

Social and Economic Implication of Digitalization: A Case of Biometric Public Distribution in Rajasthan

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Introduction

The Public distribution system is a structure that is sponsored by a government and includes chain of shops trusted with the work of distributing basic food and non-food commodities to the disadvantaged group of the society at very low prices. The central and state governments shared the accountability of regulating the Public distribution system. While the central government is responsible for procurement, storage, transportation, and bulk allocation of food grains, state governments hold the responsibility for distributing the same to the consumers through the established system of Fair Price Shops. State governments are also responsible for operational responsibilities including allocation and identification of families below poverty line, issue of ration cards, supervision and monitoring the functioning of FPSs system (PDS) is an Indian food security system.

Established by the Government of India under Ministry of Consumer Affairs, Food, and Public Distribution and managed cooperatively with state governments in India, it distributes sponsored food and non-food stuffs to poor community of India. Some of the commodities distributed by food department include staple food grains, such as wheat, rice, sugar, and kerosene, through as ration shops established in several states across the nation. Food Corporation of India, a Government-owned corporation, acquires and maintains the Public distribution system.

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The National Food Security Act, 2013

National Food Security Act 2013 (NFSA) is a unique step taken by Indian government to fight against hunger and protect right of the people for food. With its peculiarities like the life cycle approach, women empowerment, consideration of vulnerable sections in society and proposed reforms in public distribution system (PDS), NFSA is a promising effort for food security in India.

The NFSA follows a Life cycle approach in which the care of the person is taken by the government considering the nutritional requirements throughout the life cycle. There is a paradigm shift from welfare based approach of the government to the right based approach of the citizens, as this act tends to preserve the basic and fundamental right of every citizen of India to have food. This includes the provision of food for the vulnerable sections in the society (e.g. homeless, destitute and people suffering from disasters or natural calamities). It addresses the Women empowerment: decisions like considering eldest women in a family as the head of the family, giving preference to women or their self-help groups for issuing license of new FPS, etc. will help in empowering women of the country. Further, there is an effort to bring transparency in the operations of the entire PDS. The salient features may be summarized as:

Salient Features of NFSA

- **Coverage and entitlement under Targeted Public Distribution System (TPDS):** Upto 75% of the rural population and 50% of the urban population will be covered under TPDS, with uniform entitlement of 5 kg per person per month. However, since Antyodaya Anna Yojana (AAY) households constitute poorest of the poor, and are presently entitled to 35 kg per household per month, entitlement of existing AAY households will be protected at 35 kg per household per month.
- **State-wise Coverage:** Corresponding to the all India coverage of 75% and 50% in the rural and urban areas, State-wise coverage will be determined by the Central Government. The then Planning Commission (now NITI Aayog) has determined the State-wise coverage by using the NSS Household Consumption Survey data for 2011-12.
- **Subsidized Prices Under TPDS and Their Revision:** Food grains under TPDS will be made available at subsidized prices of Rs. 3/2/1 per kg for rice, wheat and coarse grains for a period of three years from the date of commencement of the Act. Thereafter prices will be as fixed by the Central Government from time to time, not exceeding MSP. In case, any State's allocation under the Act is lower than their current allocation, it will be protected upto the level of average off take under normal TPDS during last three years, at prices to be determined by the Central Government.
- **Identification of Households:** Within the coverage under TPDS determined for each State, the work of identification of eligible households is to be done by States/UTs.

- **Nutritional Support to Women and Children:** Pregnant women and lactating mothers and children in the age group of 6 months to 14 years will be entitled to meals as per prescribed nutritional norms under Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) schemes. Higher nutritional norms have been prescribed for malnourished children upto 6 years of age.
- **Maternity Benefit:** Pregnant women and lactating mothers will also be entitled to receive maternity benefit of not less than Rs. 6,000.
- **Women Empowerment:** Eldest woman of the household of age 18 years or above to be the head of the household for the purpose of issuing of ration cards.
- **Grievance Redressal Mechanism:** Grievance redressed mechanism at the District and State levels. States will have the flexibility to use the existing machinery or set up separate mechanism.
- **Cost of intra-State transportation & handling of food grains and FPS Dealers' margin:** Central Government will provide assistance to States in meeting the expenditure incurred by them on transportation of food grains within the State, its handling and FPS dealers' margin as per norms to be devised for this purpose.
- **Transparency and Accountability:** Provisions have been made for disclosure of records relating to PDS, social audits and setting up of Vigilance Committees in order to ensure transparency and accountability.
- **Food Security Allowance:** Provision for food security allowance to entitled beneficiaries in case of non-supply of entitled food grains or meals.
- **Penalty:** Provision for penalty on public servant or authority, to be imposed by the State Food Commission, in case of failure to comply with the relief recommended by the District Grievance Redressal Officer.

The Indian PDS System

The Government of India has set up a mechanism to purchase food grains from farmers through FCI and state government agencies with a large network of procurement centers under minimum support price (MSP) scheme. The MSP is a price at which government procures the food grains from the farmers and this price is at par with the purchase prices of the food grains in the open market. At the start of any agricultural season, government announces the MSP for wheat and rice in consultation with Commission for Agricultural Costs and Prices, and National Development Council. The MSP scheme has been started with a view to extend a long-term support to the farmers and to put a check on the open market purchase price. In India, rice is procured mainly in kharif marketing season (October to January) and wheat is procured in rabbi marketing season (April to July). At the start of every marketing season, FCI decides a procurement plan under the guidance of the department of food and public distribution. To facilitate the procurement, FCI in collaboration with the state government and other state agencies (e.g. agricultural cooperative societies) runs purchase centers at various places called Mandi (market) and procurement points. This type of procurement is called centralized procurement.

Some of the states like, Chhattisgarh, Odisha, West Bengal and Tamil Nadu, etc. carry out procurement by their own and contribute to central pool (the stock of food grains maintained by central and state governments for PDS and various welfare schemes). This is called decentralized procurement. In many cases, rice is procured from private millers.

As the production-procurement level and the demand of the foodgrains varies from region to region and state to state, efficient movement of food grains from producing to consuming region/state is the major challenge. Depending upon the targeted population in each state and off-take of the last three years, the central government decides the allotment of the food grains for each state. Then, considering the upcoming two months demand and the current stock level of each state, FCI plans monthly interstate movement of wheat and rice. The food grains are moved from the warehouses of surplus states to the FCI owned/hired warehouses located in the deficit/consuming states at regional/district levels. Then, it is the responsibility of the respective state government to channelize the food grains to state owned/hired warehouses at the block level/tehsil level and further to the FPS of the respective block. Most of the states in India have this three-tier structure, except the northeastern states where FCI owned/hired warehouses acts as break bulk centers and foodgrains are distributed to FPS directly.

Interstate movement of food grains is carried out predominantly by railways except for the far-flung regions or remote areas where the road is the only option to reach. Almost 90 percent of the total movement takes place by rail. FCI owns 103 railway sidings with full rake capacity. FCI coordinates and monitors the monthly movement activity with railway authorities. The intrastate movement is carried out by road using small trucks, tippers, Lorries, etc. Usually, the movement from FCI warehouses to the state warehouses located at block levels is subcontracted to a third party. Another mode for the movement of food grains is the riverine (waterways). At present, the movement of food grains through waterways is seldom in use; however, it could be a promising option in near future due to its cost effectiveness. The pilot projects of riverine movements from Assam to Arunachal Pradesh and from Andhra Pradesh to Kerala (sea route) have been successfully carried out by the FCI.

Distribution Procurement, allocation and interstate movement of the food grains are the responsibilities of the central government, while mobilization of food grains to the state depots and distribution to the target population through a network of FPS are under control of the respective state government. Central government decides the allocation quota for each state, and state government purchase the required amount of the food grains (off-take) from the central pool at a central issue price, which is considerably lower than the procurement price incurred by the central government. State governments further subsidize this price for the beneficiaries.

A state has its own civil supplies corporation or state food corporation to look after the functioning of PDS of the state. A state civil supplies corporation has the hierarchical structure with competent authorities and in-charge administrative officers of the state, regional/district and block/tehsil level. The state has the responsibility and authority to identify the beneficiaries of the PDS and for the other welfare schemes. For the targeted PDS, the BPL and APL families (households) are identified and they are issued the respective ration cards. BPL and APL cardholders are entitled for 35 kg/month/household and 10 kg/month/ household of the food grains, respectively. The identified beneficiaries are served through the FPS located in the respective localities or nearby places. FPS are owned by government or licensed to the individuals or groups like self-help groups, cooperative societies, Anganwadies (childcare centers) or Grampanchayats (local municipal authorities). A FPS can serve to up to 2,000 ration cardholders. It is the responsibility of an FPS shop owner to lift the food grains from the state warehouse located at the respective block/tehsil level, keep the stocks and sell the food grains to the cardholder at the price specified by the state government. FPS owner is accountable for keeping records of opening and closing stocks and the transactions carried out in every month. FPS is an important linkage between government and the beneficiaries. Today, there are nearly five million FPS in India, which are serving to the targeted population of the country.

The Manual PDS System

The present day's public distribution system used ration card of each family and all records stored manually in the book of ration shop. For getting the food or non-food items from the fair price shop (FPS), first, the beneficiaries need to produce the ration card and put the signature in the ration card. Then the FPS shopkeeper will issue the items through weighting system. But in this the manual system having two drawbacks, first one is the weight of the items may be inaccurate due to human mistakes and secondly, if the beneficiaries not approached to the FPS, the shopkeeper will sell the remaining items in the open market on a higher rate..

Drawbacks of the Manual System

- Identification of poor by the states is not fool proof. A large number of poor and needy persons are left out and a lot of fake cards are also issued.
- Retail Shop uses fake Ration cards and sells the food grains in the black market.
- People do not get the allotted amount of food grains from the shop.
- Sometimes, good quality food grains are replaced with poor quality cheap food grains.
- The PDS includes only few food grains such as wheat and rice, it does not fulfill the requirement of complete nutrition.
- The irregular distribution of food generations, procurement, and distribution. For example, northern states are very far from Kerala from where rice is

procured. To transport food grains from Kerala to far-flung areas in Northern states will entail cost and time both.

- Many times there are cases that ration cards are fake or using dead people ration card or multiple ration cards.

The Aadhaar Based Biometric Authentication System (ABBA)

The main purpose of the Secure Ration Card System is to reduce the paperwork involved, widespread corruption, misuses of cards and duplications of ration cards, to reduce the time complexity of the manual data entries and checks. Many fake ration card users exist which is against the law, it helps to curb these things. Our system is used to protect the products of FPS in black markets. This system mainly focuses on designing and implementation of a security system for a ration card using fingerprint that has been used at FPS of Civil Supply Corporation. In recent scenarios, can get fingerprint using the biometric device and it is the science of verifying the identity of an individual through physiological measurements or behavioral traits. Since biometric identifiers are associated permanently with the user they are more reliable than token or knowledge based authentication methods. Biometrics offers several advantages over traditional security measures. The public and private sectors are using smart card systems to provide security. Still, it is not up to the security level, this system overcomes that problem by using biometric device for the Civil Supply Corporation. All the public sectors distribute the products to all the citizens. There are various commodities like wheat, rice, sugar and kerosene which are distributed using conventional ration shops. Here the family members need to register with their finger prints to get the unique family identification by using this unique ID. The family members can access the commodities and access control will be provided for the family members and the administrator. Only an authorized person can access the system. The main objective of the systems is to provide security and transparency of authorization allocations of commodities equally to all needy and economical poor citizens of India. Architecture of the biometric based ration card security system shown in the figure below:

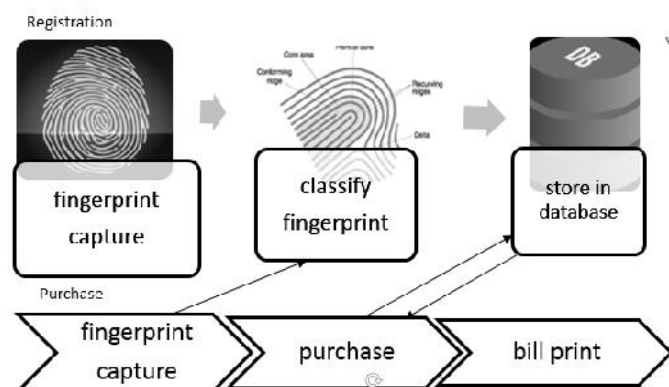


Fig. Architecture of Biometric based Ration Card Security System

System Process

- **Registration**

First, the registration process includes capturing the fingerprint from the customer and asking required information.

- **Fingerprint Classification**

After getting the fingerprint image it is classified according to the minute points present on it. After this, the fingerprint image is stored in a particular database.

- **Purchase**

When the customer comes to purchase any commodity he will be asked to the fingerprint which will be again classified and compared with the database.

- **Bill Print**

After the successful match, the commodity will be given to the customer.

Objectives and Scope of the Concurrent Evaluation

The Ministry of Food, Consumer Affairs and Public Distribution has been monitoring the progress of NFSA/PDS implementation through the secondary and other official sources. A need was felt for more holistic, qualitative and comprehensive monitoring of the implementation process on regular basis for an effective and empirical evaluation of the programme. Various prestigious academic and research institutions have been selected by the Ministry for carrying out the concurrent evaluation through the country.

The main objective of the concurrent evaluation is to assess the overall progress of implementation of NFSA (2013) across the country and measure and monitor the change. This includes Assessing and analyzing the progress of implementation of various aspects of the NFSA 2013 at the systemic level as well as evaluation of the benefits of NFSA on the target groups in achieving the objectives of the NFSA at the At beneficiary level.

The Shiv Charan Mathur Social Policy Research Institute was assigned the evaluation work for 29 districts of Rajasthan. The Concurrent evaluation will be conducted on a quarterly basis covering three of the selected districts of the State. All the assigned districts are to be covered within duration of two years.

Sample Selection and Timelines

- **Sample Design:** A multi-stage sample design was adopted for the concurrent evaluation. Districts/cities/towns, villages/urban wards and households formed the first, second and third stages of sampling, respectively. The list of 2011 Census districts and villages/ cities/towns constituted the sampling frame. Within each State, districts were be selected randomly in such a way that not more than one district is covered per NSS regions per quarter.

- **Sample Selection:** In every quarter one district each from a NSS region will be randomly selected using the equal probability approach as the first stage sample unit (FSU). Village/Urban ward (where FPS is located) will form the second stage units (SSU) of the selection from which a sample of households will be selected. Five Villages/Urban ward (where FPS is located) from rural/urban areas in each district (based on urban rural distribution of NFSA population in the State) will be randomly selected. In each village, is a sample NFSA beneficiary household (ie. 10 PHH & 5 AAY) will be selected using a systematic random sampling method Adequate representation of SC/ST, poor and vulnerable population will be ensured in the sample. In each quarter, the same process will be followed to select the sample districts, village and households.

Data Collection and Data Analysis

The team consisted of two the Nodal Officer and two investigators. The Nodal Officer was responsible to conduct the interviews at the district level while the investigators conducted the village and FPS level interviews. For interviewing the beneficiaries either exit interviews were conducted or the beneficiaries were contacted at their residence.

Tools for the Study

The Study tools were centrally designed by the Ministry of Consumer Affairs and Food & Public Distribution. These included the tools for interview of the District Level Godowns, District Level Vigilance Committee, FPS Level Vigilance Committee Fair Price Shop Schedule and Household Schedule.

Data Entry and Analysis

Data analysis was done using MS Excel after coding data entry and data cleaning. Tables were generated for each of the category specified in the suggested format for reporting by the Ministry. The reports were generated district wise with a cumulative summary of the State. The qualitative data collected through informal and focus group discussions were also used in the documentation. The following interviews were conducted in each district:

Level	Respondent
District Level	District Supply Officer
	DGRO and the Members of the Vigilance Committee
	Manager of the Godown
FPS Level	FPS Dealer
	Members of the FPS Level Vigilance Committee
Village Level	5 AAY Beneficiaries
	10 PHH Beneficiaries

Findings

Profile of the District and Respondents

Indicator	Alwar	Nagaur	Chittorgarh
Population	3674179	4018072	1544338
% of population covered under NFSA	66.61	72.45	69.73
AAY Cards	22085	18348	24078
PHH cards	578077	208029	379008
PoS (Online)	1263	1256	1058
PoS (Offline)	4	-	5
Manual	-	-	-
Godowns (Storage points)			
Number	6	8	6
Capacity	3350 MT	5958 MT	1200 MT
Number of Posts			
DSO	1 (1)	1 (1)	1 (1)
EO	7(4)	3 (2)	4 (2)
E.I.	13 (5)	10 (2)	7 (1)
NFSA food grains allocation and distribution (last three months) (in MTs) (%)			
June	103.38	90.15	89.62
July	99.64	96.23	97.88
August	102.45	102.86	97.43

Age of the Household Head

Indicator	Alwar	Nagaur	Chittorgarh
Age of the HH (in Years)			
18-25	1	0	0
26-35	10	8	9
36-45	18	15	19
46-55	21	26	18
56-65	15	19	14
65 above	10	7	15
Total	75	75	75
Average Age Male	49	49.31	51.48
Average Age Female	57.15	58.71	55.62
Number of Families with all Members above 65 Years	6	5	11

Occupation of the Head

Indicator	Alwar	Nagaur	Chittorgarh
Self Employed in Agriculture (less than 1 hctr)	4	10	14
Self-employed in Agriculture (more than 1 hctr)	1	6	0
Non-Agricultural Activities	5	5	3
Landless Agricultural Labourers	19	16	14
Casual/daily wage workers	25	19	14
Salar+ied employees	3	0	1
Others	18	19	29

Available Facilities with the HH

Assets	Alwar	Nagaur	Chittorgarh
Four Wheeler (Private)	0	0	0
More than 5 Acre of Irrigated land	0	0	0
Tax Payee	0	0	0
Government Employee	0	0	0
Others	0	0	0

Number of Members in the Family

Members	Alwar	Nagaur	Chittorgarh
More than 18 years	211	256	227
Less than 18 Years	86	78	68
Total	297	334	295

Average Size of the Family

	Alwar	Nagaur	Chittorgarh
PHH	4.25	4.42	3.62
AAY	3.15	4.52	3..8
Total	3.96	4.48	3.68

Category wise Respondents

Respondents	Alwar	Nagaur	Chittorgarh
Male	44	54	40
Female	31	21	35
Age of the Respondents			
18-25	10	10	10
26-35	14	11	15
36-45	15	13	15
46-55	18	18	9
56-65	11	17	13
65 above	7	6	13
Total	75	75	75

Beneficiary Selection and Ration Card Management

Indicator	Alwar	Nagaur	Chittorgarh
Awareness about eligibility /identification criteria			
Aware	17 (22.7)	15 (20.00)	9(12.00)
Not Aware	58 (77.3)	60 (80.00)	66(88.00)
Awareness about the process			
Aware	24 (32.00)	23 (30.67)	12(16.00)
Not Aware	51(68.00)	52 (69.33)	63(84)

Applied For New Ration Card/Modification in Last One Year

Indicator	Alwar	Nagaur	Chittorgarh
Yes	9 (12.00)	18 (24.00)	5(6.67)
No	66 (88.00)	54 (72.00)	70(90.33)

Average Distance Travelled for the Service

Indicator	Alwar	Nagaur	Chittorgarh
At home/ through mobile	3 (33.33)	6 (46.2)	0(00)
Less than 5 kms	4 (44.44)	6 (46.2)	5(100)
6- 10 kms	1 (11.11)	0 (0.0)	-
10- 20 kms	1 (11.11)	1 (7.7)	-
NA			

Average Time Taken in Processing the Ration Card

Indicator	Alwar	Nagaur	Chittorgarh
1-7 Days	4 (44.44)	4 (30.77)	2(50.00)
7-15 Days	5 (55.56)	8 (61.54)	0
30 Days	0 (0)	1 (7.69)	2(50.00)

Satisfaction Level of the Beneficiaries

Indicator	Alwar	Nagaur	Chittorgarh
Very dissatisfied	0	0	0
Dissatisfied	0	0	0
Neutral	5 (55.56)	0	0
Satisfied	3 (33.33)	12(92.31)	5(100)
Very Satisfied	1 (11.11)	1(7.69)	0

Number of Ration Cards Seeded with Aadhaar Number

Indicator	Alwar	Nagaur	Chittorgarh
% DRC	100%	100%	100%

The Number of Family Members with Seeded Aadhaar Number

Indicator	Alwar	Nagaur	Chittorgarh
All	60 (80.00)	62 (82.67)	62 (82.67)
1-2	14 (18.67)	10 (13.33)	12 (16.00)
3-4	1 (1.33)	3 (4.00)	1 (1.33)
5-6		0	0

Accessibility – Distance Travelled and Approach to FPS

Indicator	Alwar	Nagaur	Chittorgarh
0-1 kms	75(100.00)	72(96.00)	52(69.33)
0-2 kms	0.00	2(2.67)	11(14.67)
0-3 kms	0.00	0(0.00)	3(4.00)
More than 3 kms	0.00	1(1.33)	9(12.00)

Accessibility by Pucca Road

Indicator	Alwar	Nagaur	Chittorgarh
Yes	4 (80.00%)	5 (100%)	5 (100%)
No	1 (20.00%)	0 (0)	0 (0)

Are The Opening Days of Ration Shop Fixed In A Week/Month?

Indicator	Alwar	Nagaur	Chittorgarh
Yes	75 (100%)	74(98.67%)	75(100)
No	0 (0)	1(1.33%)	0 (0)

Number of days for which the Ration Shops are open

Number of Days	Number of Shops		
	Alwar	Nagaur	Chittorgarh
5	0(0.00)	1(1.33)	0(0.00)
7	0(0.00)	0(0.00)	0(0.00)
10	19 (25.33)	0(0.00)	0(0.00)
15	56 (74.67)	72(96.00)	75(100)
20	0 (0)	0(0.00)	0(0.00)

Satisfaction Level about the Number of Working days of the FPS

Indicator	Alwar	Nagaur	Chittorgarh
Yes	75 (100)	74 (98.67)	75 (100)
No	0 (0)	1(1.33)	0 (0)

Duration of the Opening Hours of the FPS

Indicator	Alwar	Nagaur	Chittorgarh
0-3 hours	0(0)	0(0)	0
3-5 hours	26(34.67)	34(45.3)	26(34.67)
Half day	2(2.67)	2(2.7)	25(33.33)
Full day	47(62.67)	39(52.0)	24(32.00)
Never	0(0)	0(0)	0(0)

Level of Satisfaction with the timings of distribution at PDS

Indicator	Alwar	Nagaur	Chittorgarh
Very Dissatisfied	0(0.00)	0(0.00)	0(0.00)
Dissatisfied	1 (1.33)	0(0.00)	0(0.00)
Neutral	3(4.00)	0(0.00)	0(0.00)
Satisfied	71 (94.67)	74 (98.67)	3(4.00)
Very satisfied	0(00)	1 (1.33)	72(96.00)

Quality of storage facility

Indicator	Alwar	Nagaur	Chittorgarh
Well maintained	4(80%)	4(80%)	4(80%)
Not-so-well maintained	0(0)	0(0)	0(0)
Needs improvement	1(20%)	1(20%)	1(20%)

Availability of space/ notice board at the FPS for display

Indicator	Alwar	Nagaur	Chittorgarh
Yes	5 (100%)	5 (100%)	5 (100%)
No	0 (0)	0 (0)	0 (0)

Display of the following (Out of 5 in each district)

Indicator	Alwar	Nagaur	Chittorgarh
Samples of PDS foodgrains for distribution	1	2	1
Opening and closing times of FPS	2	2	4
Monthly entitlement of PHH & AAY category	0	1	0
Retail issue price per kg for PHH & AAY category	2	3	4

Total number of PHH & AAY	0	2	1
List of names of PHH and AAY	0	1	0
Quantity of Commodities received, distributed & in stock	0	1	1
Toll free helpline number 1967/ 1800 series	2	3	4
Name and contact details of vigilance committee members	0	1	2
Contact details of Authority for lodging complaints/ redressal of grievances	1	4	4

%Households which received their full quota of foodgrains in past six months

Indicator	Alwar	Nagaur	Chittorgarh
Yes	72	69	59
No	3	6	16

Problem Faced by the Respondents on Quantity and Cost

Indicator	Alwar	Nagaur	Chittorgarh
Yes	0	0	0
No	75	75	75

Response about the food grains distribution

Display of Sample Food grains at FPS			
Response	Alwar	Nagaur	Chittorgarh
Yes	25	0	21
No	49	75	47
Unaware	1	0	7

If Yes, Same Quality of Food grains

Response	Alwar	Nagaur	Chittorgarh
Yes	25	0	21
No	0	0	0

Foreign particles in the Food grains

Response	Alwar	Nagaur	Chittorgarh
Yes	17	6	11
No	58	69	64

Satisfaction with the quantity of food grains

Response	Alwar	Nagaur	Chittorgarh
Yes	40	33(44.00)	37(49.33)
No	64	42(56.00)	38(50.67)

Linkage between allocation, off take and distribution in the sample FPS

District	Month	Wheat Entitlement (qt. in Kg)	Opening balance	Stocks received (qt in Kg)	Available stock at FPS	% Availability	Sale (qt in Kg)	%
Alwar	June	372.70	139.63	349.47	489.10	131.23	441.82	90.33
	July	372.70	152.18	286.65	438.83	117.74	299.20	68.18
	August	372.70	148.40	440.60	589	158.04	436.82	74.16
Nagaur	June	498	140.52	473	613.52	123.20	484.55	78.98
	July	498	140.47	467	607.47	121.98	481.80	79.31

	August	498	97.82	502	599.82	120.45	459.35	76.58
Chittorgarh	June	356	192.33	335	527.33	148.13	437.02	82.87
	July	356	224.07	275.60	499.67	140.36	307.34	61.51
	August	356	239.50	319	558.50	156.88	334.43	59.88

Perception regarding Cash Subsidy over Food grains

Response	Alwar	Nagaur	Chittorgarh
Yes	2	0	0
No	73	75	75
Can't Say	0	0	0
Total	75	75	75

IF No, Than Reason	Alwar	Nagaur	Chittorgarh
Do Not Have Bank A/C	0(0.00)	0(0.00)	0(0.00)
Bank A/C Is Not Operational	0(0.00)	0(0.00)	0(0.00)
Not Accustomed To Use Bank A/C	15(4.29)	4(3.60)	8(7.84)
Foodgrains From Market = Higher Price	30(28.57)	42(37.80)	46(45.10)
Risk of Misuse of Cash For Non-Food Items	60(57.14)	65(58.60)	46(45.10)
Other	0(0.00)	0(0.00)	2(1.96)
Total	105(100.00)	111(100.00)	102(100.00)

Importance of PDS in Ensuring Food Security

Response	Alwar	Nagaur	Chittorgarh
Very Important	71(94.67)	75(100)	74(98.67)
Quite Important	4(5.33)	0(0.00)	0(0.00)
Not Important	0(0.00)	0(0.00)	1(1.33)
Not Aware	0(0.00)	0(0.00)	0(0.00)
Total	75(100)	75(100)	75(100)

- The first quarterly report for the concurrent evaluation of the National Food Security Act, 2013 covers three districts viz Baran, Barmer and Tonk. The population covered under NFSA was substantial in all these districts (79.07% in Baran, 69.9% in Tonk and 72.8% in Barmer). Most of interviewed beneficiaries were self-employed in agriculture, landless agricultural laborers or casual wage workers and devoid of any kind of prescribed assets, indicating satisfactory selection of the beneficiaries. None of the household head had a four wheeler, more than 5 acres of irrigated land, government service etc.
- The State Government been innovative and effective in the installation of the biometric authentication system across the State. This was suitably reflected in the findings where all except a few PoS machines online and working. All the respondents reported to have received their full quota of foodgrains in the last six months. The percentage of foodgrain distributed was satisfactory in all these three districts. It was found that, the PDS supply constitute 70.3% in baran 44.3% in tonk and 73.9% in barmer of their total food consumption which speaks highly of the importance of public distribution system.

- All the RCs in the three districts were seeded with aadhar number in Barmer more than 80% ration cards had aadhar number seeded for all the family members. Similarly, most of the ration cards were seeded with both bank account and mobile number.
- The awareness regarding the eligibility/identification criteria for inclusion under NFSA, the process was poor in all the districts. Nearly, half of the respondents were unaware about the eligibility and the process. In the last one year, 13 respondents in Baran, 3 in Tonk and 4 in Barmer had applied for a modification in their DRC. The average distance travelled for availing this service was less than 5 km in Baran while more than 10 Km in Barmer. The process was completed within 30 days for all the applicants and most of them were satisfied with the available system.
- The FPS was accessible and approachable the day's age of opening of FPS were fixed and well informed. Most of the respondents were satisfied with the days and duration of opening of FPS. The quality of storage facility in all three districts was satisfactory. however, required information to be displayed at FPS including opening and closing time monthly entitlement, number of beneficiaries help line number etc was found missing It was found that the FPS profitable with average income in tonk district being Rs 13915 in baran Rs 11173 in barmer Rs 13027.
- There were large departmental vacancies in all the three sample districts. Fulltime District Supply Officer was not available in Baran and Barmer. Against the sanctioned 8 posts of EO in these 3 districts 6 were vacant. Similarly, for the post of EI, against the 21 sanctioned posts 11 were vacant. There is a need to strengthen the vigilance comity, grievance redressal system and systematic social audit applicable to all the three District.
- The respondents were appreciative of the importance of the PDS insuring food security. Almost all the respondents were against the food coupons or Direct Benefit Transfer (DBT) options available in NFSA.

Discussion

- The percentage of population covered under NFSA was 79.07% in Baran, 69.9% in Tonk and 72.8% in Barmer. The numbers of AAY beneficiaries were more than the State average in Baran and Barmer. The PHH beneficiaries were more than the State average in Barmer.
- All the PoS machines except three in Baran and five in Barmer were online. This is due to the connectivity issue which is being examined by the DoIT, GoR. This is a great achievement for the state.

- There were large departmental vacancies in all the three sample districts. Fulltime District Supply Officer was not available in Baran and Barmer. Against the sanctioned 8 posts of EO in these 3 districts 6 were vacant. Similarly, for the post of EI, against the 21 sanctioned posts 11 were vacant.
- The percentage of foodgrain distributed was satisfactory in all these three districts.
- Mostly there were male headed households with average male household head age of 47.9 years. For female headed households the average household head age was found to be 55.7 years. The occupation of the household head was predominantly self-employed in agriculture, landless agricultural laborers or casual wage workers. None of the household head had a four wheeler, more than 5 acres of irrigated land, government service etc. This indicates that the selection procedure for inclusion under NFSA has been suitable in the State.
- In a district 75 respondents were interviewed from 5 FPS. The respondents included both males (65%) and females (35%). The age of the respondents was mostly between the age group of 18 to 45 years. With maximum number from 30s.
- The awareness regarding the eligibility/identification criteria for inclusion under NFSA, the process was poor in all the districts. Nearly, half of the respondents were unaware about the eligibility and the process. In the last one year, 13 respondents in Baran, 3 in Tonk and 4 in Barmer had applied for a modification in their DRC. The average distance travelled for availing this service was less than 5 km in Baran while more than 10 Km in Barmer. The process was completed within 30 days for all the applicants and most of them were satisfied with the available system.
- This is a matter of great satisfaction that in all the three districts all the ration cards were seeded with aadhar number in Barmer more than 80% ration cards had aadhar number seeded for all the family members. Similarly, most of the ration cards were seeded with both bank account and mobile number. It can be safely concluded that an efficient and effective infrastructure for biometric authentication has been established in Rajasthan.
- The FPS was accessible and approachable the day's age of opening of FPS were fixed and well informed. Most of the respondents were satisfied with the days and duration of opening of FPS.
- The quality of storage facility in all three districts was satisfactory. however, required information to be displayed at FPS including opening and closing time monthly entitlement, number of beneficiaries help line number etc. was found missing

- All the respondents in the sample district reported to have received their full quota of food grain in last six months. They were asked about their total consumption of foodgrain in one month. it was found that, the PDS supply constitute 70.3% in Baran 44.3% in Tonk and 73.9% in Barmer of their total food consumption which speaks highly of the importance of public distribution system.
- Calculation were done for the income and expenditure of FPS on various items it was found that the FPS profitable with average income in Tonk district being Rs 13915 in Baran Rs 11173 in Barmer Rs 13027. The income was calculated as function of total commission received (-) the total Expenditure per month satisfactory level of allocation offtake and distribution was found in sample three districts.
- There is a need to strengthen the vigilance comity, grievance redressal system and systematic social audit applicable to the entire three Districts.
- The respondents were appreciative of the importance of the PDS insuring food security. Almost all the respondents were against the food coupons or Direct Benefit Transfer (DBT) options available in NFSA.

Emerging Issues

- Inclusion & Exclusion errors of Beneficiaries.
- Lack of sufficient godown capacity in Baran district.
- The godown system should be made online.
- Non-issuance of receipts to the beneficiaries
- Lack of awareness regarding :-
 - Eligibility Criterion
 - Process of modification
 - Lodging of grievances
- Lack of display of all information at FPS level.
- Network connectivity for ePos.
- Issue of T&D Losses during supply to the FPS dealers.
- There should uniformity of the quantity of wheat bags supplied to FPS dealers.
- Timing of supply of Kerosene and Wheat was different during the month which implied that the beneficiary had to visit FPS in multiple times.
- The people demanded for increasing quantity of wheat supplied through PDS.
- Setting-up of active and efficient Vigilance Committees and social audit mechanism at District/FPS level.
- Large number of vacancies at the departmental level.

Suggestions

- Filling up of Departmental vacancies.
- Creating an online system of godown management.
- Strengthening the grievance redressal and social audit system. Ensuring display of required information at each FPS.
- Creating suitable men force for repairing of epos. This may be dovetail with district level skill developed programme.
- Issue of T&D losses made to be examined at the level of Government of India.

Limitations of the Study

- During the Study, it was felt that the tools need to be re-examined in the light of the objectives and outcome. There are sections which need to be modified at some places.
- The tool for the district level is DSO and DGRO should also be prepared.
- The Ministry should consider increasing the budget of the evaluation so that the sample FPS selected may be more geographically representative, particularly relevant for a large state like Rajasthan. This may also facilitate the hiring of an additional investigator who may be deployed for conducting informal interviews and collection of relevant information like left-out beneficiaries, meeting the village level functionaries involved in the process of applying for DRC at village level etc.

References

- ✧ Fingerprint Classification- [www.cse.msu.edu/ biometrics/ Publications/ Fingerprint/ clas.pdf](http://www.cse.msu.edu/biometrics/Publications/Fingerprintclas.pdf)
- ✧ Kashinath Wakade "Smart Ration Distribution and Controlling" International Journal of Scientific and Research Publications, Volume 5, Issue 4, April 2015.
- ✧ Laxman L. Kumarwad, Rajendra D. Kumbhar,"E-Governance Initiatives in Maharashtra (India): Problems and Challenges", International Journal of Information Engineering and Electronic Business(IJIEEB), Vol.8, No.5, pp.18-25, 2016. DOI: 10.5815/ijieeb.2016.05.03
- ✧ Mohan et.al. "Automation of ration shop using PLC." Vol.3, Issue.5, SeptOct 2013. International Journal of Modern Engineering Research.
- ✧ S.Valarmathy et.al. "Automatic ration material distribution based on GSM and RFID technology", I.J. Intelligent Systems and Applications, 2013, 11, 47-54 published Online October 2013 in MECS.
- ✧ Sukhumar et.al. "Automatic Rationing System Using Embedded System Technology", volume 1 Nov 2013, International Journal of Innovative Reserch in Electrical, Electronics, Instrumentation and Controle Engineering.
- ✧ http://ethesis.nitrkl.ac.in/4360/1/A_study_on_Fingerprintimage_Enhancement_and.pdf
- ✧ <http://www.civilserviceindia.com/subject/General-Studies/notes/public-distribution-system-functioning-limitations-revamping.html>

