) and middle stream (processing & storage) parts of the food security value chain too.

Today, Odisha's implementation of end to end computerization is a benchmark for good governance for food security. It is the only state where farmer registration database is linked and auto verified with digitized land records, thus aiding in identification of genuine farmers. Automation of paddy procurement helps keep a stringent check on quality and transfer payments to farmers within 24-48 hours. In KMS 2019-20, the State transferred around 13000 Cr to 11.6 lakh farmers annually for the purchase of paddy. Assured farm income has been successful in bringing small & marginal farmers and sharecroppers into the formal procurement network.

Automation of supply chain management and scientific inventory management have been effective in checking diversions and controlling wastage respectively. At the macro level, such transparency has been responsible for improved forecasting, planning and financial management. By not confining itself to downstream reforms and making targeted interventions throughout the value chain, Odisha has ensured sustainability and scalability of food security systems.

Continuing its focus on unlocking the potential of technology for improved governance, Odisha is implementing emerging technologies such as blockchain, advanced analytics and enterprise resource planning in its food security systems.

Managing a network of around 14.93 lakh registered farmers, 2835 Primary Agricuture Co-operative Societies, 883 market yards, 1313 millers, 535 transport contractors, 14401 Fair Price Shops, 7.29 lakh tonne of storage capacity, and 3.34 Cr beneficiaries is a mammoth task. This is a testament to the collaboration at work among various departments of the State Government, implementing agencies, private sector, academia and civil society.

It is worthwhile to note that almost 100% of the beneficiary households in the state have women as the head of the household. Such empowerment guarantees proper distribution of food grains within the household and improved nutritional outcomes for the entire family. Also, many of the fair price shops owned by women led self-help groups have granted financial autonomy to women too. The consumer is empowered through awareness campaigns and effective grievance redressal. The producer is empowered through a robust market mechanism. In short, good governance has once again proved its mettle to impact millions of lives.

Enough said. Turn over the pages to deep dive into this transformational journey.

LIST OF FIGURES

ACRONYMS

AAY	:	Antyodaya Anna Yojana
APL	:	Above Poverty Line
BOL	:	Build Operate Lease
BPL	:	Below Poverty Line
CACP	:	Commission of Agriculture Costs and Prices
CAP	:	Covered and Plinth
CMR	:	Custom Milled Rice
CSO	:	Civil Supplies Officer
CWC	:	Central Warehousing Corporation
DCP	:	Decentralised Procurement
ECA	:	Essential Commodities Act
ePOS	:	Electronic Point of Sale
FAO	:	Food and Agriculture Organisation
FAQ	:	Fair Average Quality
FCI	:	Food Corporation of India
FIFO	:	First In First Out
FPS	:	Fair Price Shop
FRS	:	Farmer Registration System
GPS	:	Global Positioning System
H&T	:	Handling and Transport
ICDS	:	Integrated Child Development Scheme
ICT	:	Information and Communication Technology
IEC	:	Information, Education and Communication
KMS	:	Kharif Marketing Season
MAR KFED	:	Odisha State Co-operative Marketing Federation
MAS	:	Miller Authority Slip
MDM	:	Mid Day Meal
MSP	:	Minimum Support Price
MT	:	Metric Ton
NFSA	:	National Food Security Act
OMSS	:	Open Market Sale Scheme

OSCSC	:	Odisha State Civil Supplies Corporation
OSWC	:	Odisha State Warehousing Corporation
OTP	:	One Time Password
PACS	:	Primary Agriculture Co-operative Society
PDS	:	Public Distribution System
PEG	:	Private Entrepreneurs' Guarantee
PIL	:	Public Interest Litigation
PPAS	:	Paddy Procurement Automation System
PUCL	:	People's Union for Civil Liberties
RCMC	:	Ration Card Management Center
RCMS	:	Ration Card Management System
RMC	:	Regulated Market Committee
RRC	:	Rice Receiving Centre
SAS	:	Society Authority Slip
SC	:	Scheduled Caste
SCMS	:	Supply Chain Management System
SDG	:	Sustainable Development Goal
SECC	:	Socio Economic Caste Census
SFSS	:	State Food Security Scheme
ST	:	Scheduled Tribe
TDCC	:	Tribal Development Co-operative Corporation
TPDS	:	Targeted Public Distribution System
UIDAI	:	Unique Identification Authority of India
ULB	:	Urban Local Body
VGF	:	Viability Gap Funding
WFP	:	World Food Programme
LAMPCS	:	Large Sized Adivasi Multipurpose Co-operative Society

01

MEANING OF FOOD SECURITY

In 1975, the United Nations defined food security as "the availability at all times of adequate world food supply of basic foodstuffs". Over a period of time, the dimensions of food affordability and accessibility were also included as key determinants of guaranteeing food security to all. In his 1981 publication, " Poverty and Famines: An Essay of Entitlement and Deprivation", Nobel Laureate Amartya Sen introduced the subject of entitlements and its role in food security. Whether it is the food produced at home or obtained in the market in exchange for work or provided by the government under social welfare programmes, entitlements of a household directly influence the extent of hunger and deprivation it faces. This evolution in understanding culminated in the definition outlined by Food and Agriculture Organization at the 1995 World Food Summit **"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."**

An enabling ecosystem for food security guarantees entitlements to those exposed to the maximum risk of hunger. By doing so, it safeguards the human agency and promotes the achievement of socio-economic justice. Any state that is committed to upholding the dignity of its citizens is expected to work towards guaranteeing the right to adequate, nutritious and culturally appropriate food. This demands visionary policies that focus on the participation of all stakeholders (especially in early stages), their accountability, complete transparency of operations across systems, and delivery of services based on non-discrimination and human dignity. Systems designed to facilitate feedback and inclusion empower the beneficiaries and increase the efficiency and sustainability of policy results.

The underlying policy approach of governments to deliver on the promise of food security is more or less the same and is basically built on 'providing direct assistance to poor households'. One of the most popular instruments of the State in guaranteeing food security for its

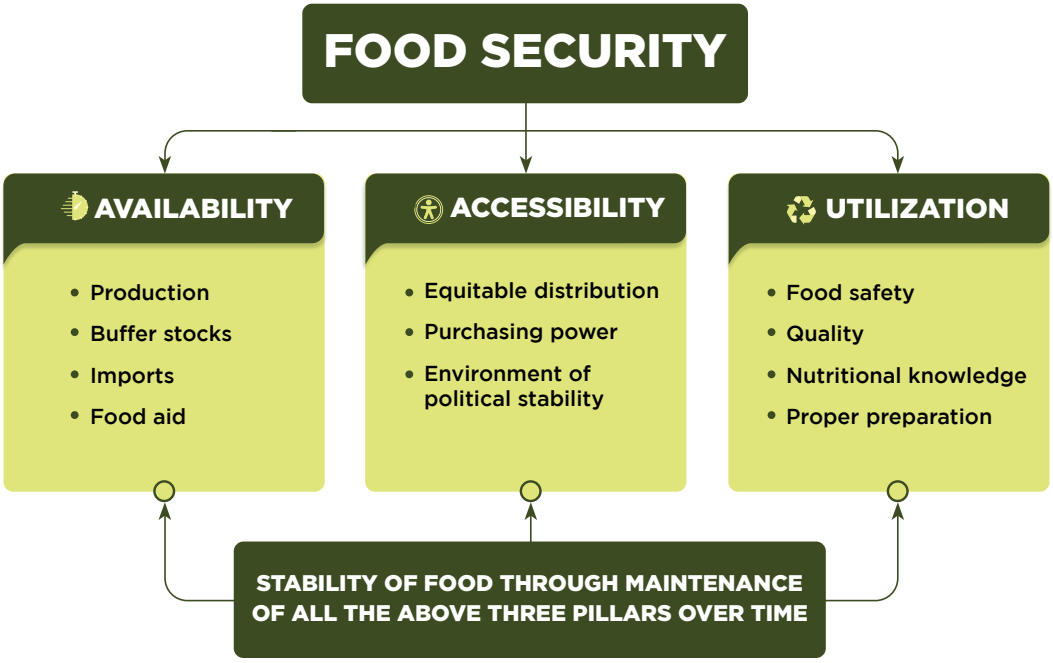


Figure - 1 : Pillars of Food Security

citizens is a robust public distribution system wherein subsidized food grains are provided to the vulnerable through the state machinery. Vulnerable households are always trying to balance their expenditure on different needs such as adequate calorific consumption, investment in health and education, and improvement in living conditions. In such a scenario, food subsidies can help free up food expenditure to meet other needs. Households that value dietary diversity may also possess greater purchasing power to buy other foods such as milk, fruits, nuts and meat.

In addition to food provisioning, growing food sustainably is also critical for food security. It requires adoption of practices that increase productivity of land and use natural resources wisely. A robust market mechanism with complete transparency and accountability is also needed to inspire faith of the producers and encourage them to sell to the formal network.

Almost one-third of the food produced globally ends up wasted or diverted. This means that reducing food losses is one important way of increasing food availability. This can be achieved through a number of initiatives including better harvesting, storage, packing, transport, infrastructure, market mechanisms, as well as institutional and legal frameworks.

This is why the Sustainable Development Goal set by the United Nations on ending hunger and achieving food security by 2030 focuses on the "farm to plate" approach i.e. a well structured and integrated value chain covering procurement of food grains, its storage and processing into consumable form and, finally, its distribution to intended beneficiaries.

02

EVOLUTION OF INDIA'S APPROACH

India's Public Distribution System (PDS) is the largest distribution network of its kind in the world with more than 5 lakh Fair Price Shops under its belt. It has evolved as a deliberate social policy that serves the three fold objectives of i) providing subsidized foodgrains and other essential items to the vulnerable, ii) having a moderate influence on the open market cereals, the distribution of which constitutes a major chunk of the marketable surplus, and iii) attempting socialization in the matter of distribution of essential commodities.

India targets around 800 million people in the country and distributes subsidies worth around 1 lakh Cr Indian rupees annually, constituting more than half of India's total social protection expenditure. This system is used to distribute cereals (rice, wheat, coarse grains) and other essential items (sugar, kerosene, edible oil). Since these regulated shops help ending the monopoly of private traders in interior areas, the basket of goods available at these shops varies from state to state.

PDS was introduced around World War II as a war-time rationing measure. Until India attained self sufficiency in food grain production, food imports from the United States of America (through a food loan termed as PL-480) were pumped into the PDS. The Fair Price Shops were then owned and operated by local traders. Each household was issued a PDS card outlining monthly per capita entitlements of food staples.

In 1960s, the introduction of high yielding varieties of wheat and paddy ushered in a "Green Revolution" and boosted agricultural production. Bumper years were one a many and market prices often slumped as a result of excessive supply. To insulate farmers from such drastic market price drops and protect their income, a floor price termed as "Minimum Support Price"(MSP)was introduced. The State would procure food grains from farmers at this base price whenever market prices would fall below it. Agriculture Prices Commission, now called the Commission of Agriculture Costs and Prices (CACP), was established to recommend the Minimum Support Prices. Food Corporation of India was established to undertake procurement, storage, and distribution of food grains. Self-sufficiency in food stocks built through these two systems consolidated the position of PDS in the country. It also acted as a countervailing force to the exploitative tendencies of private traders, thus helping in the stabilization of food prices in the open market.

In 1980s, the PDS took on a more welfare oriented role but was plagued by urban bias and regional inequalities in access to food. In the 1990s, the scheme was revamped to improve access of food grains to people in hilly and inaccessible areas, and to target the poor. Subsequently, in 1997, the government launched the Targeted Public Distribution System (TPDS) with an objective to help poor families buy food grains at a reasonably low cost to enable them to improve their nutrition standards and attain food security. The new system followed a two-tier subsidised pricing structure: one for Below Poverty Line (BPL) families, and another for Above the Poverty Line (APL) families. The former were issued food grains (25 kg food grains per family per month) at 50% of the cost incurred by the latter. An upper cap of 60 million BPL beneficiaries was fixed by the centre and the states were given the discretion to identify the beneficiaries.

In the year 2000, the Antyodaya Anna Yojana (AAY) was launched for 10 million of the poorest among the BPL families. Individuals in the following priority groups are entitled to an AAY card, including: (i) landless agricultural labourers, (ii) marginal farmers, (iii) rural artisans/craftsmen such as potters and tanners, (iv) slum dwellers, (v) persons earning their livelihood on a daily basis in the informal sector such as porters, rickshaw pullers, cobblers, (vi) destitute, (vii) households headed by widows or terminally ill 4 persons, disabled persons, persons aged 60 years or more with no assured means of subsistence, and (viii) all primitive tribal households..

Each of these families were given 25 kg of food grains per month at fixed prices i.e Rs 2 per kg for wheat and Rs 3 per kg for rice. In addition to the BPL, APL and AAY categories, the Annapurna scheme launched on April 1, 2000, for senior citizens made the destitute citizens not covered under the National Old Age Pension Scheme (NOAPS) or State Pension Schemes eligible to receive 10 kg of foodgrains free of cost.

In 2001, the PDS Control Order was notified under the broader ambit of the Essential Commodities Act, 1955 (ECA), an umbrella legislation that regulates prices, cultivation and distribution of essential commodities including edible oils, food crops such as rice, wheat & sugar, among others. This order specified the framework for the implementation of TPDS. It highlighted key aspects of the scheme including the method of identification of beneficiaries (inclusion and exclusion criteria), the issue of food grains, and the mechanism for distribution of food grains from the centre to states.

We had reached a point in history where the situation of food security in India was no less than a paradox. On one hand, people were starving in times of drought. Power hierarchies in households influenced the consumption pattern of food grains with the woman and the child left hungry most of the times. On the other hand, warehouses stocking food grains were overflowing, with massive losses due to wastage and diversions. The gap created between demand and supply distorted markets and food grains were increasingly becoming unaffordable to the poor.

A long history of public action around such injustice in matters of food - extensive civic organization, historic judicial rulings & progressive political manifestos – culminated in a ruling by the Supreme Court of India (PUCL vs Union of India 2001) which recognized the right to food as a core fundamental right (under the Right to Life as laid out in Article 21) enforceable by law. This also upheld India's obligations as a signatory of 1948 Universal Declaration of Rights and 1999 International Covenant on Economic, Social and Cultural Rights. Soon after, National Food Security Act 2013 was passed in the Parliament by a unanimous vote, thus putting into force one of the largest food safety nets in the world. This Act provides legal right to food to the poor and provides statutory backing to TPDS. This legislation marks a shift in the right to food as a legal right rather than a general entitlement. The Act classifies the population into three categories: excluded (i.e., no entitlement), priority (entitlement), and Antodaya Anna Yojana (higher entitlement of 35 kg per family per month). It establishes responsibilities

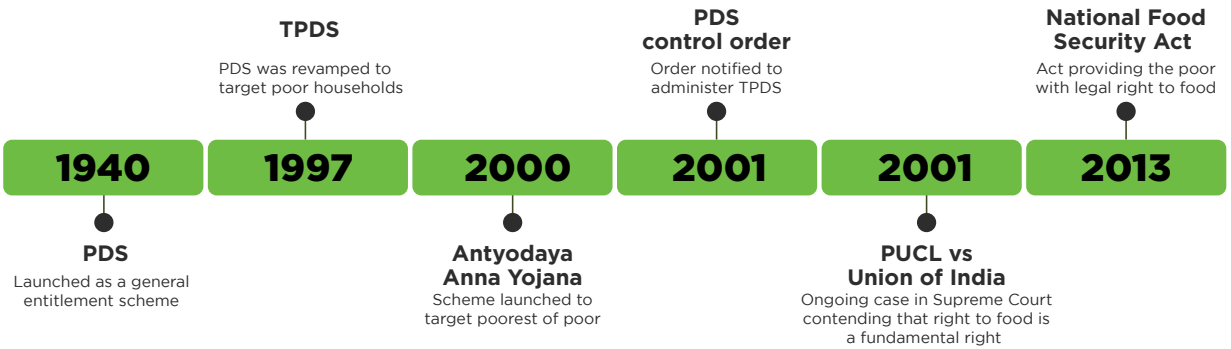


Figure - 2 : Timeline of food security interventions in India

for the centre and states and creates a grievance redressal mechanism to address non-delivery of entitlements. National Food Security Act 2013 guarantees highly subsidized monthly rations of rice, wheat or coarse grains to 75% of rural and 50% of urban population, covering almost 800 million people in India.

Acknowledging the complexity of nutrition as a subject and the need for interventions at different stages of lifecycle, the Act goes beyond the provision of food grains as entitlements. Since malnutrition sets in irreversibly in the first 1000 days of a mother conceiving her child, this Act guarantees the nutrition of pregnant and lactating mothers and provides universal maternity entitlements. Universal feeding programs for pre school and school children included under the ambit of this Act not only aid nutrition in the critical years of growth but also improve learning outcomes at schools.

MANAGEMENT OF FOOD GRAINS UNDER TPDS

The central and state governments share responsibilities in order to provide food grains to the identified beneficiaries. The centre procures food grains from farmers at a minimum support price (MSP) and sells it to states at central issue prices. It is responsible for transporting the grains to godowns in each state. States bear the responsibility of transporting food grains from these godowns to each fair price shop, where the beneficiary buys the food grains at the lower central issue price. Many states further subsidize the price of food grains before selling it to beneficiaries.

The Food Corporation of India (FCI) is the central nodal agency responsible for procuring grains at the MSP from farmers, maintaining operational and buffer stocks of grains to ensure food security, allocating grains to states, distributing and transporting grains to the state depots, and selling the grains to states at the central issue price to be eventually passed on to the beneficiaries.

PROCUREMENT OF FOOD GRAINS FROM FARMERS

The food grains provided to beneficiaries under TPDS are procured from farmers at MSP. It is announced by the Government of India at the beginning of the sowing season for certain crops. For crops critical for food security such as rice and wheat, there is a liberal procurement policy with an open ended MSP. This means that the Central Governments allows procurement agencies to buy as much quantity offered for sale by farmers at MSP. Recommendations by CACP on MSP are done after factoring cost of production, demand supply gaps, inter crop price parity, impact on inflation and multiple other dimensions of commodities in an economy.

Currently procurement is carried out in two ways: (i) centralised procurement, and (ii) decentralised procurement. Centralised procurement is carried out by the Govt. of India which deputes FCI to buy crops directly from farmers. Decentralised procurement is a central scheme under which 13 States/Union Territories (UTs) procure food grains for the central pool at MSP on behalf of the Govt. of India. . The scheme was launched to extend the outreach of procurement operations to the grass roots, encourage local self sufficiency in food production, and optimize expenditure incurred in transportation of food grains from surplus to deficit states. DCP states directly procure, store and distribute the food grains to beneficiaries in their jurisdiction. Any surplus stock over the state's requirement must be handed over to FCI. In case of a shortfall in procurement against an allocation made by the centre, FCI meets the deficit out of the central pool.

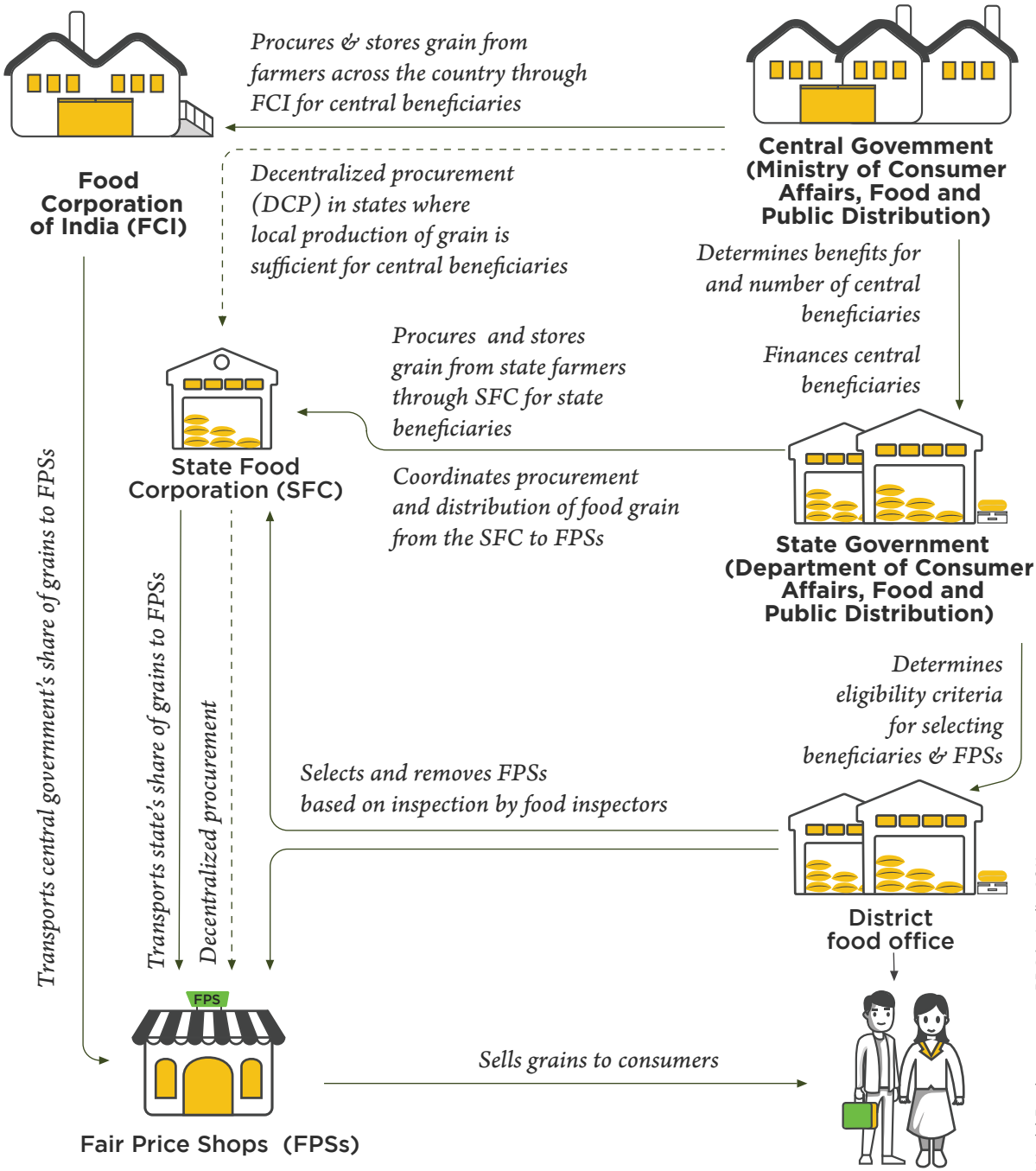


Figure - 3 : *The Public Distribution System in India: Stakeholders and Responsibilities*

Source: World Bank report on PDS in India 2011

STORAGE OF FOOD GRAINS

Apart from the food grains requirement for immediate distribution under TPDS, the central government maintains minimum buffer reserves of food stocks for emergencies. The food grains procured for TPDS and other contingencies are maintained and stored as the central pool stock. FCI is the main government agency entrusted with the storage of food grains in the central pool. According to the guidelines of the FCI, modern & scientic storage practices have to be followed. FCI's own storage capacity has been insufficient to accommodate the central pool stock of food grains. As a result, FCI hires space from various agencies such as the central and state warehousing corporations, state government agencies and private parties for short term as well as for guaranteed period under Private Entrepreneurs Guarantee Scheme.

DISTRIBUTION OF FOOD GRAINS TO BENEFICIARIES

The responsibility of distributing food grains is shared between the centre and states. The centre, specifically FCI, is responsible for the inter-state transport of food grains from procuring to consuming states, as well as delivering grains to the state godowns. Once FCI transports grains to the state depots, distribution of food grains to end users is the responsibility of state governments. On receipt of food grains, states allocate the grains to each district and further to each Fair Price Shop within the first week of the month. State governments are responsible for transporting food grains from the state godowns to the doorstep of each FPS in the state.

Beneficiaries tagged to FPS buy their monthly food grains entitlements at subsidised prices from these ration shops. Ration shops can be owned privately, but preference is given to public institutions such as Gram Panchayats, self help groups and co-operative societies. The owners of ration shops are licensed under the TPDS (Control) Order, 2015 to sell essential commodities at central issue prices. Ration shop owners are issued license by state government and have certain responsibilities under the scheme.

These responsibilities include: (i) sale of commodities as per the entitlement of ration card holders at the retail issue prices fixed by state governments, (ii) maintenance of records and the display of information regarding the list of beneficiaries, entitlements of essential commodities, timings of shops, and opening and closing stocks, and (iii) maintenance of accounts of actual distribution of essential commodities and the balance stock at the end of the month to government officials and the gram panchayat (iv) display of samples of food grains supplied through fair price shops.

03

STATE PROFILE OF ODISHA

Odisha is located on the eastern coast of India. The State borders West Bengal in the Northeast, Jharkhand in the North, Andhra Pradesh in the South, Chhattisgarh in the West, and the Bay of Bengal in the East. It is the 9th largest State in India, spread over an area of 1,55,707 square kilometers . The State has a population of over 41.9 million making it the 11th largest State in India based on population . Urban population constitutes 16.68% of the total population of the State. Bhubaneswar, the State's capital, is the largest city in Odisha and a centre of administrative and religious significance. The State has 30 districts and is further divided into 58 subdivisions, 314 blocks and 317 tehsils.

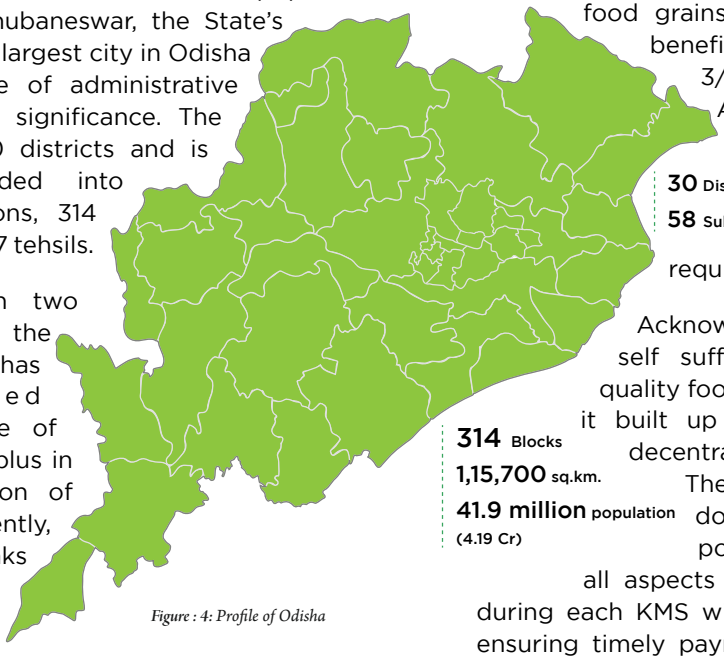


Figure : 4: Profile of Odisha

In less than two decades, the State has transitioned from a state of deficit to surplus in the production of paddy. Currently, the State ranks 4th in the country and annually contributes 9.36% of the total procurement of paddy in the country. Procurement operations are conducted twice a year – for Kharif Crop and for Rabi crop within the overall Kharif Marketing Season (KMS). The KMS commences on 1st October and ends on 30th September of the following year.

The paddy so procured is processed into custom milled rice, which in turn is pumped into the State's Public Distribution System. . Mandated under National Food Security Act 2013 and its own State Food Security Scheme 2018, the Food Supplies and Consumer Welfare department of The Government of Odisha delivers subsidized food grains to approximately 3.34 Cr beneficiaries people, thus feeding 3/4th of the State's population. After meeting its own rice requirements, the State delivers surplus rice to Food Corporation of India to meet the requirements of other states.

Acknowledging the need for food self sufficiency and availability of quality food grains at affordable prices, it built up its capacity to undertake decentralized food procurement. The State Government lays down a Food and Procurement policy every year to regulate all aspects of paddy/rice procurement during each KMS with the overall objectives of ensuring timely payment of Minimum Support Prices for varieties

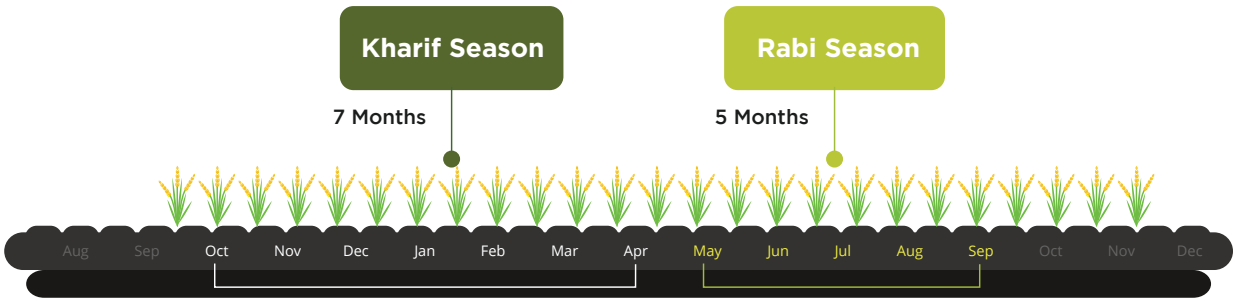


Figure - 5 : Kharif Marketing Season (KMS)

of paddy adhering to Fair Average Quality (FAQ) norms, timely milling of paddy through optimal utilization of milling capacity and timely availability of rice in Public Distribution System through efficient utilization of godowns and movement of stocks.

In accordance with guidelines based on the policy, Odisha State Civil Supplies Corporation – a fully owned State Government company operating on a no profit, no loss philosophy – undertakes procurement of paddy, storage & transportation and distribution of rice and wheat under TPDS. Other Central & State agencies may be deployed only in surplus districts, as and when necessary. Some of these include Food Corporation of India (FCI), Odisha State Co-operative Marketing Federation (MARKFED) and Tribal Development Co-operative Corporation of Odisha (TDCC). However, the role of FCI has now been reduced to accepting surplus rice only.

In KMS 2019-20, 70.57 lakh MT of paddy has been procured by the State from 11.61 lakh farmers living in 50,000+ villages of the State. Around 13,000 Cr has been transferred to the bank accounts of farmers (mostly small & marginal farmers and sharecroppers) within 24-48 hours of the sale of produce. Stakeholders in a massive network of around 2835 Primary Agriculture Co operative Societies, 883 market yards, 1313 millers, 7.29 lakh MT storage capacity, 535 transport contractors and 14401 Fair Price Shops collaborate in this journey of the produce from the farm to the plate.

04

HISTORICAL CONTEXT

The Government of Odisha joined the DCP scheme in Kharif Marketing Season 2003-04. Primary Agriculture Co operative Societies (under the Department of Co-operation, Government of Odisha) were given the responsibility to establish paddy procurement centers to procure Fair Average Quality(FAQ) paddy from the farmers at Minimum Support Price on behalf of the State procurement agencies. In the initial years, the State could not procure enough to meet its own requirement because of inherent inefficiencies in the procurement systems.

To start with, there was no uniformity in the method of identification or registration of genuine farmers. At the start of procurement, most districts used to undertake the cumbersome process of printing fresh cards every season. Checking for duplicates or ghost beneficiaries was not possible. Power hierarchies in the social environment distorted the functioning of markets where the powerful middle man managed to force farmers to sell crops to him at lower prices and reaped margins by selling to the state agencies declaring himself as a farmer.

The monitoring of status of procurement operations conducted across thousands of paddy procurement centers was dependent on manual collection of reports over the phone. District officials were stretched beyond their capacity in taking stock of the progress. Plans had to be manually chalked out to ensure that millers picked up the produce from the market yards or paddy procurement centers in time to avoid wastage. Compilation of such large volumes of data and reconciliation of inconsistencies led to such delays that corrective action was not possible in time. This also impeded the ability of the authorities to check malpractice and curb corruption.

In the absence of decision support systems providing macro and micro transparency of these operations, forecasting and planning (advance assessment of paddy surplus) could not be done with precision. Since operations were conducted ad-hoc, procurement centers were often ill equipped in capacity to deal with excess volume of paddy to be procured on any particular day. Staff at the society level did not have the technical knowledge to keep a stringent check on quality or the managerial ability to handle operations at such scale. In the absence of an appointment schedule, long queues of farmers waiting to sell their produce caused frequent choking of road networks and even law & order problems.

A logical extension of the problem of transparency was inefficient fund allocation among the societies. Some societies were holding on to huge funds allocated to them without enough procurement while other societies were starving for funds to be paid to farmers and could not purchase paddy even though it was available with its farmers. The clearance of farmer dues, paid manually through cheques, was delayed for as long as 15 to 30 days from the day of sale. In the absence of any accountability, the agency of the farmer was adversely affected and he was left to the mercy of the system.

Such dismal state of operations affected the faith of the farmer in the formal procurement network run by the State and he ended up resorting to distress sale of his produce at the farm gate.

The levy system, prevalent till 2015, allowed millers to procure paddy directly from the farmers. Since millers possessed enough bargaining power, most of them payed farmers less than the correct price for their produce. The millers also diverted good quality rice into open markets at higher prices. Inadequate quality checks and weight standardization at privately owned godowns led to the supply of inferior quality rice to the public distribution system. To fetch quality food, the consumer was left with not much choice but to purchase food grains from the open market at higher prices.

The lack of accountability of private storage agents, the core of then public distribution system, was visible in the poor adherence to scientific

storage practices and quality control measures at their premises. Control over the transportation of food grains gave room to private storage agents to divert consumable food grains en-route to the Fair Price Shops. Inadequate number of state-owned storage centers and gaps in monitoring / compliance mechanism for this network had granted the bargaining chip to the private storage agents. The Fair Price Shops, the last tiers of distribution to beneficiaries, were at the mercy of these storage agents to deliver food grains to them in a time bound manner. This in turn led to lack of reliability of public distribution system and assurance of food grains for the beneficiaries.

The distribution of food grains to the last mile was done based on an allocation plan developed by the Block Development Officer. Such an allocation was prepared on an estimate of beneficiaries (those below poverty line and poorest of poor households). The beneficiary database included many bogus, suspect or ghost beneficiaries. A lack of financial viability of stakeholders (because of a combination of low commissions and high pilferage of output) in turn led to greater corruption. This is what prompted many FPS owners to create ghost beneficiaries and divert entitlements to the open market.

Such a system that granted entitlements to ineligible beneficiaries at the cost of genuine beneficiaries risked denial of rights to the latter.

Multiple scientific assessments conducted by the State Government and recommendations of high level committees constituted by the Central Government and the Supreme Court of India demanded a political commitment to adopt a structured approach to reforms in the entire supply chain – procurement, storage, transportation and distribution. With food security codified as a right under the National Food Security Act 2013, the Government of Odisha understood the urgent need for transformation of these systems so that it could be self sufficient in guaranteeing this right to its citizens. The task seemed mammoth. Based on the state the systems were in, nothing but a miracle could come close to achieving that vision.

History stands witness that indeed
a miracle was delivered.

05

CONTEMPORARY POLICY LANDSCAPE

Today, Odisha has come a long way in transforming its food security systems - the path that the food travels from the field to the family meals. Such reforms, based on the principles of co-ordination, collaboration and integration of various actors, have worked to ensure both stable demand and supply of food to all. As a predominantly agrarian economy, the State has consistently worked towards protecting its farmers from market failures and distortions. Steps taken to improve small and marginal farmers' and sharecroppers' access to markets and consequently their agricultural incomes have ensured demand for quality food.

Technological innovations and business process reengineering aided with human capacity development have been instrumental in simplifying procedures, ushering in transparency of operations, weeding out malpractices and developing a near real time reporting mechanism for field-level operations across the supply chain. In addition to such optimization that has made supply consistent and reliable, a hawk eye on the quality of the produce has assured that nutritious food reaches the vulnerable. Major overhauling of the Public Distribution System by the State government has enabled the vulnerable to access subsidized food grains at their doorsteps.

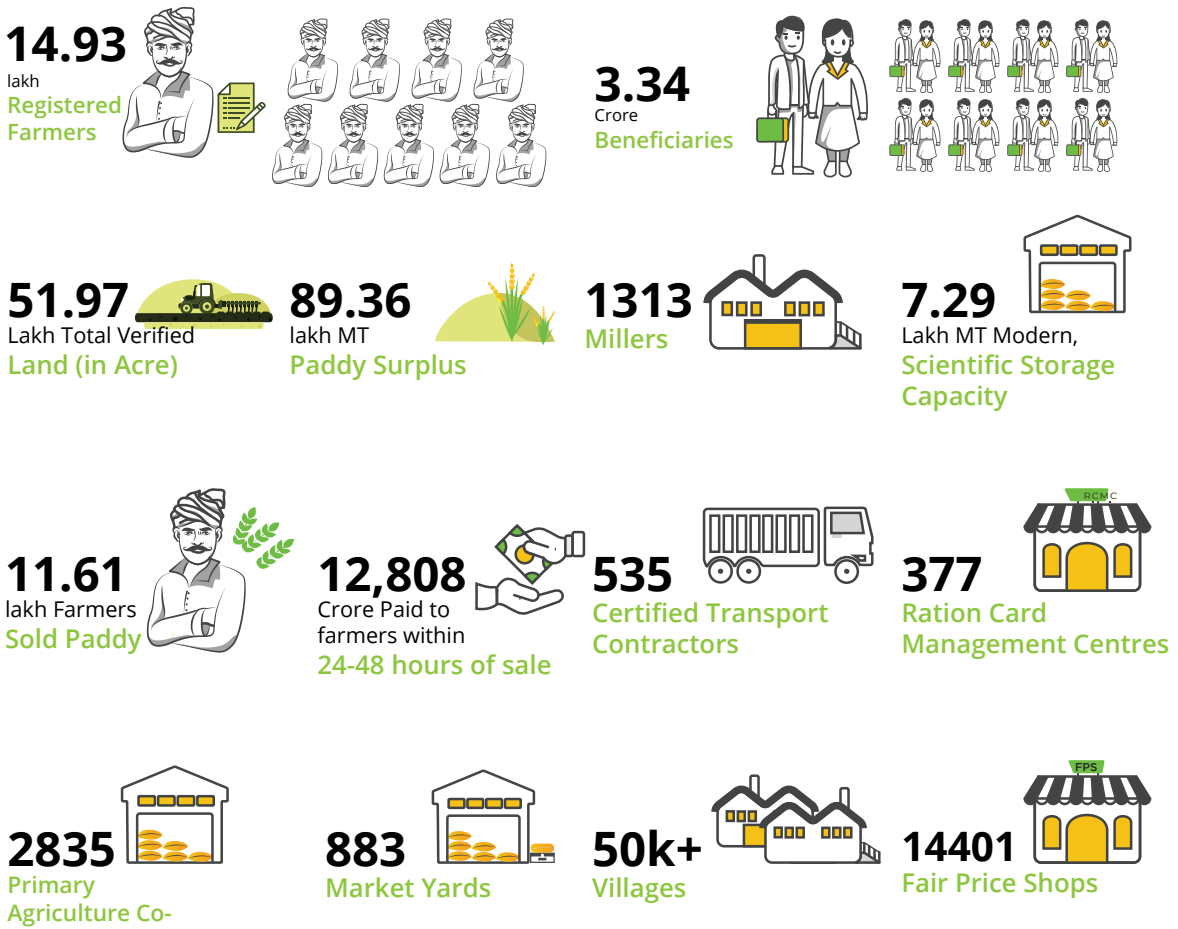


Figure - 6 : Scale of Operations in present day Odisha

PADDY PROCUREMENT

As a decentralized procurement state, Odisha procures both in Kharif and Rabi seasons. Before the onset of the harvest season, the State Government prepares the Food & Procurement Policy which is implemented by the Food Supplies and Consumer Welfare Department. The current ICT systems deployed in the procurement – Farmer Registration System (FRS) and Paddy Procurement Automation System (P-PAS) enable analysis of the previous year's paddy procurement volume and current year's acreage of paddy cultivation, based on which targets for procurement are set and allocated to districts. At each district, a District level Paddy Procurement Committee is formed under the chairmanship of the Collector which further oversees the operations at the Regional Marketing Committee and Paddy Procurement Centers catering to geographically dispersed areas of the district. At the start of the season, the farmer registers or renews at the Primary Agricultural Co-operative Society. This number generated (renewed every cropping season) serves as a unique identifier for the farmer, thus eliminating the confusion over multiple identity cards used in different districts. Odisha is the only state in the country where this Farmer Registration system is linked and auto-verified with the land records database called Bhulekh (maintained by Department of Revenue). Bank details (mandatory)and Aadhaar card number (optional) are also fetched at the time of registration.

In order to encourage market access to sharecroppers who do not own the land they cultivate, there is a provision to accept a landowner's declaration to the same. A consent form signed by the local sarpanch is also acceptable. In case these documents aren't available, registration requests are still accepted pending manual verification by officials from Agriculture or Revenue Department of the Government of Odisha. Such flexibility has allowed almost 0.92 lakh sharecroppers to be officially registered in the system.

Since lands are already tagged as irrigated or non irrigated in the system and average yields for both types defined annually (by the Department of Agriculture), an assessment of the quantity of produce that can be sold by the farmer is already available on the system. This ensures that no pooling of produce by the middleman is allowed and only the rightful owner sells his produce to the procurement centers. Once registered, the farmer is able to sell his produce at the same Paddy Procurement Center on a specified date. Before the onset of every procurement season, a District Level Procurement Committee meeting is held to fix the upper cap for procurement at each Paddy Procurement Centre.This ensures that quality of paddy procured is not compromised.

Such a system facilitates the advance assessment of surplus based on which loans can be taken from banks by the Odisha State Civil Supplies Corporation to credit Minimum Support Price to farmers for produce sold to Government without

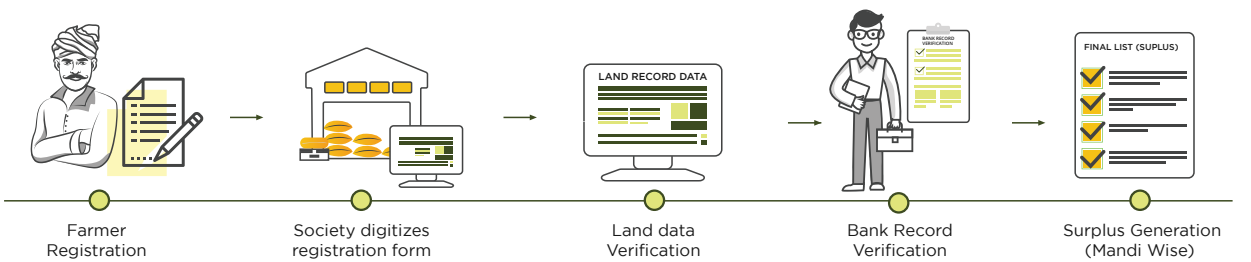


Figure -7 : Farmer Registration

delay. This also allows for the placement of orders of gunny bags, used for the transportation of Custom Milled Rice from mills to depots, with Jute Commission.

During the operationalization of the procurement process, the farmer receives an advance token (describing the quantity of paddy saleable by the farmer and time of sale) from the PACS. This quantity has to be brought in non standard gunny bags provided by the miller. Stringent quality testing of sample is done at the procurement center by trained quality personnel from RMC in the presence of the farmer , the representative of the miller and representative of PACs. Details of the farmer are entered in the P-PAS. Once the lot of paddy is accepted, it is weighed on digital scales. Vendor Receipt, specifying the quality and quantity of paddy procured, is generated from the P-PAS and given to the farmer. The P-PAS also generates a Transit Pass cum Miller Acceptance Note which captures the details of the paddy picked up by the miller. Stock registers and cash books for centers are also maintained in the P-PAS application.

In heavy procurement blocks, Regulated Market Committees set up temporary mandis or market yards which serve as Paddy Procurement Centers and carry out operations for the Odisha State Civil Supplies Corporation for a market fee calculated @ 3 % of Minimum Support Price.

The mapping of millers to societies is done in advance and the automation of the procurement system does not allow any deviation from this mapping i.e. only authorized millers can pick up paddy from their respective tagged societies. The adherence to the process is enforced through a legally binding agreement between the millers and the district administration. Once the paddy is picked up by the miller, which almost happens on the same day as the day of the sale, it takes 24-48 hours for the payment of the farmer to be directly credited into his bank account by the State procurement agency through the payment portals of Odisha State Co-operative Bank. If the quantity of paddy procured exceeds that of the designated uptake, the excess paddy is sent to the godowns for storage.

This entire farmer registration and paddy procurement system has been recognized as a high impact e-governance innovation by national and international agencies. Some of the most notable impacts of this intervention are creation of a centralized database of genuine farmers (especially small & marginal farmers and sharecroppers), timely payment of the correct price (MSP for FAQ paddy) to the correct owner (farmer, not middleman), assurance of sale of paddy to the state procurement network, and workflow automation for real time monitoring and decision making by officials. The transparency brought about in the procurement operations has reaffirmed people's belief in Odisha's political and administrative capabilities to undertake sustainable pro-farmer and pro-poor policies.

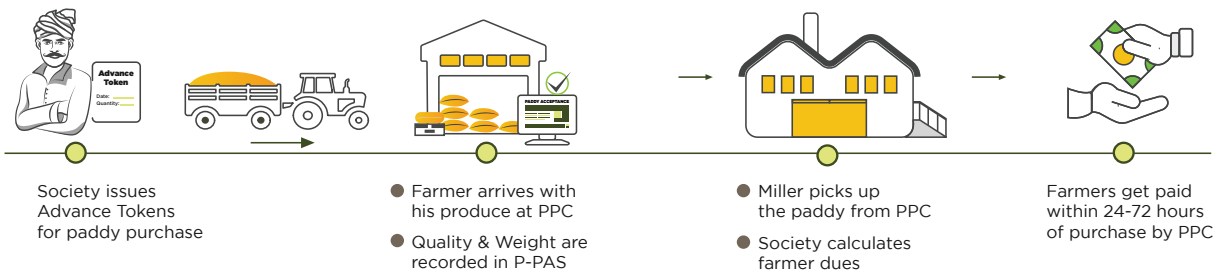


Figure - 8 : Paddy Procurement

"GOVERNMENT OF ODISHA HAS GONE BEYOND THE MANDATE OF THE END-TO-END COMPUTERIZATION OF THE TPDS, AND HAS TAKEN THE BOLD INITIATIVE TO AUTOMATE THEIR PADDY PROCUREMENT SYSTEMS AS WELL. THIS INITIATIVE IS TESTAMENT TO THE STATE GOVERNMENT'S COMMITMENT TOWARDS IMPROVING EFFICIENCIES TO THE ENTIRE VALUE CHAIN."

WORLD FOOD PROGRAMME ON P-PAS

RICE TRANSPORTATION AND STORAGE

Once the paddy is milled into Custom Milled Rice at the mills, it is sent to the designated receiving or storage centers. Tagged mills deliver CMR based on paddy allocation, CMR targets, security deposit and distance from storage centers. 100% CMR delivery by custom millers is a precondition for participation in procurement operations. No defaulter is allowed to participate as a custom miller. Even though there is considerable risk in case a consignment is lost or damaged, implementation of such a policy has helped in improving the financial viability of millers (who in turn have been mostly compliant) and significantly reduced inter district transportation costs borne by state agencies.

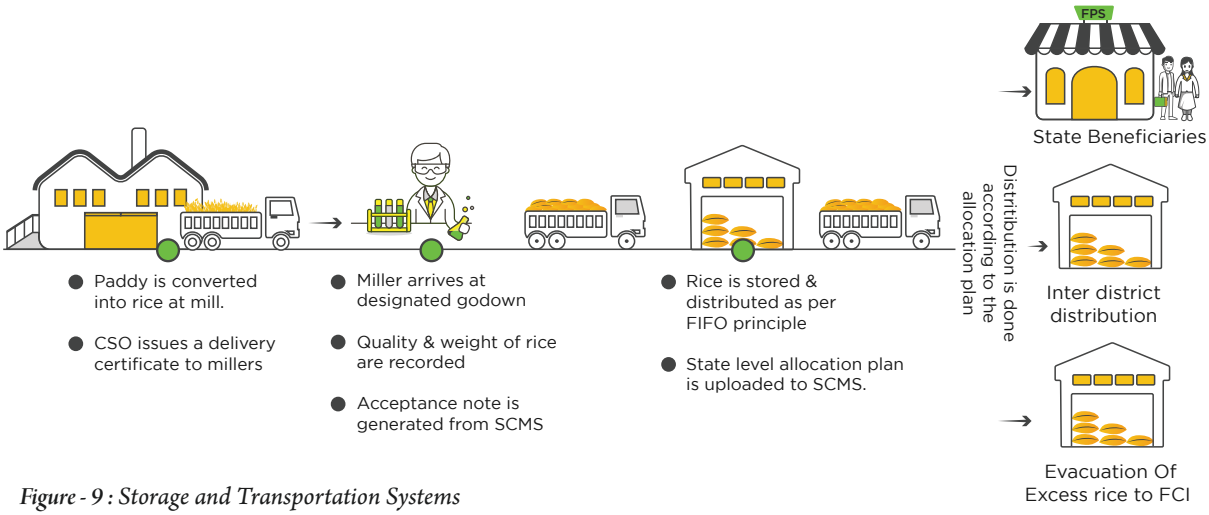


Figure - 9 : Storage and Transportation Systems

Also the declaration of capacity by a registered miller is audited periodically by inspection of premises and operational expenses such as consumption of electricity. The delivery certificate issued to millers by Civil Supplies Officers is done on the basis of stock position of storage centers. Similar to a society database, a miller database outlining the security deposit, milling capacity and CMR output exists which aids in tracking of the performance of the millers.

In this entire process, there are checks and balances which prevent the participation of unauthorized millers – such as importance of participation and willingness of stakeholders, security deposit for the Kharif Marketing season, assignment of authorized officers, specific tagging of societies and godowns and generation of system generated Miller Authorized Slip (MAS) and Society Authorized Slip (SAS). If the society sells to an unauthorized millers, the farmer's dues wouldn't be processed. In that case, he has the right to call the Grievance cell (1967) or escalate it to the District Magistrate, which would eventually lead to identification of such a leakage.

Similar to the mapping done in paddy procurement process , a mapping of the millers with rice receiving centers cum district storage centers – 1313 millers and 200+ RRC cum DSCs - is done in the rice distribution process. A miller is authorized to deliver Custom Milled Rice in lots of 20 MT (to OSCSC) or 27 MT (to FCI). When the truck with CMR load arrives, the representative of

the miller submits delivery certificate (containing details of miller, quantity and type of CMR – raw or parboiled, district of procurement) and Miller Transit Challan (vehicle details/ driver/ lot of CMR) . These details are entered into a web based application called Supply Chain Management System – another innovation conceptualized by the State Government in association with UKAid.

Sample check of quality of CMR is done and results are recorded in SCMS. If found acceptable, then it is taken in for weighing. This quality assessment, weighing and standardization of quantity in bags are done at a verandah level and then lifted up to the storage centers by authorized transport contractors. After receiving CMR, acceptance note is generated and issued to miller. Rice Receipt register, Rice Stock Register and Miller Performance Register are updated automatically by the SCMS. Generally, depending on the type of rice, an average of 67% conversion from paddy to Custom Milled Rice is established as a norm. Since paddy picked up by a miller is already available in the P-PAS, the corresponding amount of CMR can be calculated. This is where an opportunity of integration between two systems – P-PAS and SCMS – was identified and recently implemented. Even before a miller delivers rice to a storage center, the target amount is already entered from the P-PAS into the SCMS, thus reducing duplication of efforts. Against the actual amount delivered, the SCMS is now capable of monitoring any diversions and evaluating performance of millers. This integration is also expected to address existing gaps in planning and execution of supply and demand, stocking, time of delivery and other factors that affect supply.

Odisha has Base Rice Receiving Centers which are used to store CMR received from millers and deliver it to District Storage Centers. These storage centers collect rice, wheat and sugar from different sources and store the commodities till it is distributed to Fair Price Shops through handling & transport contractors. These rice receiving or

district storage centers, with an overall capacity of 7.29 lakh MT, could be owned by Odisha State Civil Supplies Corporation (OSCSC) , rented from Central Warehouse Corporation (CWC) / Odisha State Warehousing Corporation (OSWC) or constructed/ managed under the central/state government Public Enterprise Guarantee (PEG) scheme. Substantial capacity has been created under the PEG program (in PPP mode) under which guarantee of rent (for a fixed tenure of 6 to 10 years) is available to the private player. Constructed using the Built Operate Lease (BOL) Model, these warehouses have been supported by the Odisha State Civil Supplies Corporation through Viability Gap Funding, consequently improving their credit profile to further raise term loans from banks for expansion.

In order to minimize wastage of food grains that essentially contributes to significant leakage, focus on implementation of scientific storage practices is critical. Losses in storage can be due to infestation by insects, pests or fungus, loss of moisture of grains, rodent attack and spillage. In lieu of this, the State Government has made provisions for storage of paddy under joint custody and maintenance at the miller premises using Cover and Plinth (CAP) method.

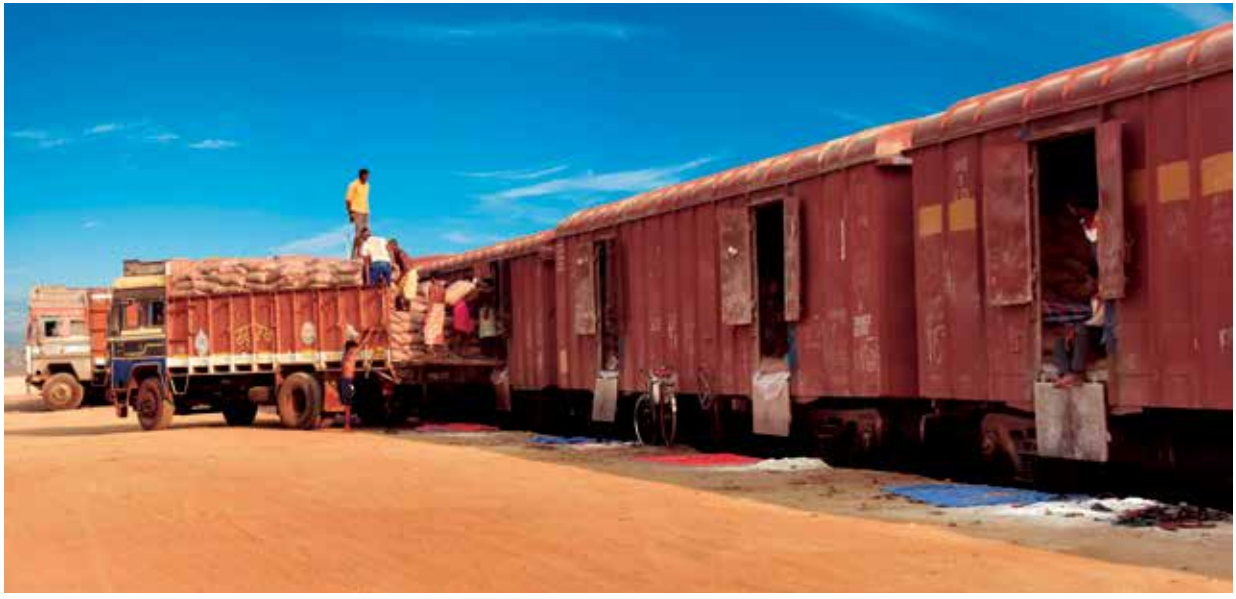
Odisha State Civil Supplies Corporation is also accredited by the Directorate of Plant Protection, Quarantine and Storage, Government of India – for responsible chemical treatments of facilities at periodic intervals to ensure pest free food grains in the Public Distribution system.

It is important to note that the Supply Chain Management System (SCMS) has the facility to allocate a particular lot of foodgrains to a particular stack on the basis of First In First Out principle. This ensures that stocks that arrive early are processed first before moving to the next lot. Time lags in processing of paddy can lead to a great loss in moisture content which makes the rice unfit for human consumption. Even custom milled rice is stocked out from storage centers to Fair Price Shops on FIFO principle to prevent loss due to discoloration or infestation.

To minimize diversion of food grains through the transportation network, transport agencies have been separated from distribution agencies. The State has certified contractors (selected through a scientific bidding process) at various levels. The Handling and Transport (H&T) Level One (L1) transport contractors provide transportation between FCI and Rice Receiving Centers (evacuation of surplus rice to FCI godowns which in turn is transported to other states via road/ rail network) as well as to other Rice Receiving Centers within the same and other districts.

H&T Level Two (L2) transport contractors provide transportation between the Rice Receiving Center and the attached FPS/Gram Panchayats. Contracting of Level 2 H&T transporter is delegated to the districts, and the contracting is done per block, using unified rate for each block in quintal/km. The start and end point of the route of vehicles under this network is available in the SCMS. Compliance to an acceptable route is checked through GPS tracking of vehicles.

Thus, Supply Chain Management system works as a reliable system for allocation, storage and transportation of food grains that improves efficiency of utilization of infrastructure (especially storage godowns) and enables quality & quantity food grains to be pushed into the public distribution network.



RICE DISTRIBUTION

The distribution of rice from storage centers to fair price shops is done on the principles of prudent delivery. Annually, a plan is chalked out by Odisha State Civil Supplies Corporation (state level lifting plans and district level lifting plans) for the movement of food grains on the basis of supply in rice receiving centers and the demand of beneficiaries in a particular district. A district needs to meet its own Public Distribution System requirement first before allocating surplus, if any, to neighboring districts or to Food Corporation of India. Maintaining contingency reserves for calamities is also the responsibility of the district. Such plans also factor in transport cost optimization for deciding the movement of food grains.

The National Food Security Act 2013 mandates door step delivery of food grains through the Public Distribution System. This implies that it is the responsibility of the State Government to lift food grains from the storage centers and deliver it to the final distribution point i.e. Fair Price Shop. From the time of implementation of NFSA in Odisha since November 2015, the Public Distribution System in Odisha has been guaranteeing food security to 3.34 Cr individuals belonging to 92.74 lakh households, covering both Priority Households and Antyodaya Anna Yojana Households.

Factoring in the growth of state population and inclusion/exclusion errors, the State identified the need of providing coverage to 9.6 lakh additional beneficiaries left out by the National Food Security Act 2013. For this, the State implemented its own Food Security Scheme in 2018. Hence, currently, the Public Distribution System in Odisha covers a beneficiary base of 3.34 Cr individuals (i.e. almost 3/4th of the entire State population).

The above beneficiary database is dynamic and gets updated throughout the year.

377 Ration Card Management Centres are currently functional in 314 Blocks, 103 Urban Local Bodies and 5 Muncipalities. They provide services such as management of additions, deletions, modifications and mutations in the ration cards along with the issue of duplicate or new ration cards. Applications for new ration cards or any modifications are verified by the field officers for check on inclusion and exclusion criteria defined by the State. Post verification, these are entered into a draft priority list and put up on the public domain to give an opportunity for objections. Following this, the final list is put up on the Food Odisha portal with each beneficiary tagged to a Fair Price Shop for pick up of ration.

Computerization of this entire system has been achieved through another application called as the Ration Card Management System (RCMS). In order to sanitize the database for removal of ineligible beneficiaries, the State checks overlap with various databases such as death records, income tax returns, public sector employee list etc. and excludes the matches.

This automation has proved critical in finalizing the allocation plan for the Targeted Public Distribution System i.e. quantum of food grains to be transported from the storage centers to each of the Fair Price Shops, which is uploaded into the Supply Chain Management System. On the basis of this allocation and the advance receipt of worth of food grains from the Fair Price Shop, the Supply Chain Management System approves the lifting of rice from the storage centers. Payment transactions (by the FPS owner to the State Government) are also online enabled (NEFT), eliminating the time needed for the FPS owner to personally travel to submit the Demand Draft to the depot in charge who in turn has to go to the Civil Supplies Officer to deposit all Demand Drafts collected periodically.

Notification about the movement of food grains from storage centers to the Fair Price Shops is triggered by the Supply Chain Management

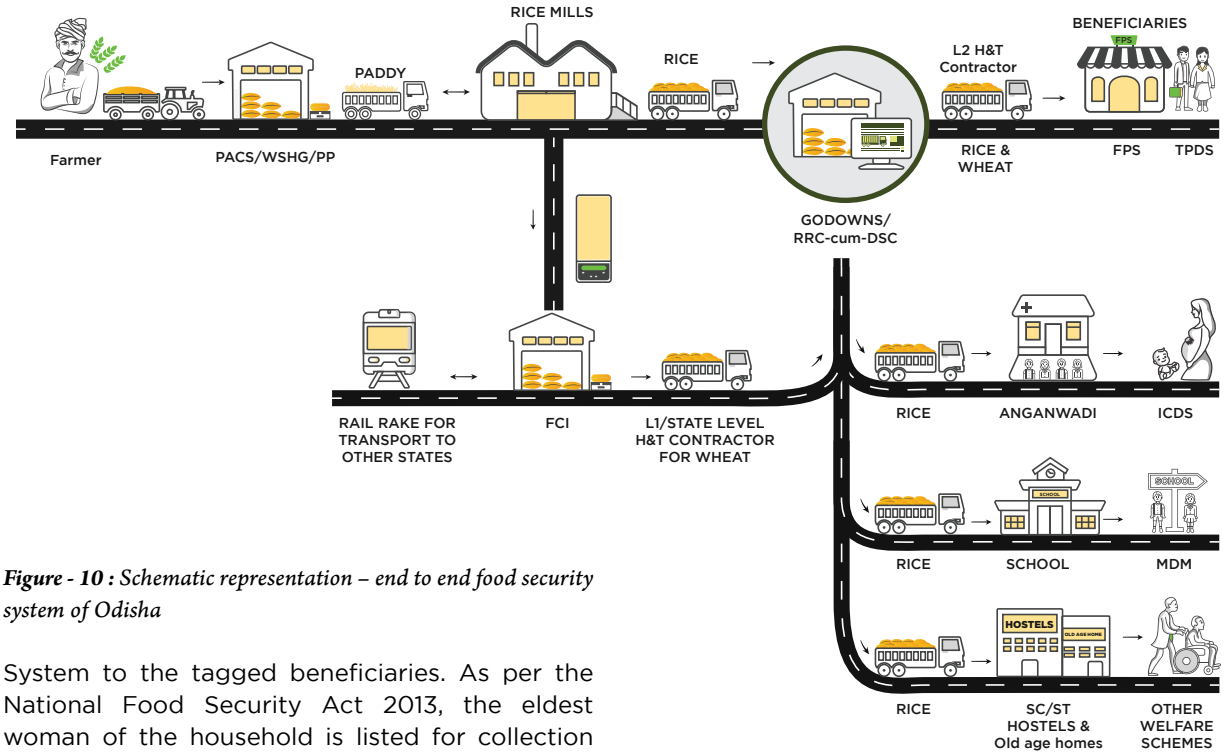


Figure - 10 : *Schematic representation – end to end food security system of Odisha*

System to the tagged beneficiaries. As per the National Food Security Act 2013, the eldest woman of the household is listed for collection of food entitlements. This corrects the skewed distribution of food allocation within a household owing to prevalent gender biases. Research confirms that decisions relating to food when culturally made by women in almost all cultures are more likely to end up as food in the child's stomach. Hence the implementation of this provision improves nutritional outcomes for the entire household. Ration (in a fixed ratio of rice and wheat) is allocated on the basis of dietary preferences laid out by the beneficiaries at the time of registration.

At the Fair Price Shop, the dealers are mandated to use e Point of Sale (e-POS) devices for distribution. Aadhaar based authentication (through biometric fingerprint) is encouraged to avoid duplication. Through concerted efforts of the State, the seeding of Aadhaar (validated through UIDAI server) of beneficiaries in the Ration Card Management System has significantly improved over time. Factoring in the probability of failure of Aadhaar based authentication due to various reasons (such as corroded fingertips, connectivity issues), a back up option of OTP based transactions has been introduced. Though Aadhaar based transactions are yet not mandatory, the percentage of such transactions conducted at FPS level are a key performance parameter monitored by State officials and considered for renewal of licenses.

In addition to the allotment of grains for Targeted Public Distribution System (TPDS), the state allotment plan also includes allocations for hostels of Scheduled Caste/Scheduled Tribes students (Department of ST & SC Development, Minorities & Backward Classes Welfare), schools for Mid-day meals (Department of School & Mass Education) and Anganwadi centers for Integrated Child Development Scheme (Department of Women & Child Development and Mission Shakti).

06

ODISHA A MODEL STATE FOR PDS

In response to a Public Interest Litigation (PIL) filed by People Union for Civil Liberties on the Right to Food, the Supreme Court of India had constituted the Wadhwa Committee in 2006 to monitor implementation of Targeted Public Distribution System in the country, to check maladies affecting it and to suggest remedial measures. Odisha is one of the model states that has been lauded for its commitment to abide by the recommendations of the committee in letter & spirit. These reforms have aided millions escape the clutches of hunger.

END TO END COMPUTERIZATION

The committee was of the view that the only solution to the ills plaguing the PDS was minimizing human intervention and using information technology to completely automate the processes involved in this system (creation of an updated beneficiary database, stocks managements from FCI till FPS, sale of commodities at FPS). The State Government has developed a customized solution for end-to-end PDS transformation that draws from the lessons from the various pilots conducted across the state. It also incorporates several elements of the 'Best Practice Model' proposed by WFP which was developed using a benchmarking exercise of PDS reforms in eight states across the country (Andhra Pradesh, Chandigarh, Chhattisgarh, Gujarat, Karnataka, Odisha, Haryana and Tamil Nadu), and builds on the lessons learned in these states.

The solution has automated key elements in the following areas

Beneficiary identification and enrolment : Authenticated beneficiary list created by leveraging uniqueness of beneficiary Aadhaar numbers & provision to keep ration card updated and accurate.

Supply Chain Operations : Automated allocation of foodgrain based on previous off take by tracking foodgrain stock levels & door step delivery of foodgrains to FPS with automated SMS notifications at dispatch.

FPS transactions : PoS enabled online transaction at FPS after biometric authentication of beneficiary using Aadhaar & ability for beneficiary to purchase ration from any FPS (portability) – currently under implementation.

Grievance redressal : Easily accessible and effective grievance redressal.

ABOLISHING OF THE SYSTEM OF PRIVATE STORAGE AGENTS

The most important policy reform undertaken by the State was the abolishing of the system of the private storage agents and its replacement by departmental storage centers (DSCs), combined with a doorstep delivery feature of PDS items to the FPS dealers in the State. Changing the storage agents and taking over the charge of transportation network plugged the major points of leakage. Also this physical transformation had a strong bearing on the new digital fabric of the institution. Computerization of the storage link of the value chain and subsequent backward & forward integrations were made possible because of this step.

RATION CARDS TRANSFORMATION

Odisha did not digitize the existing ration cards because that would have digitized the errors too. The ration cards were very old and had both inclusion and exclusion errors. The department junked the old ration cards to give way to new ones. It defined six auto inclusion criteria and nine exclusion criteria to find the priority households under National Food Security Act (as per Section 10 of NFSA, it is the responsibility of the state governments to identify the beneficiaries).

Auto included in the list are households at the risk of hunger such as landless agricultural laborers, small & marginal farmers, rural artisans, daily wage earners in the informal sector, transgenders, vulnerable sections such as terminally ill/ widows/ disabled/senior citizens or households headed by them and primitive tribal households.

Excluded from the list are those with one earning member receiving monthly income/pension above threshold (10,000 Indian rupees in rural areas and 15,000 Indian rupees in urban areas), income, persons having three or four wheelers, business owners with TIN (tax payer identification number) / electric consumption above 300 units, households with 3 room pucca houses, any state government or central government employee, persons having tractors, power-tillers, fishing boats or other heavy vehicles, persons having entrepreneurship or professional tax payers. Unlike most other states who used the Socio Economic Caste Census (SECC) data to finalize NFSA beneficiaries, Odisha undertook a massive crowd sourcing drive to come up with the list. It first notified the Auto inclusion and Exclusion Criteria and used an IEC campaign to disseminate this information and application process. Applications from all eligible households poured in at the Gram Panchayats (Rural areas) and Wards (Urban Areas). To ensure error free ration cards, an Acknowledgment Slip (in the dummy design of a ration card) was provided for verification and correction. Errors reported were immediately corrected and a fresh Acknowledgment Slip was issued.

These applications were digitized by searching the applicants in the National Population Register (NPR) and linking their NPR identity number to them. This process helped to populate the names of the applicant family members in the data entry screen. This not only reduced the data entry process but also ensured de- duplication to a large extent. About 64% of applicant families (64.74 lakh households) and 60% of applicants (2.328 crore) had been linked to NPR database in the process of digitization.

Once digitized, it was critical to use existing databases to weed out ineligible beneficiaries. Mapping the SECC database with this data, it was found out that 9.50 lakh households (37.50 lakh individuals) had applied for new ration cards in

spite of coming under the NFSA exclusion criteria. A mapping was also done with other databases such as the state government human resources MIS (to exclude government employees), pension database, registrations of four wheelers etc. All such suspect families were identified and put up on the transparency portal for verification by the district officials.

Post verification, a draft priority list was finalized and put up on public domain to invite objections. Once the complete list was authenticated, the final priority list was published and bar coded ration cards were printed and issued to the beneficiaries.

For handling complaints and updating the database, Ration Card Management Centers (RCMS) were deployed in every block and municipality. There is a provision for keeping a dynamic database. If the financial condition of a beneficiary improves, then one must update the department and surrender the ration card. At the same time, if someone claims that his name has not been included in the beneficiary list, it can be added after a due process. There is also a provision for claiming refund of subsidy from the non-eligible or bogus beneficiaries.

APPOINTMENT OF DEALERS OF FPS

The State follows a strict Fair Price Shop licensing regime laid out in Odisha Public Distribution System (Control) Order, 2016. To check pilferage, preference for grant of new licenses for FPS in a particular area is given to Gram Panchayats, Co operative societies or Women Self Help Groups, instead of private dealers. Currently, more than half of the FPS network in Odisha is run by these representative grass root institutions. This ensures participatory management and transparency in administration

VIABILITY OF FAIR PRICE SHOPS

The absence of financial viability is the precursor to corruption. On a conservative scale, the estimated average expenditure of a Fair Price Shop on overheads such as rent, commission to banks on demand drafts, salaries paid to helpers, electricity charges etc works out to be approximately 6000/- Indian rupees per month, which was formerly not covered by the commission paid to FPS.

In lieu of the above observations, the commission paid to FPS was first increased to 70/- INR per quintal of rice sold. Later, an additional 17/- INR was granted to FPS owners for ePOS installation.The total comission paid is borne by the Centre and the State in a 50:50 basis. Other initiatives such as efficient tendering process for rationalization of cost of Specified Food Articles (SFAs) (finally borne by the State as per NFSA 2013), rationalization of the distribution of ration cards (upper cap of 1000 cards per FPS in plain areas), convergence of sale of non PDS items such as kerosene in FPS, automation of FPS – have all contributed in ensuring the sustainability of Fair Price Shops.

GRIEVANCE REDRESSAL

Earlier it was observed that the deployment of existing administrative staff as Grievance Redressal officers posed a major conflict of interest, as the same machinery responsible for implementation of the Food Security Act was responsible for identification of failures. In response to this, the recommendation of establishment of an independent State Food Commission for monitoring on ground implementation and addressing grievances of consumers has also been undertaken by the State. Project Directors of District Rural Development Agencies have been appointed as Grievance Redressal Officers, constituting the layer reporting to the State Food Commission.

DOOR STEP DELIVERY OF FOOD GRAINS FOR THE PHYSICALLY CHALLENGED

In order to enable distribution of food grains to old, infirm and differently abled beneficiaries facing physical challenges to travel to tagged FPS, Food Supplies & Consumer Welfare Department came up with an alternative method of service delivery for such beneficiaries. Block / PRI/ ULB level field functionaries / FPSs are involved in preparing the list of beneficiaries who fail to collect ration due to physical challenges. Such beneficiaries are delivered ration at their door step on a particular date every month by Jogan Sahayaks (officials employed by Gram Panchayats in charge of FPS dealership). This innovative way of service delivery has inspired trust in the functioning of the Public Distribution System by fulfilling the mandate of door step delivery in letter and spirit.

Disaster Management & Food Security:

A Case Study on Odisha during Fani

As a state, Odisha is highly vulnerable to natural disasters. Historically, between 1900 and 2011, it has experienced floods for 59 years, severe cyclones for 24 years, droughts for 42 years, severe heat waves for 14 years and tornadoes for 7 years. Geographically, its sub-tropical littoral location makes it bear the brunt of high intensity cyclonic formations in the Bay of Bengal that damage critical infrastructure and cause huge losses to the economy. Rivers frequently swell up with high concentrations of silt washed away from the fertile alluvial plains in the coasts. The flooding caused thereby is only exacerbated by breached embankments.

Demographically, the prominent farming community is severely impacted by disasters. On one hand, purchasing power of agricultural households is greatly reduced due to dwindling farm incomes. On the other, availability of food commodities in local markets is impacted causing food inflation. Hence, the State faces a mammoth task to fulfil the promise of food security. Despite such disadvantages, Odisha has proved to the world its capabilities in disaster management. A key feature of this has been guaranteeing stability of safe, nutritious food supplies to its populace in such times after overcoming limitations posed by disorganized transportation systems, communications and socio economic routines post disaster.

On May 3rd, 2019, a severe cyclonic storm named Fani (average wind speed of 200 kmph) made its landfall near Puri. A record 1.2 million people were evacuated in 24 hours and almost 7000 kitchens catering to 9000 shelters were made functional overnight. The Food Supplies & Consumer Welfare Department took up the responsibility of not only supplying essential food items to these free community kitchens but also distributing 50 kg relief rice (free of cost) to affected households

through PDS outlets and mobile vans. In addition to this, the responsibility of distributing dry ration (jaggery /flattened rice), biscuits, candles, and essential commodities (kerosene, onion, potatoes) was also taken up by the Department.

Before landfall, the Department co-ordinated with Civil Supplies Officers in the State to assess the status of supplies in the State. They made preparations for open market procurement (especially of dry ration & kerosene) wherever applicable and stocking of such essential supplies in safe locations. In lieu of very severe damage to the warehouses in the cyclone affected districts, especially Puri and Khurda, rice had to be mobilized from the surplus districts such as Bargarh, Sambalpur, Subarnapur, Boudh, Nayagrah, Dhenkanal and Bhadrak. Since the capacity of road transportation had to be increased exponentially overnight, the officials exercised responsiveness and flexibility in bringing more transport contractors into the fold through price discovery. Wherever road networks were disturbed and / or demand for food supplies was too high, the Department effectively utilized rail rakes for cost effective & timely transportation of food grains. Almost 4 lakh quintals of food grains were mobilized in a short duration of 7 days. To ensure food safety, stringent inspection of food stocks before distribution was mandated by the Department. In lieu of the broken communication network in the affected areas, the Marketing Inspectors and Fair Price Shop dealers went door to door informing people about the location and timing of relief distribution.

Sobered by past experiences, the State has shown great commitment to disaster risk reduction, with a special focus on protecting its citizens from the clutches of hunger in these times.

07

SMART ICT SYSTEMS

FARMER REGISTRATION SYSTEM

This system was developed to create a clean & correct database of farmers cultivating paddy and willing to sell their surplus paddy to the State agencies through the PACS/LAMPCS. The data collection and digitisation was proposed to be done through a crowd sourcing method where each farmer would provide the details like personal information, bank account info & cultivated land info in a pre-designed form to his/her PACS along with documentary proof.

The registration form is issued to each farmer by the PACS and they are also guided by the society to fill it up correctly. It is the responsibility of the PACS to digitise the filled up forms submitted by the farmers after some preliminary scrutiny of the form with that of the documents like bank passbook & record of rights (ROR). In order to facilitate the registration of share croppers (who cultivate on land owned by another), documents such as consent letter from the land owner, authorization from the sarpanch or manual verification report submitted by officials from Revenue or Agriculture department are accepted. The farmer data is digitized by the PACS in the web based Farmer Registration module visible in the homepage of the FS&CW Department portal www.foododisha.in. Land information derived from the data provided by farmers & entered by PACS is integrated with the Bhulekh database for authentication. Similarly, the Bank account information is collated Bank and branch-wise and reports are generated for verification by concerned Bank branches. After verification, district officials update the farmer database by incorporating the changes/corrections made by the Banks/RIs.

Since registered farmers are tagged to PACS, advance assessment of surplus (per PACS) is done through this system. This enables the State to plan flow of funds and scale of procurement operations to be conducted at society level. Advance assessment of surplus and farmer details are fed as an input to the Paddy Procurement Automation System (P-PAS).

USERS & FUNCTIONS OF SYSTEM

KEY FUNCTIONS OF FARMER REGISTRATION SYSTEM	SYSTEM USER GROUP
Registration of Farmers	**Society (PACS/ LAMPCS)** Enters farmer data in the system
Land Record Verification	**District Revenue Officials** Verifies land data which is not present in Bhulekh
Bank Account Verification	**OSCSC (District Officials)** Verifies bank account information by communicating off-system with all banks
Surplus Generation	**FSCW Department** Surplus is generated mandi wise by system

PROBLEM-SOLUTION MAPPING

PROBLEMS	HOW IT SOLVED THE PROBLEM?
No method to authenticate farmer database - scrub ghost farmers, middlemen and duplicate accounts	Farmer database digitized and auto verified by Bhulekh
No mechanism for advance assessment of Surplus	After verification of land record, surplus is calculated as per Govt. approved rates and yield estimates given by Department of Agriculture
Repetitive Registration of Farmers for every season	Farmer once registered only have to renew by following a simple process

INFORMATION FLOW DIAGRAM

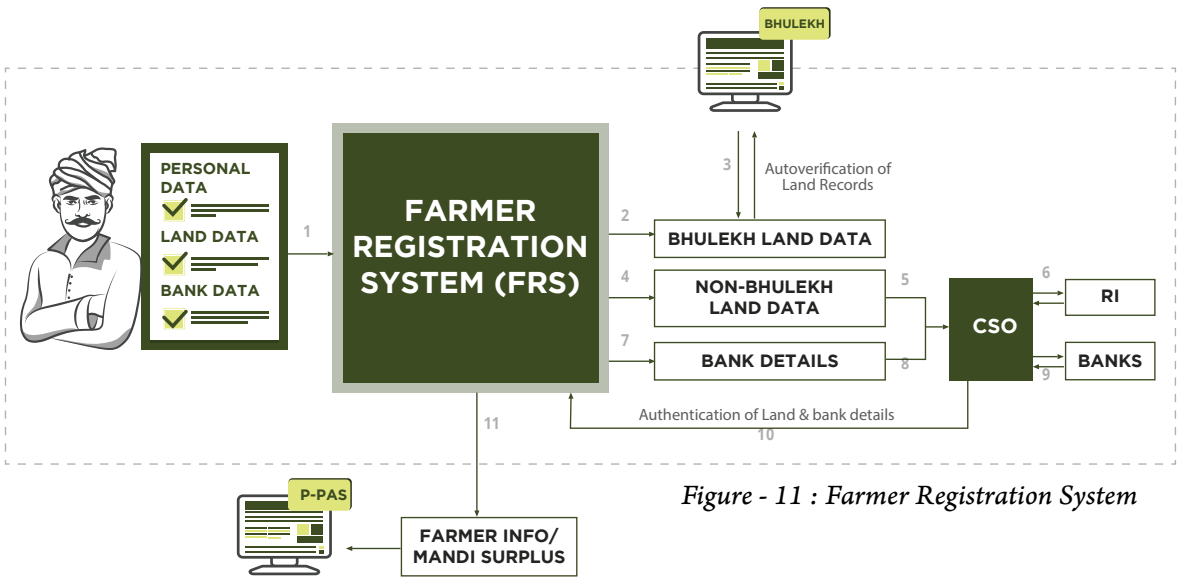


Figure - 11 : Farmer Registration System

6.5 yrs *Age of System*	**2835** *Number of Society Users*	**30** *Number of CSO Users*
14.93 lakh *Number of Farmers Registered*	**105.24 lakh** *Number of Plots Registered*	**51.97 lakh** *Area of Land Verified in acre*

PADDY PROCUREMENT AUTOMATION SYSTEM

Paddy Procurement Automation System (P-PAS) is a web based application capturing all transactions executed at the PACS level. Depending on the connectivity status in the area, the system is capable of operating both in online and offline mode.

It uses the verified and updated database of the Farmer Registration System as its input. Multiple documents such as Advance Token (given to farmers specifying the date and time on which they can sell their paddy to the PACS), Vendor Receipt (given to farmers as a proof of receipt of paddy), Transit Pass (given to millers capturing the details of the vehicle of the miller picking up the paddy from the PACS) and Paddy Acceptance Note (given to millers as a proof of quantity of paddy picked up from PACS) are generated from this system.

Paddy Purchase Register is generated from this system. Payment Advice is generated by PACS and cost of paddy is credited directly to the farmers' accounts.

The system also serves as a robust MIS and transparency portal to cater to the needs of various stakeholders. Reports generated on a real time basis enable stringent monitoring of operations and aid in efficient planning for the future. Relevant macro level information on the performance of paddy purchase centre is also available on a daily basis to the designated officials through SMS alerts.

USERS & FUNCTIONS OF SYSTEM

KEY FUNCTIONS OF PADDY PROCUREMENT AUTOMATION SYSTEM	SYSTEM USER GROUP
Mapping farmers to PPC / PACS	**Department of Co-operation** Demarcates PACS geographic area of operation. Farmers assigned to PACS uploaded on system.
Maintaining appointment schedule of farmers for paddy procurement	**Society (PACS/LAMPS)** Generates Advance Token from system
Recording quality & quantity of paddy procured	**Society (PACS/LAMPS)** Enters the quality of sample paddy as tested by trained quality personnel from Regulated Marketing Committee. Also enters the quantity as weighed on a digital scale.
Recording pick-up of paddy by miller	**Society (PACS/LAMPS)** Generates Transit Pass-cum-Acceptance Note
Ensuring timely payment to farmers	**OSCSC** Tracks the processing of payment advice (uploaded by the society) by the banking partner

PROBLEM-SOLUTION MAPPING

PROBLEMS	HOW IT SOLVED THE PROBLEM?
No fixed appointment schedule for procurement of paddy	Advance Token generated specifying proposed date and time of purchase of paddy from farmer
No online quality monitoring	Quality of paddy procured (as per FAQ norms) entered as a mandatory input
No online receipt of paddy procured	Vendor Receipt generated specifying the quantum of paddy purchased from farmer
No visibility of day to day operations at paddy purchase centre	MIS and Transparency Portal enables dynamic monitoring of day to day operations
No tracking of paddy picked by miller	TP-cum-Acceptance Note generated specifying the quantum of paddy sourced by the miller and the vehicle carrying the produce from PPC to miller premises
Manual reconciliation of accounts leading to delay in payment to farmers	Payment Advice generated enabling direct fund transfer to farmers within 24-72 hours of paddy procurement.

INFORMATION FLOW DIAGRAM

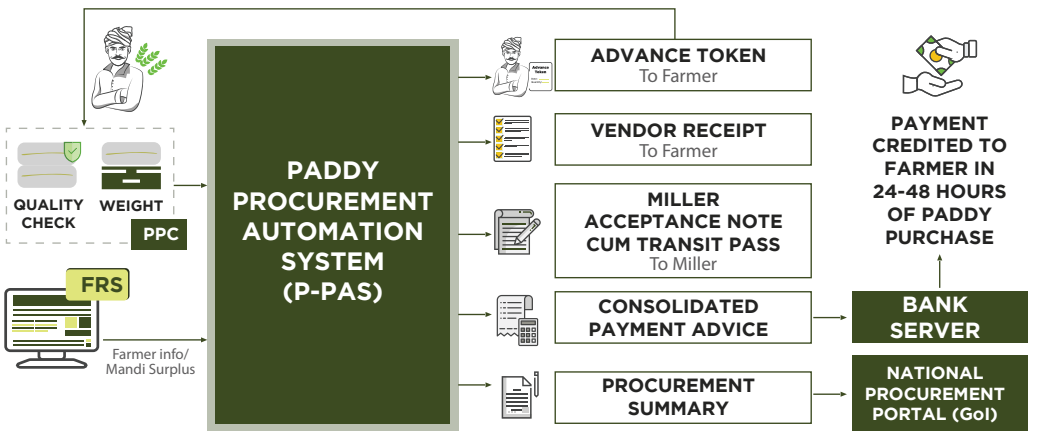


Figure - 12 : Paddy Procurement Automation System

KMS 2019-20 Figures

5.7 yrs *Age of System*	**2835 PACS** *Number of Society Users*	**30** *Number of CSO User*
11.61 lakh *Number of farmers who sold paddy*	**70.57 lakh** *Quantity of Paddy Procured Annually*	**12,808 Cr** *Fund Transfer to Farmers Annually*

SUPPLY CHAIN MANAGEMENT SYSTEM

Supply Chain Management System has been implemented to automate the end-to-end supply chain operations across the State. It serves as a reliable and accountable management system for allocation, storage and transportation of food grains, efficiency of overall operation at the depots and transparency in records management and reports.

All 211 Departmental Storage Depots managed by OSCSC having storage capacity of 7.29 lakh MT have been automated through this web based application.

Activities such as stock accounting of depot, accounting of cost deposits from fair price shops, and SMS based alerts on passage of entitlements to all stakeholders including PRI members are undertaken through this system. It also has a robust MIS that generates stock reports, audit and financial reports, and performance reports of millers and H&T contractors.

USERS & FUNCTIONS OF SYSTEM

KEY FUNCTIONS OF SUPPLY CHAIN MANAGEMENT SYSTEM	SYSTEM USER GROUP
Stock accounting at the depot	**Depot-in-charge** Record opening & closing balance of CMR stock and stack details in the system
Recording quality & quantity of CMR	**Depot-in-charge** Enters the quality and quantity of CMR sourced from the miller in the system. Used for performance evaluation of millers
Recording delivery of CMR by miller to depot	**Depot-in-charge** Generates Acceptance Note of CMR
Movement of CMR within depots, wheat from FCI	**OSCSC (District officials)** Develop lifting plan – source & destination depot, quantity of food grains – and upload in the system. Receipt of commodities in adherence to lifting plan recorded in the system.
Bi -monthly allotment to FPS	**FSCW department** Uploads the allocation plan in the system. The system verifies the payment received from FPS owners before sanctioning the allocation.
Issue of notifications on stock movement	**FPS owners, beneficiaries & other stakeholders** Automatic SMS capturing the truck and commodity details leaving the warehouses generated by system
Entry of deposit by FPS Owner	**Depot in charge** Record Keeping / Physical Submission to District HO

PROBLEM-SOLUTION MAPPING

PROBLEMS	HOW IT SOLVED THE PROBLEM?
No estimate of CMR Output expected from Miller	An input from P-PAS on the quantity of paddy picked up by miller is fed into the system. Assuming a standard conversion rate, the expected CMR is automatically calculated
No visibility of status & location of inventory, available storage space and its utilization	Based on SCMS data on inventory, CSO issues Delivery Certificate to millers to take CMR to a particular depot
No monitoring of CMR quality	Quality of CMR is a mandatory input to SCMS. Also used for performance evaluation of millers
No strict adherence to modern, scientific storage practices	Reports on stacking as per FIFO principles & fumigation done available in SCMS
No visibility of uptake and consumption per Fair Price Shop	Consumption per FPS recorded in SCMS. Measured against the allotment, it reflects the closing balance that is automatically deducted from the next allotment.

INFORMATION FLOW DIAGRAM

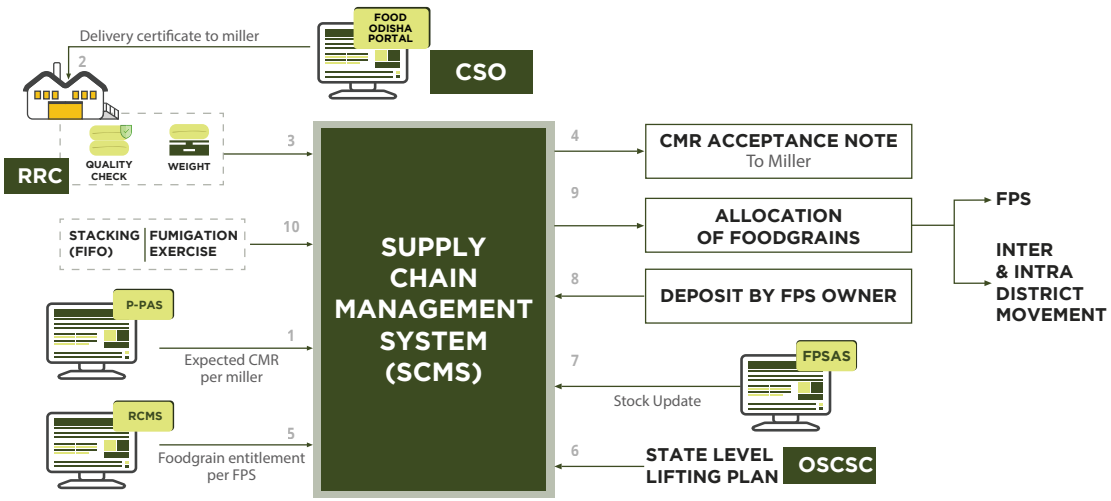


Figure - 13: Supply Chain Management System

KMS 2019-20 Figures

5.0 yrs *Age of System*	**211** *Number of Depot users*	**30** *Number of CSO users*
7.29 lakh MT *Quantity of inventory space managed*	**1313** *Number of Millers*	**1.43 Lakh MT** *Monthly rice and wheat allocation to FPS*

RATION CARD MANAGEMENT SYSTEM

Ration Card Management System (RCMS) has been designed and developed for dynamic management of 92.74 lakh ration cards issued to eligible households of Odisha.

The system enables inclusion of new beneficiaries, exclusion of ineligible beneficiaries, correction in ration card information, mutation, intra-state transfer of ration cards, and tagging of ration cards to Fair Price Shops. Beneficiaries can be deleted from the RCMS database on voluntary withdrawal by the beneficiary or on being detected as ineligible as per the exclusion criteria or due to demise of the beneficiary.

The system also allows for i) rectifying the mistakes done in the process of desk review/field verification /objection hearing/AAY verification, after fresh verification and instructions issued by district officials ii) correcting the printing mistakes in ration card on basis of application & supporting documents and issuing fresh cards with same number after taking back & destroying old cards. Non-services such as update of new mobile number, email id, date of birth, bank account details, entry and/or correction of LPG consumer number and agency, entry and/or correction of electricity consumer number and company are also carried out through the RCMS. It is used in 377 Ration Card Management Centres spread across 314 Blocks and 60 Urban Local Bodies in the State.

Applications received at the Ration Card Management Centres are digitized and then sent for field verification. After screening through inclusion & exclusion criteria, the Marketing Inspectors are authorized to confirm the eligibility of the applicants for ration cards. The priority list is published on the Food Odisha portal to invite objections from the public. Post that, the final list of beneficiaries is declared.

Since tagging of the household to a Fair Price Shop is done at this level, the Ration Card Management System calculates the allotment of food grains per Fair Price Shop. This is fed as an input to the Supply Chain Management System, based on which food grains are dispatched. It is also fed as an input to the FPS Automation System, from where each FPS owner can download his allotment into respective e-POS.

USERS & FUNCTIONS OF SYSTEM

KEY FUNCTIONS OF RATION CARD MANAGEMENT SYSTEM	SYSTEM USER GROUP
Database Digitization	**Data Entry Operators at RCMS Centers** Enter the required fields filled in physical form in the online RCMS
Database Authentication	**Marketing Inspectors / CSOs** Verify the eligibility of the ration card applicant and approve for inclusion in beneficiary list(As per survey Report)
Generation of Allotment Order	**FSCW Department** Uploads the FPS wise allotment order later fed as an input into SCMS & FPS Automation System.

PROBLEM-SOLUTION MAPPING

PROBLEMS	HOW IT SOLVED THE PROBLEM?
Database of beneficiaries plagued with errors	Digitized database of beneficiaries linked to UIDAI database for authentication
No visibility of consumption/ uptake per FPS	Allotment order generated by the system based on ration cards tagged per FPS

INFORMATION FLOW DIAGRAM

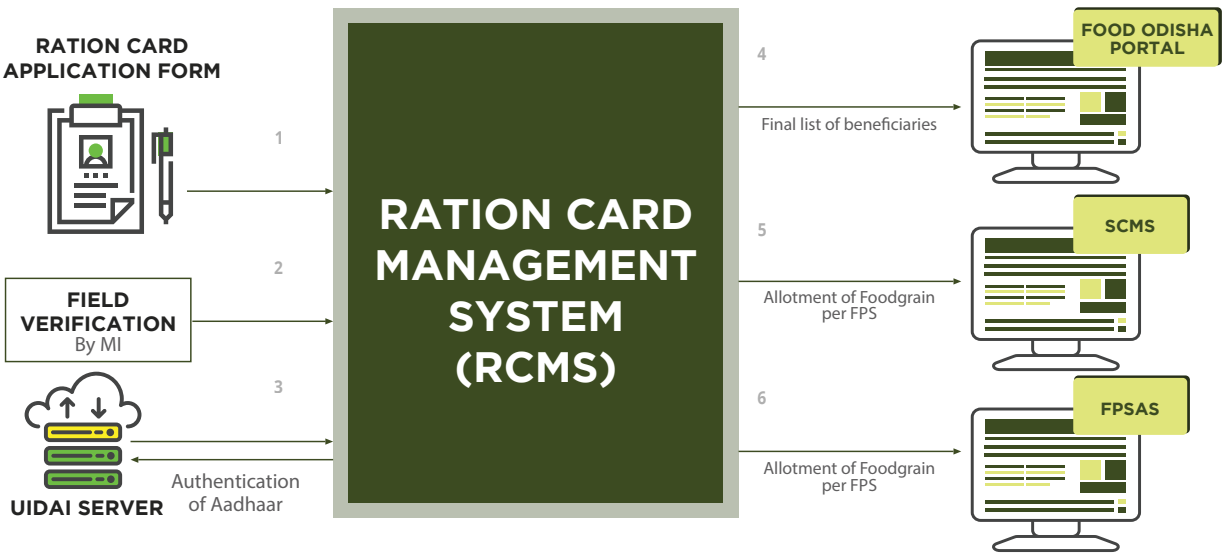


Figure - 14: *Ration Card Management System*

KMS 2019-20 Figures

4.25 yrs *Age of System*	**377** *Number of RCMS Centre Users*	**30** *Number of CSO users*
392 *Number of Marketing Inspectors*	**92,74,720** *Number of households with ration cards*	**99%** *Aadhaar seeding of families*

FPS AUTOMATION

The Fair Price Shop Automation System has been designed and deployed to enforce complete transparency in PDS transaction among beneficiaries and Fair Price Shop dealers. The system focuses on driving authenticated transactions in order to reduce leakages and pilferage. Hand held electronic Point of Sale (e-POS) devices installed in 100% of the FPS outlets in the State are used for verifying the Aadhaar biometric credentials (i.e the fingerprints) of the beneficiary before issuing the entitlements.

Wherever this is not possible due to reasons such as limited internet connectivity or damaged fingertips, other methods such as One Time Password on registered mobile is used for authentication. In short, each eligible beneficiary is guaranteed his entitlement of food grains.

The quantum of food grains unclaimed at a particular Fair Price Shop is fed as an input to the Supply Chain Management System, which in turn deducts this quantity from the next allotment. Digital records of each transaction captured in the system smoothen audit and decision making process.

Every month, FPS automation enables proper targeting and distribution of 1.43 lakh MT of rice and wheat to 92.74 lakh beneficiary families.

USERS & FUNCTIONS OF SYSTEM

KEY FUNCTIONS OF FPS AUTOMATION	SYSTEM USER GROUP
FPS wise Acceptance	**FPS Owner** Uploads acceptance note of quota through e-POS to SCMS
FPS wise Allotment capture	**FPS Owner** Downloads allotment data in e-pos device using authenticated credentials
FPS wise Distribution	**Beneficiary** Gets household entitlement after authenticating credentials on the e-POS
Upload of Closing Balance	**FPS Owner** Syncs the sale registers daily with the FPS Automation server
Verification of FPS Transaction Data	**Marking Inspector** Overall Transactions of FPS with his jurisdiction visible on FPS Automation System

PROBLEM-SOLUTION MAPPING

PROBLEMS	HOW IT SOLVED THE PROBLEM?
Diversion of food grains by ghost beneficiaries	RCMS input into e-POS ensures that only beneficiaries tagged to FPS can take ration
No visibility of food grains not claimed by FPS beneficiaries	Unclaimed balance in FPS e-POS is sent as input to SCMS & deducted from next allocation

INFORMATION FLOW DIAGRAM

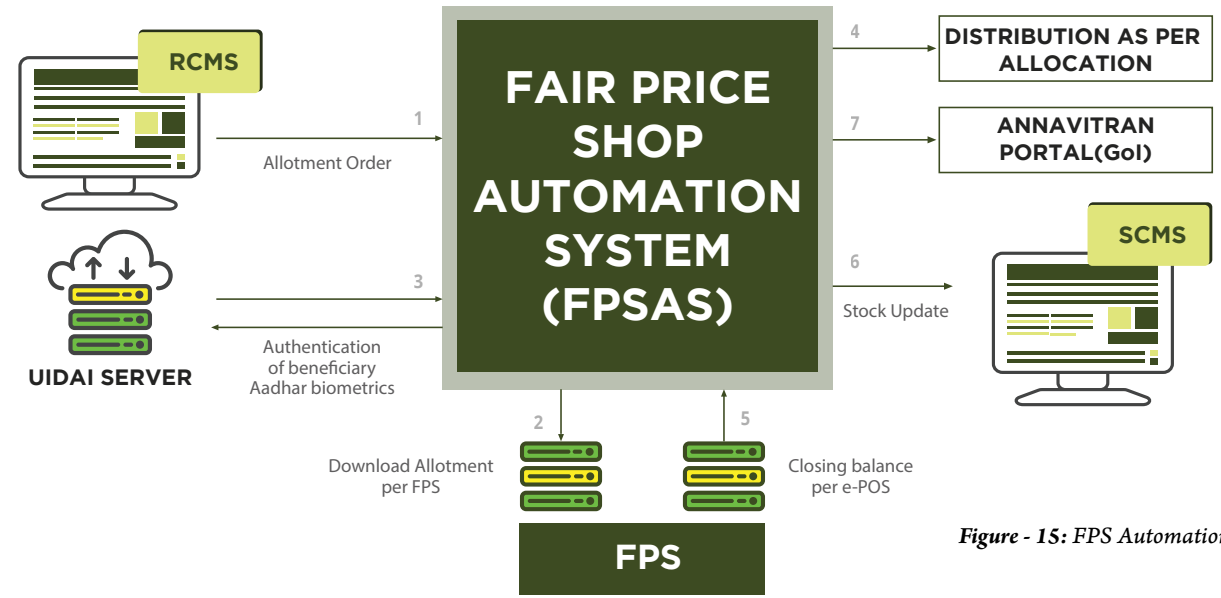


Figure - 15: *FPS Automation*

KMS 2019-20 Figures

2.5 yrs *Age of System*	**14,401** *Number of FPS users*	**30** *Number of CSO users*
100% *Offtake of food grains*	**92,74,720** *Number of households with ration cards*	**100%** *ePOS installations at Fair Price Shops*

M-Governance :

Codification for Smart Systems

Once the State Government had acknowledged the need to fix its food security system, it engaged multiple stakeholders, including private partners and the civil society, to prepare a scope of work. A full proof method to achieve complete transparency in operations was the automation of processes using web based applications. The end to end automation of the entire process was expected to take time considering its needs for capacity building, infrastructure and connectivity.

Hence, as an interim measure before e-Governance, the Government of Odisha leveraged M-Governance and launched mobile based applications (in paddy procurement and rice delivery). Its main purpose was to overcome delays in manual data collection and capture transactional data per day through a system.

In 2011-12, the Government of Odisha launched M-Gov applications (one in paddy procurement and the other in rice delivery) which would enable effective and efficient decision making. The first step was a massive codification drive of all the stakeholders - paddy procurement centers (Primary Agriculture Co operative Societies, Self Help Groups and Pani Panchayats) , market yards, rice millers, storage depots and State procurement agencies - so as to give each of them a unique identity number. A remarkable feat of this master database creation was the use of crowd-sourcing as a primary method for data collection. On the secondary level, this data submitted online by the stakeholders was verified by the district functionaries.

In the manual process of paddy procurement, the Secretaries of Societies & Purchase Officers of Market Yards have to transfer the paddy stocks to the Rice Millers who are tagged to them for milling through a jointly signed document called Paddy Acceptance Note. This note has the details of the originating society/market yard , the destination rice mill, quantity delivered on a day to a particular miller, date, the AC note number etc. Similarly, in the process of rice delivery, the Rice Millers have to transfer Custom Milled Rice to Rice Receiving Centers of the Odisha State Civil Supplies Corporation or to depots of the Food Corporation of India through a jointly signed document called Rice Acceptance Note.

Through the paddy procurement mobile application, a fixed format SMS (capturing basic information contained in Paddy AC Note) is sent by the person in charge of paddy procurement center to a designated number (9437000359) which is received by a mobile modem owned by the State and uploaded onto an application. On confirming the validity of the sender and the information, an acknowledgement SMS is sent to the sender. Simultaneously, an SMS is sent to the miller to whom the paddy has been reported to have been delivered.

Through the rice delivery mobile application, a fixed format SMS (capturing basic information contained in Rice AC Note) is sent by the Rice Miller to the same designated number. On confirming validity of sender and information, an acknowledgment SMS is sent to the sender. Simultaneously, an SMS is sent to the Rice Receiving Centre or depot to whom the CMR has been reported to have been delivered.

Such communication ensures instant ratification of volumes of transactions happening at multiple locations. Visibility of procurement and rice delivery at each level (Societies/Market Yards/ Millers/RRCs) is possible through reports generated real time by the application. Within the first 30 days of deployment of this project,

around 21,000 SMS (averaging 700 SMS per day) were received from 1130 Primary Agriculture Co operative Societies and 227 Market Yards. This is a major improvement over the manual process of computer data entry of Acceptance Notes which was done at the district level and worked at a time lag of 2-4 months. Such granularity in data aids the management of fund flow by State Agencies and Co –operative Banks. It saves substantial time & effort in reconciliation of data between the societies and millers.

At the start of the process, information for about 55% of the actual procurement was received through SMS. Within a year, this figure touched the 95% mark. Such a massive improvement in adoption of technology could not have been possible without a structured informational & educational campaign. A Train the Trainers approach was adopted for this purpose. Through periodic video conferences, training boot camps for District Level Functionaries were conducted. These district officials in turn trained the Secretaries of Societies and Purchase Officers of various agencies engaged at the Market Yards. A Computer Based Tutorial (both in English and Odia) was developed and hosted in the website of the Department. Feedback sessions with nodal officers including programmers, accounts, civil supplies department were organized at the State Headquarters and the inputs were used to improve the application.

The e-Governance applications (Smart Systems) for food security in Odisha were built on the unique codification done during the implementation of M-Gov applications. Workflow automation tools introduced through e-Gov enabled the capture of granular data over the entire life cycle. Digital encryption available in e-Governance modules also enhanced the security and authenticity of the data. The end to end integration of systems which is now being implemented may not have been possible without a transition to e-Governance.

The implementation of M-Gov en-route to the path of e-Gov established the responsiveness of the State Government in immediately addressing the pressing needs of the hour and its continuous focus on incremental innovation. The State has kept up its momentum till date and is working to implement the next big thing as we speak.

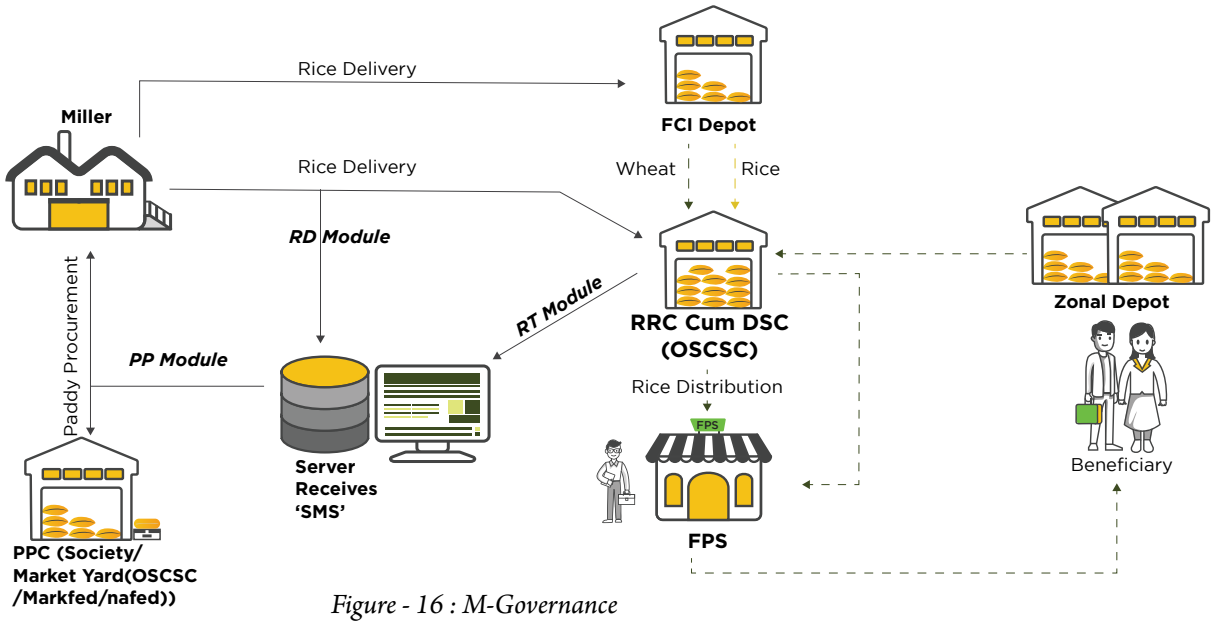
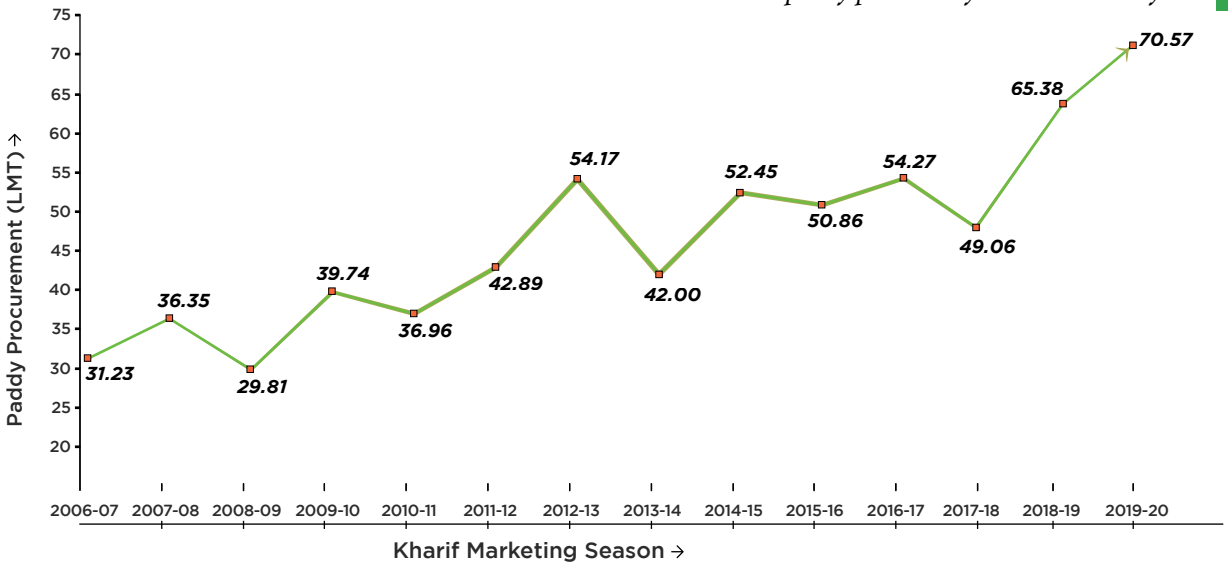


Figure - 16 : M-Governance

08

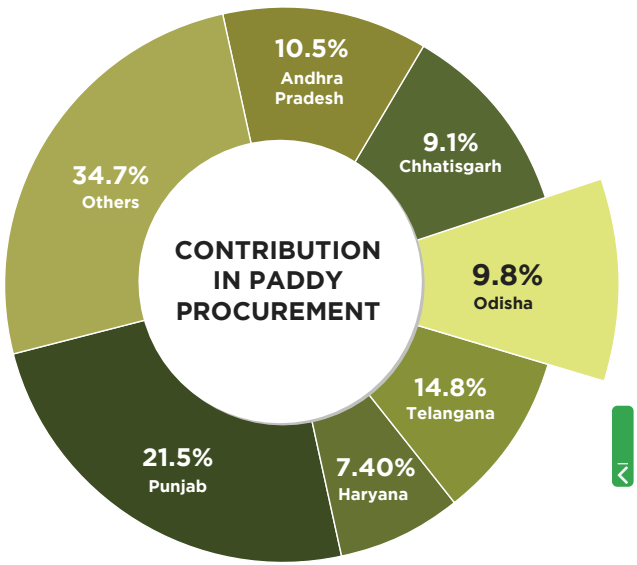
KEY PERFORMANCE INDICATORS

Figure - 17 :
Graphical representation of the quantity of paddy procured by Odisha over the years



Reforms implemented by Odisha in procurement operations have led to an exponential rise in the quantity of paddy procured. It has not only made the State self-sufficient for providing food security but also capable of generating surplus as a leading market player for high quality food grains.

Figure - 18 :
Graphical representation of contribution of Indian states to paddy procurement nationally



Odisha is the fourth largest contributor to paddy procured and has maintained this rank over the last few years. Adherence to fair average quality norms during paddy procurement and processing has been instrumental in generating high demand for Odisha's rice in multiple states.

The massive improvement in the number of registered farmers in Odisha for paddy procurement is a reaffirmation of the faith of farmers in the State led market mechanism.

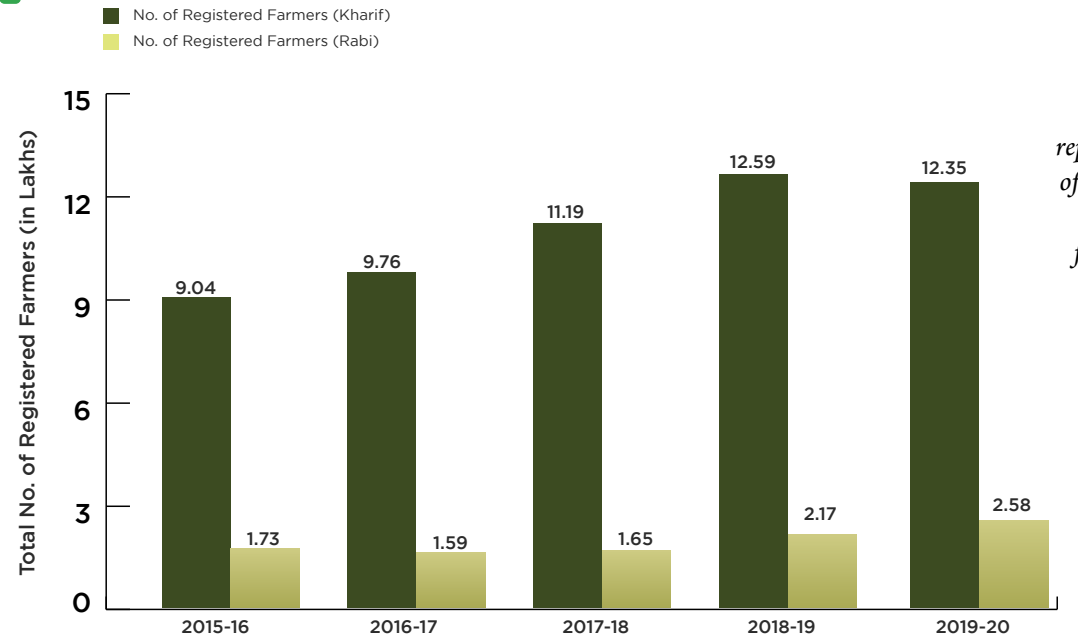


Figure - 19 : *Graphical representation of the number of registered farmers over the years*

The flexibility shown by the State to recognize sharecroppers in the formal procurement network has been instrumental in the rise in registration of sharecroppers. The creation of this database has aided the State in identifying sharecroppers and supporting them via other targeted interventions.

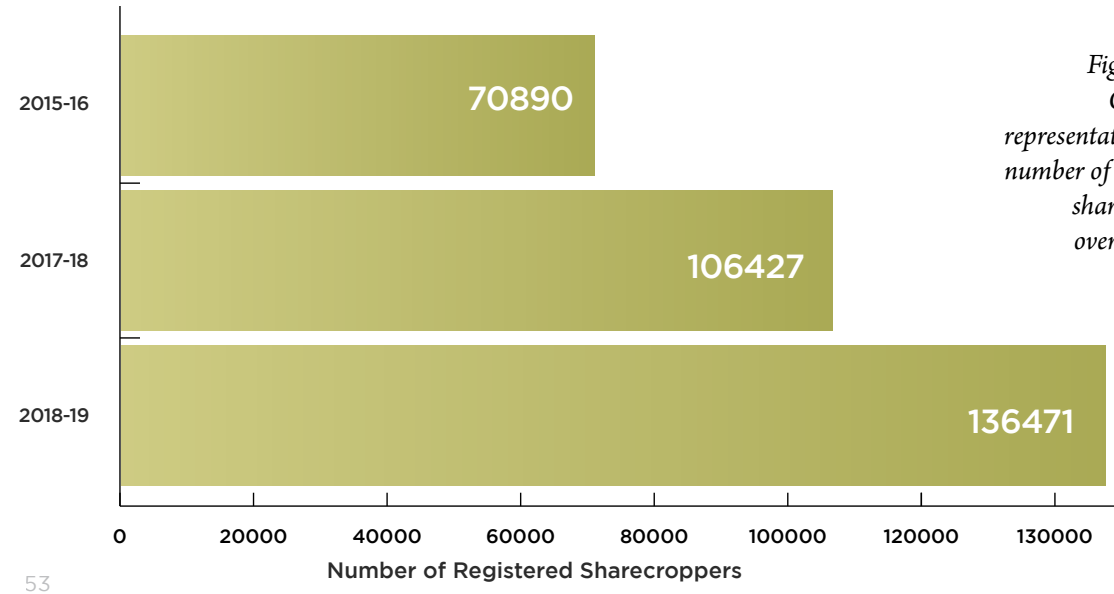


Figure - 20 : Graphical representation of the number of registered sharecroppers over the years

One of the major successes of the State has been in reducing the average number of days for payment to farmers. Complete transparency through automation has enabled faster reconciliation of accounts and payments are directly made to farmers' accounts within 24-48 hours.

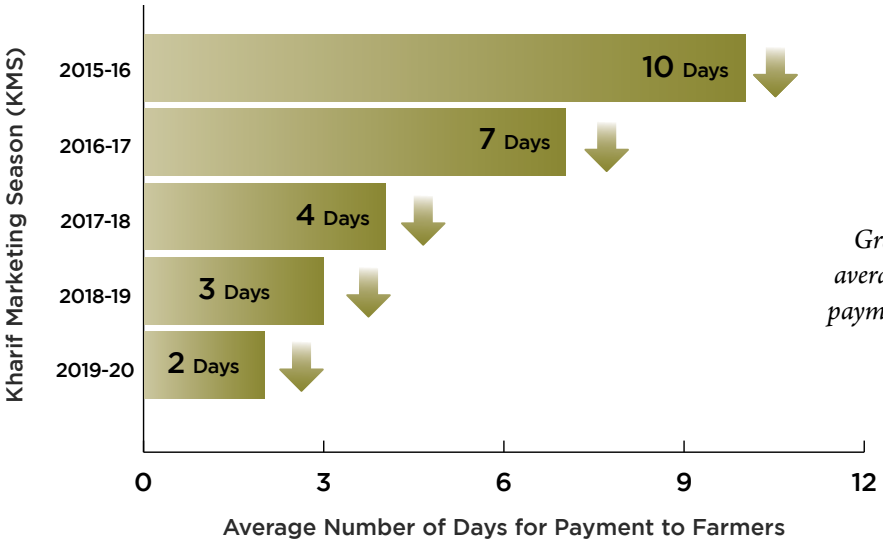


Figure - 21 : *Graphical representation of the average number of days taken for payment to farmers over the years*

In addition to paddy procurement, there has been a proportional increase in the efficiency of its conversion to custom milled rice. This speaks volumes of the transparency of operations extending throughout the value chain and strict check on leakages in the system.

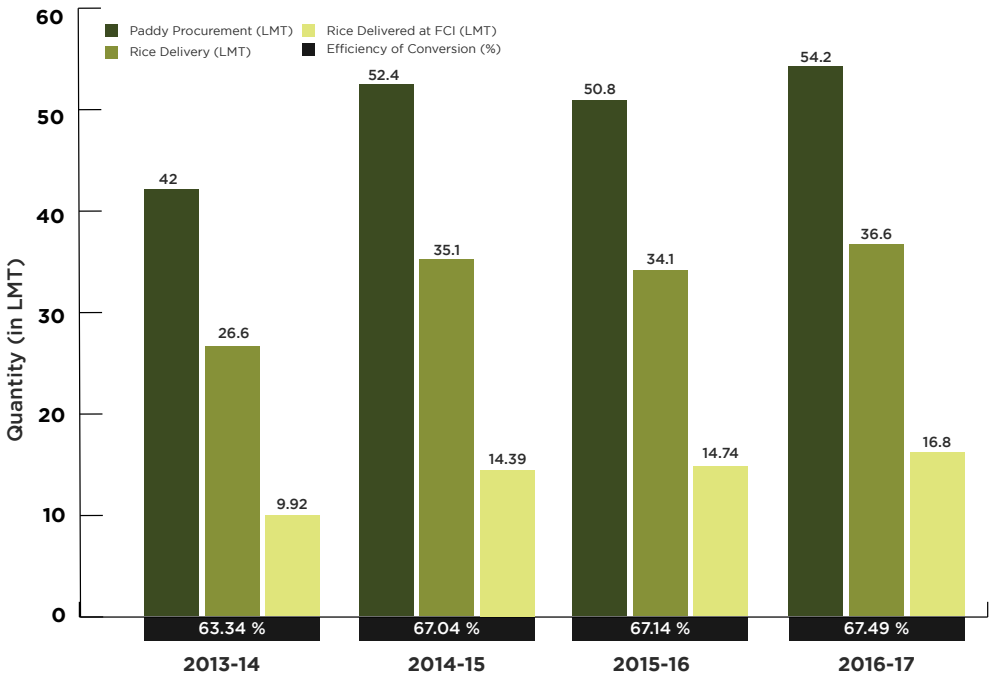


Figure - 22 : *Graphical representation of the efficiency of paddy to rice conversion process and evacuation of rice to FCI over the years*

The Wadhwa Committee constituted by the Supreme Court of India for reforming PDS had made a strong recommendation on the ownership of fair price shops. It had advocated increased ownership of these shops by grass root institutions for enforcing accountability and reducing corruption. Odisha has been successful in changing the earlier situation of monopoly of Fair Price Shops by private traders and ensuring that no genuine beneficiary is deprived on account of diversions.

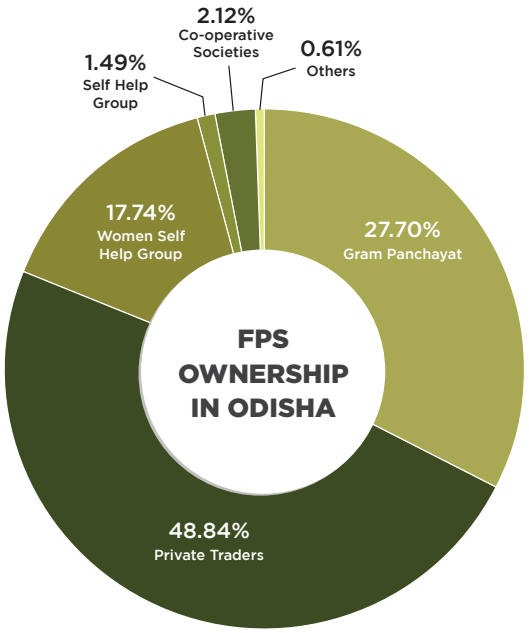


Figure - 23 : Graphical representation of the ownership pattern of Fair Price Shops in Odisha

In order to ensure viability of fair price shops, the State has constantly been working to rationalize Fair Price Shops and has reduced it by more than half in a span of two years.

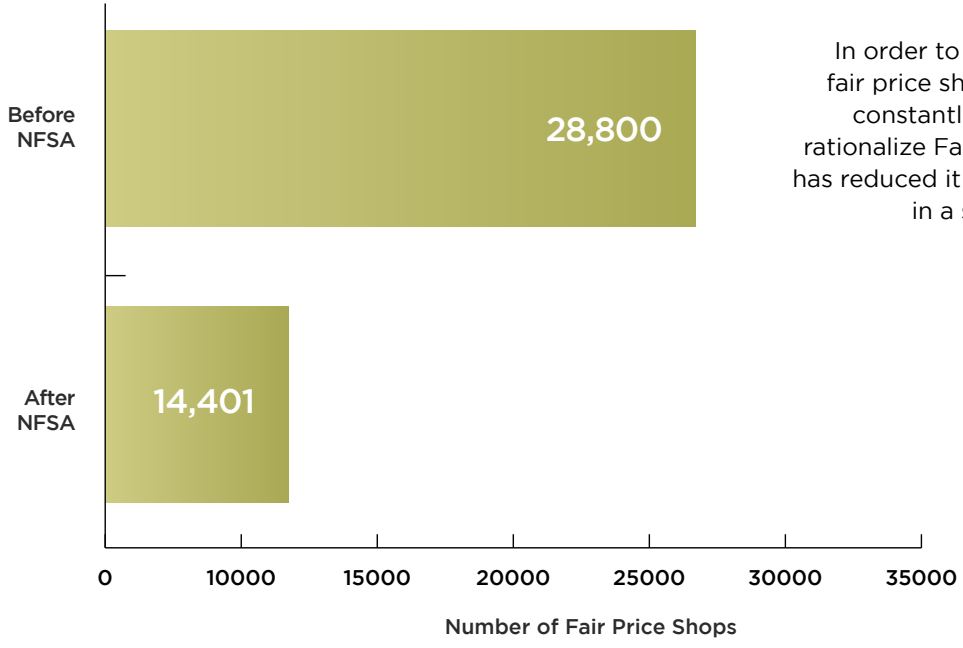


Figure - 24 : Graphical representation of the rationalization of Fair Price Shops in Odisha over the years

100% of all the FPS outlets in the State have been automated. Since the allocation per FPS is fed as an input to the e-POS, the quantity of food grains not claimed by authenticated beneficiaries is visible as a closing balance. This gets deducted from next allocation and hence cannot be diverted to the open market by the FPS owner.

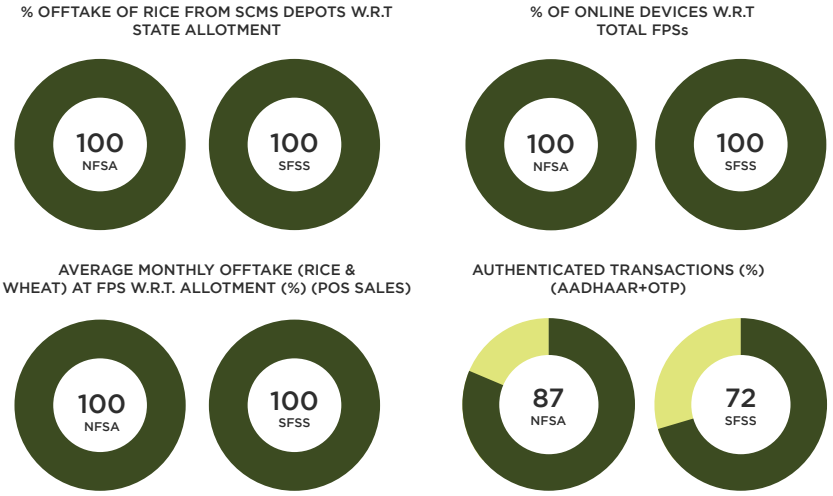


Figure - 25 : Graphical representation of extent of off-take and automation of Fair Price Shops in Odisha

The State has made great strides in the digitization of the entire database and seeding it with Aadhaar data. The percentage of authenticated transactions increased from 16% to 62% within a year of implementation of FPS automation. This is one of the reasons why Odisha features prominently among states with lowest rates of PDS diversion.

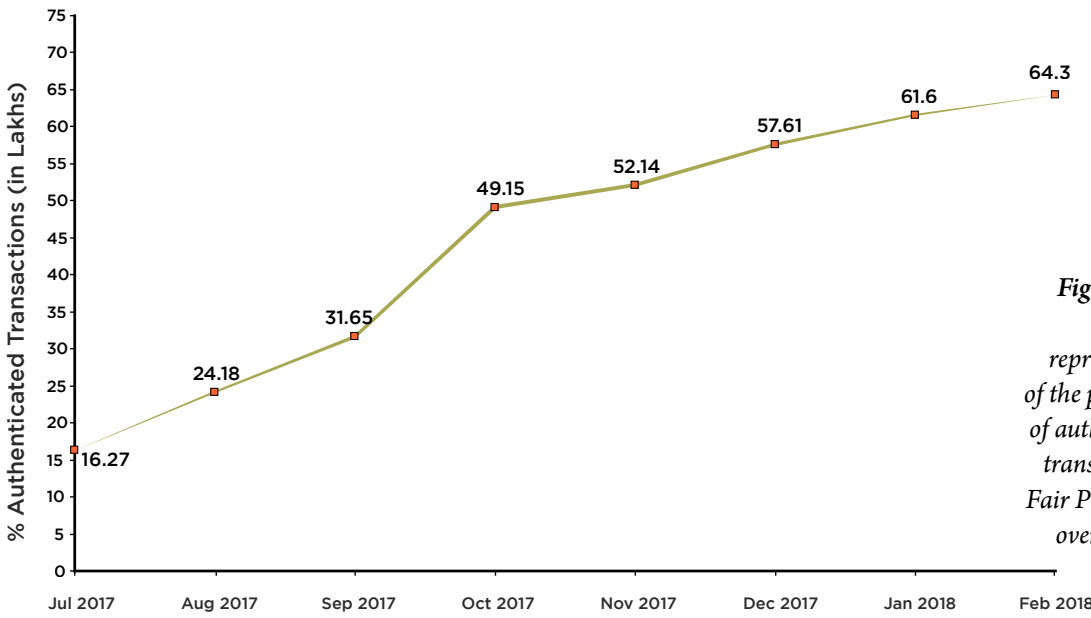


Figure - 26 : *Graphical representation of the percentage of authenticated transactions at Fair Price Shops over the years*

09

LEVERAGING ICT FOR TRANSFORMATION

BLOCK-CHAIN BASED P-PAS

Security of data collected at the time of paddy procurement is sacrosanct. Once a paddy procurement centre accepts the paddy brought in by the farmer, P-PAS issues a vendor receipt. This is a critical data field which captures the quantity of paddy procured from a farmer. As an input into multiple systems, the vendor receipt data is instrumental in calculating the payment dues of the farmer and the expected rice output available for distribution.

> **"Any kind of tampering in critical data fields has a cascading effect on the financial sustainability of operations & planning for distribution of food grains to masses. The State has already achieved security of network infrastructure and application layer and is now testing solutions to enhance security of data layer. For this purpose, the Department of Food Supplies & Consumer Welfare is implementing a POC leveraging Block chain in P-PAS."**

By design, block chain is resistant to modification of data. This is because the validation of data, captured in nodes, happens through a distributed, trusted network. Once recorded, data cannot be altered without a consensus of the network majority. Any such request changes the subsequent data blocks thus leaving a distinct audit trail. Using hyper-ledger component of Block chain, this implementation aims to encrypt the vendor receipt data and make transaction logs non-mutable.

DE-DUPLICATION AND PROFILING

The National Food Security Act 2013 mandated the creation of a database of eligible beneficiaries and the digitization of ration cards across the country. Unlike some other states who digitized the existing ration cards, Odisha junked the old cards that potentially had multiple inclusion and exclusion errors. Instead, the State started the exercise of building a database from scratch. To build this database, an intelligent database management tool was used.

The State used the National Population Register database as the base data. This was mapped with several other databases to auto-include eligible beneficiaries and auto-exclude ineligible beneficiaries as per criteria defined by Government of Odisha. For example:

- Persons holding a gas connection as obtained from Oil Companies databases were automatically excluded
- Persons employed by the State Government or Central Government (as obtained from Human Resource Management System) and public school teachers were automatically excluded
- Persons availing work for more than 100 days (as obtained from MGNREGA database) were automatically included

Leveraging Aadhaar as a unique identifier, the database management tool continues to be used to weed out duplicate entries in the master database created. It also has the intelligence to create profiles of individual entries & map data of its household members / relatives. For example: an individual auto included on income grounds is declared ineligible if her spouse is a Government servant. Death cases are also weeded out on a regular basis and the vacancy so created is filled up by new members within family or village.

RICE FORTIFICATION

In areas where rice is a staple food, fortification of rice has been mooted by the World Health Organization as a method for guaranteeing nutritional security to the masses. Rice is rich in carbohydrates and contains micro nutrients such as thiamine, iron, calcium and phosphorus. During the process of milling, the outermost bran layer with high concentration of micronutrients is removed. Fortification of rice is taken up to compensate for such losses.

The State is in the process of understanding the consumption patterns and nutritional interventions required for the target population. In addition to identifying the extent to which such deficiencies can be met by fortified rice uptake, the State is also evaluating sources of sustainable supplies of fortified kernels and managing its distribution.

Understanding the popularity of this food grain in South Asia, it is a very powerful medium to deliver micronutrients to the population. However it is important that sensory characteristics of the end product are not discernibly changed and people do not object to incorporating fortified rice into their daily diet. This is where the choice of technology used in the process of rice fortification will play a critical role.

FPS PORTABILITY

A number of problems in the PDS system stem from the power imbalance between the FPS owner and the beneficiary. Under the current system with no portability, the beneficiary is attached to a single FPS regardless of its performance or service quality. This creates an opportunity for FPS owners to provide poor quality service, sell a lower quantity of food grain relative to the beneficiary's entitlement or claim no availability of stock, without significant penalties.

To counter this issue, FPS portability will be implemented under the fully automated PDS system in selected administrative units/areas where there is 24 x7 connectivity & electricity. Under this system beneficiaries can purchase food grains from any FPS of their choice, which results in greater competition amongst FPS.

This shifts the balance of power towards beneficiaries who will be able to choose any FPS that ensures proper service quality, thereby weeding out poorly performing FPS over time. Also, beneficiary convenience will get increased as they can now easily purchase ration at desired locations, which can sometimes be an issue because of address changes and relocations.

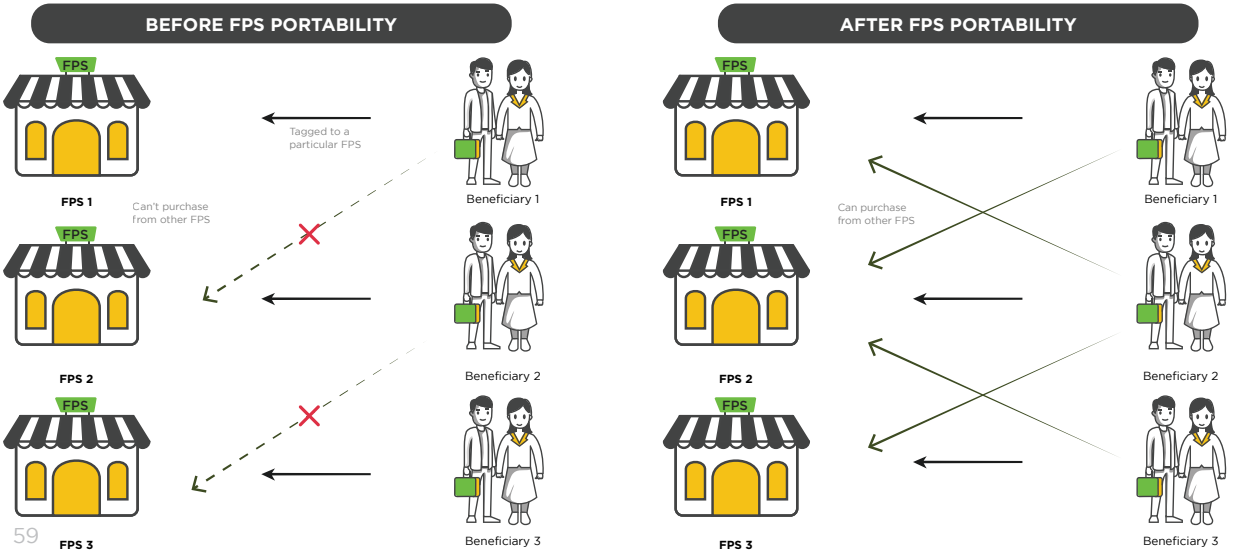
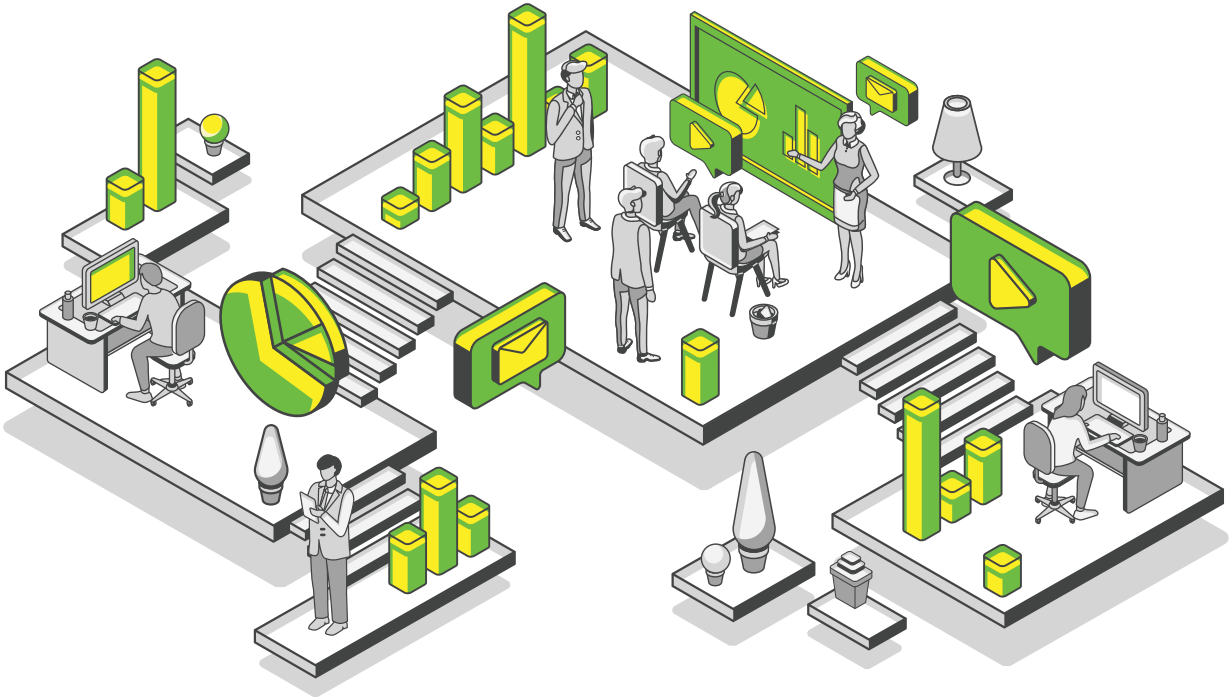


Figure - 27: Scenario before & after FPS portability



ADVANCED ANALYTICS

Automation of the entire food security chain generates massive amounts of data. However, the process of using this data to gain actionable insights is currently manual. Under an initiative taken by the Department, a team of data scientists, analytics engineers and domain specialists will be engaged to prepare decision support systems that would help in addressing the above issue.

Along with this, an advanced analytics platform has been conceptualized as the next logical step that can help stakeholders to visualize the key performance metrics and make associations between various data sets. This is expected to aid forecasting and achieve granularity in designing policies, regulations and initiatives that have a direct impact on the end users – in this case, the beneficiaries of food security

ENTERPRISE RESOURCE PLANNING (ERP)

More than 11,000 Cr Indian rupees have exchanged hands this Kharif Marketing Season in the massive scale of operations taken up by OSCSC. As a no profit no loss organization, it is critical for the corporation to ensure transparency in accounting which in turn ensures sustainability of operations.

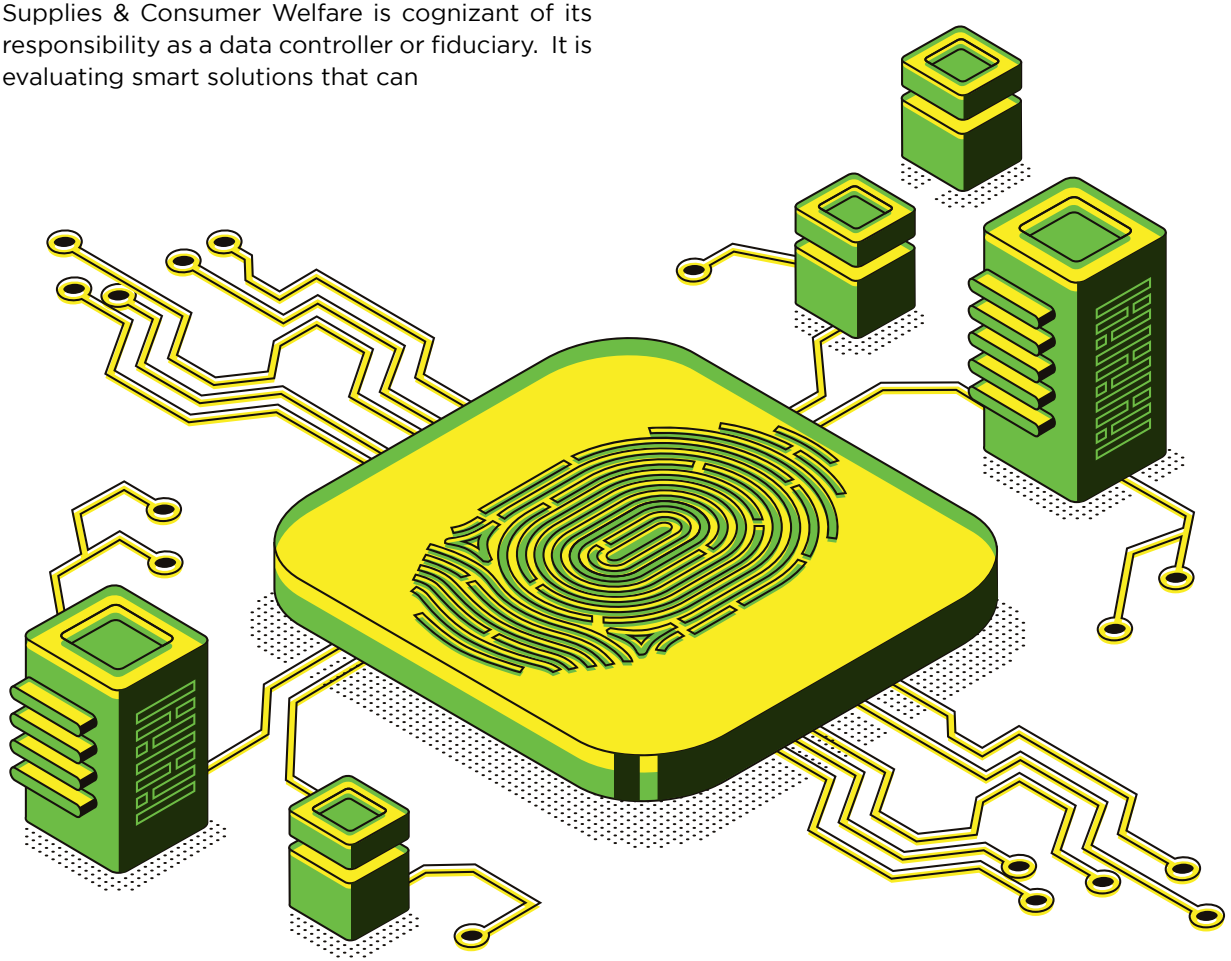
To bring in financial discipline, implementation of ERP (throughout the system) is currently underway. Online balance sheet generated using this ERP solution will aid submission of accounts to Central Government in time. The timely receipt of such subsidies for implementation of NFSA will, in turn, help OSCSC to avoid additional interest accrued on operational credit raised from banks.

DATA PROTECTION

The end to end computerization of the entire food security system – covering procurement, transportation, processing, storage & distribution operations – generates massive amounts of data. Some of the data fields are personally identifiable information such as unique identification numbers and bank account details and hence needs to be mandatorily kept secure at all times. In addition to complying with privacy requirements, it becomes important to predict & counter threats across diverse on-premises & public cloud environments.

In lieu of the progress made in data protection regimes globally, the Department of Food Supplies & Consumer Welfare is cognizant of its responsibility as a data controller or fiduciary. It is evaluating smart solutions that can

- Assess vulnerabilities & risk exposure
- Maintain control of sensitive data and enforce access policies
- Monitor & audit all data activity across databases, files, cloud deployments , mainframe environments & big data repositories
- Detect deviations in usage behaviour & alert authorities for investigation & other corrective action



CITIZEN EMPOWERMENT

Feedback on Call

A flagship citizen empowerment initiative "Mo Sarkar" (which means "My Government" in Odia) has recently been launched by the Government of Odisha. Under this program, the top echelons of the executive in Odisha including Chief Minister & other senior govt. officials directly interact with the citizens to collect their feedback on experiences with government service delivery. By the end of this year, Food Supplies & Consumer Welfare Department is expected to be included under the ambit of this program.

Feedback shall be collected on the efficiency of the department primarily in conducting paddy procurement operations, distribution of food grains under Targeted Public Distribution System and settlement of consumer disputes. For this purpose, a robust Citizen Empowerment System shall be deployed.

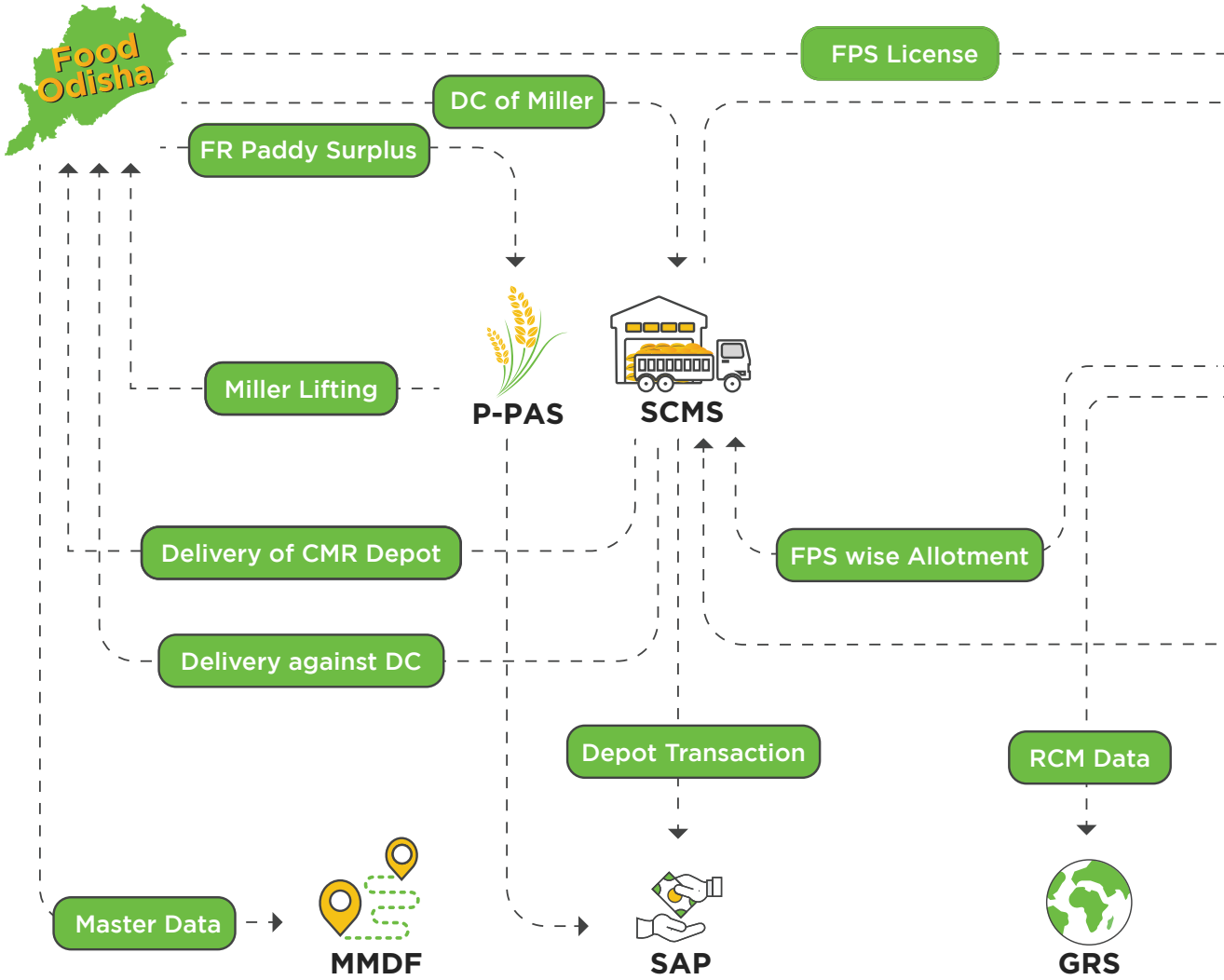
The system shall be capable of supporting outbound calls from officials to randomly generated contact numbers of citizen beneficiaries. For quality and assessment purposes, recording and sentiment analysis of transcripts is also expected to be deployed. Analytics on the performance of officials in collecting feedback from citizens and taking corrective action shall be factored in their annual performance appraisal reports.

Social Media

The Department of Food Supplies & Consumer Welfare effectively leverages the power of social media for information dissemination to all stakeholders. Latest policy decisions, dates for paddy procurement and rice distribution and prices of essential commodities are regularly communicated on the Department's official social handles. Updates on capacity building and training activities undertaken at the field level are also posted regularly.

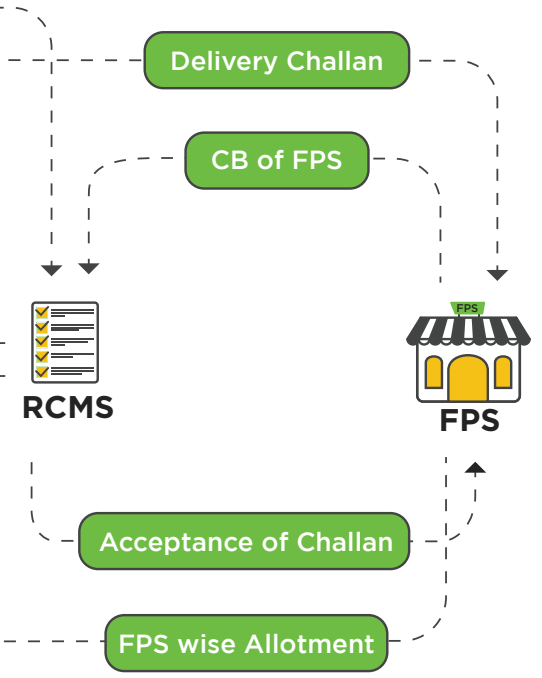
The State Government has deployed an online social listening tool that collects feedback & grievances of citizens posted online. A mechanism with defined workflows and responsibilities across departments enables the State to resolve the grievances and respond to the citizens in time.

The Department of Food Supplies & Consumer Welfare is also an active user of this system. It enforces accountability for grievances cited regarding any issues in timely pick up of paddy by the millers, issue of ration cards and doorstep delivery of food grains. This ensures that the citizen is kept at the centre of governance.



P-PAS	:	Paddy Procurement Automation System
SCMS	:	Supply Chain Management System
RCMS	:	Ration Card Management System
FPS	:	Fair Price Shop
MMDF	:	Mandi Miller Depot FPS
SAP	:	Enterprise Resource Planning Software
GRS	:	Global Reference Solution

Figure - 28 : Schematic representation of End to End Integration of Systems



END TO END INTEGRATION OF SYSTEMS

The entire scale of operations in procurement, storage, transportation and distribution is managed through multiple systems that have been conceptualized separately but possess the flexibility for backward and forward integration with other systems. This integration will promote information exchange, reduce duplication of efforts, and increase transparency in decision making. For example:

- Integration of the Paddy Procurement Automation System (P-PAS) with Supply Chain Management System (SCMS) allows the depot in charge to check the amount of rice delivered by the miller against the quantum of paddy picked up by him, thus controlling diversions at that level.
- Integration of the Fair Price Automation System with SCMS syncs daily sales registers and closing balances, thus ensuring that food grains are not easily diverted at the Fair Price Shop level.
- Integration of the Paddy Procurement System (P-PAS) with National Procurement Portal (GoI) & the Fair Price Shop Automation System (FPSAS) with Annavitaran Portal (GoI) updates State's performance figures in paddy procurement and rice distribution respectively to the Centre.

In addition to the existing systems, new systems such as Inspection Modules and Online Billing Management Systems are also being designed. Inspection Module will aid district officials in conducting inspection at the miller premises and data so collected will prove critical in performance evaluation of millers. Online Billing Management System is expected to reduce the billing & payment cycles of stakeholders such as millers and handling & transport contractors.

Thus end to end integration of systems is expected to optimize performance and efficiency of the entire food security chain.

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FOOD SUPPLIES & CONSUMER WELFARE DEPARTMENT

Department of Food Supplies & Consumer Welfare, Government of Odisha is the nodal department for implementation of food security initiatives in Odisha. It oversees the distribution of subsidized food grains to its citizens through its public distribution system.

Since 2004, this department also started the decentralized procurement of food grains (primarily paddy) that ultimately gets processed & circulated in Odisha's public distribution network. It has been recognized globally for its vision in leveraging technology for enabling Odisha's transition from a food deficit to surplus state.

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