Case Study

Computerisation of Paddy Procurement and Public Distribution System in Chhattisgarh

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Executive Summary

The Government of Chhattisgarh has initiated a set of reforms to improve its Public Distribution System (PDS), which had been undermined by corruption. The government has adopted a unique ICT based module to create a transparent and accountable delivery mechanism. As a part of these reforms, the Government of Chhattisgarh in association with the National Informatics Centre, has computerised its whole food grain supply chain - from procurement of produce, to storage and transportation, to state warehousing and further transfer to Fair Priced Shops (FPS).

This document captures this process, detailing its need and how it was carried out. It highlights the strengths of the newly computerised procedure and the manner in which it has revolutionised the delivery of food grains (particularly paddy) at subsidised rates to Below Poverty Line (BPL) families, ultimately moving towards greater food security.

The Public Distribution System faces issues of leakages and diversion of funds in every state of India. This document aims to contribute to the replication of a successful reform process to help states across the country deliver this essential government scheme efficiently.

Background

Addressing food security
Food security has been a major development objective in India since the beginning of planning. India has been self-sufficient in food grains since the 1970s and today, boasts a huge reserve of surplus food grains; however, due to inappropriate agricultural policies, this has not translated into meeting the country’s food requirements. In recent years, the government has begun implementing targeted intervention programmes for achieving food security at the household level. The Minimum Support Price (MSP) scheme and the Public Distribution System (PDS) are examples of this effort.

Minimum Support Price (MSP)
Minimum support prices are determined by the Food Corporation of India (FCI) in association with other government agencies to ensure that medium and low income farmers get remunerative prices for their produce namely rice, wheat and coarse grains. The minimum support prices are perceived by the farmers as a guarantee price from the Government. These prices are announced at the commencement of the season to prevent movement below the fixed level over time.
The FCI and state government agencies run purchase centres across the country to procure produce at MSPs. Such price support mechanisms help in sustaining farmer incomes and hence, can provide an impetus for investing in modern agricultural technologies. The stock procured at MSPs assists in meeting the commitments of the Public Distribution System scheme.

Public Distribution System (PDS)
The Public Distribution System (PDS) forms an important component of the strategy for poverty eradication, specifically by serving the undernourished. Under the current version of the scheme1 every Below Poverty Line (BPL) family can purchase rice, sugar, wheat and kerosene at subsidised rates. This is facilitated through Fair Priced Shops (FPS) that have been set up across the country for this purpose.

PDS operates under the joint control of the Central and State Governments. The Central government, through FCI, has assumed the responsibilities of procurement, storage, transportation and bulk allocation of food grains. The operational responsibilities including allocation within the state, identification of families below the poverty line, issuance of ration cards and supervision of the functioning of PDS, rests with the state governments; the state governments are accountable to the FCI.

Paddy procurement at Minimum Support Price
The main crop in Chhattisgarh is paddy. The state government procures paddy on behalf of the Government of India at MSPs. This procurement takes place through 1333 Primary Agricultural Cooperative Societies (PACS) spread across the state. The paddy procured is converted into rice by millers and then handed over to the Chhattisgarh State Civil Supplies Corporation (CGSCSC) for distribution under PDS. Under PDS, the Chhattisgarh government gives 35 kilogrammes of rice at Rs. 3 per month to all BPL families through 1058 Fair Priced Shops. Prior to 2007, operations at each level from the purchase of paddy at procurement centres, to the issuance of the paddy to the millers, its transportation to the warehouses of the CGSCSC and from there to the FPSs, was recorded manually.

1For more information on the evolution of the PDS in its current state refer to http://planningcommission.nic.in/reports/sereport/ser/stdy_pds.pdf
Need for computerisation of paddy procurement

Corruption in PDS is widespread because the amount of subsidy involved and the presence of a large number of FPSs makes it difficult to monitor the working of the scheme and leaves scope for leakages. Diversion of funds occurs at all levels - during procurement, movement of commodities between government warehouses, transport to FPSs and within FPSs. Poor supervision of fair priced shops and the lack of a strong accountability mechanism have spurred a number of middlemen who siphon off funds meant for the poor. There is also no clarity as to which families should be included in the BPL list and which should be excluded. This sometimes leads to inappropriate inclusion of families for food subsidies and exclusion of deserving families.

In order to address these issues, the State of Chhattisgarh rolled out its end-to-end information technology solution.

Objectives

By computerising paddy procurement under PDS, the Government of Chhattisgarh aims to:

- Enhance transparency in operations to mitigate leakages and diversion of funds
- Improve the delivery mechanism so PDS commodities reach the target population
- Involve citizens in the monitoring process to enhance accountability

Working Design

To date, the project has digitised 1532 paddy procurement centres of the Central Cooperative Bank and Primary Agricultural Cooperative Societies (PACS), 50 storage centres of Marketing Federation (MARKFED), all concerned district offices, the Department of Food, 100 Civil Supplies Corporation distribution centres and 35 FCI rice receiving centres. Five servers are maintained at the National Informatics Centre (NIC), Chhattisgarh State Centre for hosting all concerned applications and managing the entire database.

Paddy procurement and payment to farmers

Under the newly computerised version of PDS, paddy procurement is electronic. Farmers are registered online and once paddy is procured from them, they are given computer generated receipts. Cheques for payment to farmers and delivery orders for movement of paddy from the procurement centres to the miller and storage centres of MARKFED and FCI, are printed in real time. Workshops were held every 15 days during the initial stages of the project to train 1532 data entry operators in basic computing.
To overcome the little to no connectivity at the village panchayat level, a unique innovation was developed for data transmission at procurement centres. Two hundred and fifty motorcyclists have been hired to carry data every day from the procurement centre computers to block headquarters, where they upload the data onto the central server. They also download, from the server at the block level, any new software or additional information and carry it to the procurement centres.

Transfer of paddy to storage centres

Once the paddy is procured from farmers, it is transferred to the 50 storage centres of MARKFED. The operations at these centres have been computerised. The details of the receipt of paddy are entered onto the web. From here, MARKFED issues the paddy to millers, FCI and other storage centres. The details of this issuance are also made available online.

Issuance to millers

The Department of Food has introduced registration of mills to avoid the issuance of paddy to ‘dummy’ mills. Millers are required to register online by entering details of the mill and submitting a receipt to the District Collector’s office. The District Food Controller, with the approval of the Collector, conducts physical verification of the mill, and registers and grants ANUMATI (permission) if details mentioned in the application are found to be correct. The details of the physical verification and ANUMATI are entered online.
The District Marketing Officers of MARKFED access the verification and permission details online and then execute agreements with the registered millers and generate delivery orders to lift paddy from purchase centres and storage centres for milling. These delivery orders are transferred to purchase centres through the motorcyclists and to the storage centres through a web service.

**Receipt of custom milled rice**

The distribution centres of Chhattisgarh State Civil Supplies Cooperation (CGSCSC) and the Food Cooperation of India (FCI) receive milled rice. The acknowledgement of the receipt of milled rice acts as security for the millers to get paddy from purchase and storage centres. This acknowledgement is put online and can be accessed by the District Marketing Officer of MARKFED who then clears the issuance of paddy to millers. From these distribution centres, the milled rice is allotted to FPSs.

**Unified ration card database and allotment of PDS commodities to FPS**

In April 2007, the State decided to make a unified computerised database of ration cards. An order was issued, cancelling all existing ration cards, and new ones were made using updated software, hence creating a centralised database of uniform ration cards. These cards have two unique identifiers – a numeric code and a barcode. All details including the name of the head of the family, his caste, address, entitlements, ration shop etc. are printed on the card. The maintenance of the database is now a web-based module.

With the computerisation of ration cards, shop-wise allocations have also become automated. Per card allocations are fed into the computer at the State level. From this, shop-wise allocations are calculated by the software in the following manner. All Fair Price Shops are required to declare their stocks and sales in the month prior to issuance of PDS commodities. These figures are entered into the web application at the CGSCSC warehouses. Based on the...
stock and sale figures, the actual amount of PDS commodities to be issued to the FPS is calculated by the software, and a delivery order is issued through the web application. In this way, the stock position is available on the web at any given point in time.

**Transportation of commodities to the FPS**

After the release of the delivery order, a receipt is issued to each FPS indicating truck details including the truck number, driver’s name, and quantity dispatched. The truck receipt is generated using the web application.

GPS technology is used to monitor the movement of PDS commodities from warehouses of CGSCSC to FPSs. All trucks used for transportation of PDS commodities are equipped with GPS devices. The movement of trucks is tracked from the moment they leave the warehouse to the time they reach the intended FPS - when the trip is complete. The movement is shown on a map as a moving icon in real time and can be monitored from the control room. If a truck follows an incorrect route (i.e. geo-fenced area) or stops for too long on the way, SMS alerts are sent to the concerned authorities.

In addition to this, the Government of Chhattisgarh has issued orders to transport the PDS commodities in yellow trucks; the bright colour allows for easy identification and monitoring.
Inspection of FPS
The software periodically selects one-third of the FPSs for inspection. This selection is random, following which a physical verification is conducted at the district and state levels. A subsection is further inspected by state level officers. Verification reports are uploaded onto the web, which allows for the automatic identification of discrepancies if any exist between varying levels of reports.

Citizen participation
A citizen interface website has been created for citizen awareness and participation in the smooth functioning of PDS. The portal contains all information related to the scheme including a list of ration card holders, FPSs, and details of transport and sales of PDS commodities. Information on paddy procurement is also made available on the website, which includes farmer-wise data detailing the amount of paddy procured from each farmer and money paid to him.

The citizen interface is a platform for citizens to participate in the monitoring of PDS. Citizens can register as active monitors by submitting their e-mail ids and/or mobile numbers online. As PDS commodities are dispatched to a FPS from a...
warehouse, an e-mail message and an SMS is sent to all the e-mail IDs and mobile numbers registered for the corresponding FPS. Each message contains the truck number, the quantity of PDS commodities being sent by the truck, and the date and time of dispatch. If commodities do not arrive at the FPS in full within a reasonable time period, citizens can register their complaint on the website.

Sample SMS


Source: Powerpoint presentation, NIC

Grievance redressal
Grievances registered on the website are tracked through a web application. Action is taken on all complaints within a given time limit, and citizens are informed by e-mail of the result of their inquiry, which is also published online.

In addition, a call centre has also been introduced for registering and disposing of complaints. The toll free number is 1-800-233-3663. At present, the service is available from 8AM to 10PM. Once a citizen registers a complaint, he/she is immediately given a complaint number for future reference and tracking.

Complaints have been classified, and time limits have been fixed for inquiry about each type of compliant. The complainant is given the approximate time required to inquire into his/her complaint at the time of registration. If the complainant gives his contact details, he is informed about the result of his complaint via e-mail, SMS, voice call or a letter by post. If the complainant does not give his contact details he can still get information by calling the call centre and giving the number of his complaint. Results of call centre inquiries are also published on the citizen website.

Technology used
All operations are carried out through a web based application developed in-house with the help of NIC. Two hundred V-Sat based NICNET\(^2\) networks have been leased out at all levels. Broadband/USB based connectivity is used as backup. Five servers are maintained at NIC.

\(^2\) Source: Power Point presentation made by NIC
Chhattisgarh State Centre for hosting the application and database. Two of the servers host mirrors of the productive servers; as such, in case of any server failure, the mirror server can be started within a few minutes.

Methodology

Working with the objective of identifying best practices in India for further replication, the OneWorld Governance Knowledge Centre (GKC) research team conducts extensive research to identify initiatives that contribute towards the betterment of public service delivery. The computerisation of paddy procurement under the Public Distribution System in Chhattisgarh, with its focus on creating transparency and accountability in one of the most important schemes of the Government of India in its pursuit of national food security, meets the benchmark.

Having established the initiative as a best practice, the GKC team conducted thorough secondary research using web sources to gather a detailed understanding of how it works. The next step was to identify the key stakeholders and schedule interviews with them to gain deeper insight into the operations and impact of the initiative.

Key Stakeholders

- NATIONAL INFORMATICS CENTRE (NIC): ICT partner in development and implementation
- PRIMARY AGRICULTURAL COOPERATIVE SOCIETIES (PACS) and Central Cooperative Bank: responsible for operating procurement centres across the state and issuing cheques to farmers
- MARKETING FEDERATION (MARKFED): responsible for overall monitoring of paddy procurement, payment to farmers, and storage of commodities and granting of inter-district permission for milling
- DEPARTMENT OF FOOD: responsible for conducting physical verifications, registration of mills and granting permission for milling.
- CHHATTISGARH STATE CIVIL SUPPLIES CORPORATION (CGSCSC) AND FOOD CORPORATION OF INDIA (FCI): The CGSCSC on behalf of the State Government and the FCI on behalf of the Central Government run distribution centres across the state, which receive the custom milled rice. CGSCSC and FCI determine the amount to be allocated to FPS and then transport the allocated commodities.
- FAIR PRICED SHOPS (FPS): sell commodities to consumers at government subsidised rates
Lessons Learned

The reform process described in this case study has helped to make PDS in Chhattisgarh efficient and effective.

Speedy payment to farmers
With the automatic generation of receipts and cheques, the delay in payments to farmers has been addressed. Prior to 2007, farmers had to wait up to six days to receive the payment for their produce; today, the cheque is issued on-the-spot, where and when the commodity is sold.

Uniform procedures and inventory control
All processes involved in PDS have been computerised and standardised. Web management has allowed for closer monitoring of operations and verifications at each level like registration of millers, capture of truck details etc. It provides an account of stocks at all levels, helping the decision makers in utilising the inventory of commodities with greater efficiency, particularly in the maintenance of sufficient stocks required.

Transparency and accountability
Operations are recorded at every step, so data is at the fingertips of concerned authorities, making it convenient for them to monitor the scheme. Gaps at every level can be identified and the faulty made accountable.

Involvement of citizens
With the citizen interface website and the call centre facility, citizens are actively participating in ensuring that PDS in Chhattisgarh works efficiently and in a transparent manner. Thus far, 4777 complaints have been lodged, 4524 inquiries completed and 161 FPS licenses have been cancelled. Registered citizens can also monitor the movement of PDS commodities via SMS as sent during transportation.

Figure 8: A gunny bag of rice sold under the PDS/ Source: Food book 2007-2008, NIC & Chhattisgarh State Civil Supplies Corp
Looking Ahead

Overcoming challenges faced in terms of establishing connectivity, uploading reports in Hindi, data transmission to and from remote villages and building a uniform ration card database, PDS in Chhattisgarh has come a long way. Future plans include the computerisation of FPSs and introduction of smart ration cards.

PDS has often been scrutinised for its high association with corrupt practices and although various state governments have tried to address the issue in several ways like bar-coded food coupons, food stamps, and biometrically coded ration cards, none of them have been entirely successful. The ICT solution being used in Chhattisgarh is showing very encouraging results that indicate strengthening of the delivery mechanism. States like Orissa, Uttar Pradesh and Madhya Pradesh are keen to undertake similar reforms.

References

- [http://www.cek.ef.uni-lj.si/magister/singh11-B-06.pdf](http://www.cek.ef.uni-lj.si/magister/singh11-B-06.pdf)
- [http://planningcommission.nic.in/reports/sereport/ser/stdy_pds.pdf](http://planningcommission.nic.in/reports/sereport/ser/stdy_pds.pdf)
- [http://fcamin.nic.in/dfpd/EventDetails.asp?EventId=26&Section=PDS&ParentID=0&Parent=1&check=0](http://fcamin.nic.in/dfpd/EventDetails.asp?EventId=26&Section=PDS&ParentID=0&Parent=1&check=0)
- Power point presentation prepared by NIC
- Food book 2007-2008, National Informatics Centre & Chhattisgarh State Civil Supplies Corporation

Interview with NIC
Appendix A – Interview Questionnaire

1. Who are the key stakeholders in the implementation of the Public Distribution System (PDS)? Can you explain the process flow between each one of them?

2. What was the need for the computerization of the processes involved in the PDS in Chattisgarh? What was the situation prior to it?

3. Who was responsible for the technical support and know-how necessary for the project?

4. Under the project ICT tools have been adopted at all levels i.e.
   - Procurement of produce from farmers
   - Payment to farmers
   - Storage at warehouses
   - Transfer of produce to millers
   - Creating a Unified Ration Card holder Database
   - Calculation of required produce to be issued to each Fair Priced Shops (FPS)
   - Transportation of produce to the Fair Priced Shops

   Please explain the process of computerization at each of these levels.

5. Was the staff at each level trained for operating the new system?

6. There is a system in place to ensure citizens participation in checking any leakages in the distribution process. How is this done?

7. Citizens can also lodge complaints through a call centre. What measures are in place to ensure that these complaints are addressed?

8. What were the major challenges faced in the implementation of the project? How were they overcome?

9. What are the achievements of the project? What improvements have been reflected in the overall functioning of the PDS? Has any impact study been conducted?

10. Are there any enhancements planned for the future?

11. Which other states have shown interest in replicating the project?

12. Can you provide us with the following data:
   - Number of procurement centres
   - Number of FPS shops
   - Number of ration card holders