Specification and Functional Design of Public Distribution System

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Abstract

In this document, I have given the requirement specification and functional design description of Public Distribution System. The public distribution system (PDS) has played an important role in attaining higher levels of the household food security and completely eliminating the threats of famines from the face of the country, it will be in the fitness of things that its evolution, working and efficacy are examined in some details. But the PDS of India is not without its defects. It has several problems such as accountability, foods get rotten in FCI godowns and many more. In this paper, I have devised ways if implemented will greatly improve the current PDS system

1 Introduction

Your introduction goes here! Some examples of commonly used commands and features are listed below, to help you get started. If you have a question, please use the help menu ("?") on the top bar to search for help or ask us a question.

2 Flaws in the working of PDS

All is not well with public distribution in India. There are many problems associated with the working of PDS that are:

1. Large errors of exclusion of BPL families and inclusion of APL families.

2. Diversion of subsidized food grains to open market.

3. Prevalence of ghost cards.

4. Lack of transparency in the selection of procedure of PDS dealers.

5. Poor quality of food grains.

6. Lack of Infrastructure and shortage of funds with the governments of many states.

7. Weak monitoring and lack of transparency and inadequate accountability of official implementing the scheme.

8. A large number of homeless and poor, without having permanent address are denied ration cards and thus excluded from PDS, despite being Indian citizens.

9. The present procedure for selection of BPL beneficiaries is not satisfactory.

10. Cost effectiveness of PDS is very small.

11. Not lifting their ration quota by APL households as APL price is close to open market price.

12. Inadequate storage capacity with FCI.

13. Food grains rotting or damaging on the CAP or Cover and Plinth storage

14. Leakage and diversion of food grains during transportation.

15. FPS claims to be 'out of stock' even when there are sufficient stocks, leading to additional trips.

16. The sales person does not treat beneficiary with due respect or is even rude.

17. The sales person charges above the set price.

18. Deliberate under-weighing of the commodities by sales person.

19. FPS gets the ration stocks but says they have not received it.

3   Reforms that should be taken to improve the PDS system

The reforms that should be taken so that the PDS can be created the system that it should be in the first place are as follows:-

1. Adhaar Linked and digitized ration cards:
   This allows online entry and verification of beneficiary data. It also enables online tracking of monthly entitlements and off-take of foodgrains by beneficiaries.

2. Computerized Fair Price Shops:
   FPS automated by installing 'Point of Sale'device to swap the ration card. It authenticates the beneficiaries and records the quantity of subsidized grains given to a family. But this alone is not going to work because there are cases where FPS dealer say you have to sign for 5kgs and take 3kgs or other-wise I will not give you this 3kg also. So, what I want to propose is that after successful buying of ration the card-holders should get a feedback call asking whether they get right amount of ration or not.

3. DBT:
   Under the Direct Benefit Transfer scheme, cash is transferred to the beneficiaries' account in lieu of foodgrains subsidy component. They will be free to buy food grains from anywhere in the market. For taking up this model, pre-requisites for the States/UTs would be to complete digitization of beneficiary data and seed Aadhaar and bank account details of beneficiaries. It is estimated that cash transfers alone could save the exchequer Rs.30,000 crore every year.

4. Use of GPS technology:
   Use of Global Positioning System (GPS) technology to track the movement of trucks carrying foodgrains from state depots to FPS which can help to prevent mass diversion of goods by lorry drivers.

5. SMS-based monitoring:
   Allows monitoring by citizens so they can register their mobile numbers and send/receive SMS alerts during dispatch and arrival of TPDS commodities

6. Use of web-based citizens portal:
   Public Grievance Redressal Machineries, such as a toll-free number for call centers to register complaints or suggestions.

7. Online godown monitoring system
   The State Government has introduced an online godown monitoring system for enabling online capture of all transactions in warehouses in a phased manner.

8. SMS-based fair price shop stock monitoring
   SMS-based fair price shop stock monitoring should be set up to track the stock of every commodity at each fair price shop on a daily basis. This will enable officials to identify stock levels at each shop every day and move stocks swiftly as needed. Under the present network, it is possible to identify a shop that may be involved in diversion of stocks by keeping tabs on sudden increases in rice offtake in a month. When there is an abnormal increase in the offtake, vigilance teams will swing into action to find out whether the increased offtake is genuine or bogus.

9. Feedback system
There should be a feedback system in the PDS where one can give the feedbacks about the behavior of FPS owner, quality of food-grain, does the sales person charges above the set-price, under-weighing of the commodities by sales person. When bad feedback reaches a threshold about a particular PDS then a team should be send to the shop for inspection.

10. Solution to Problem [19]
The trucks which brings the ration stock to the FPS should be painted with some unique color may be yellow which when reach the destination will catch eyes of the people and they will then surely check whether the FPS owner is lying or saying truth. Once again, the feedback system will help because if the FPS owner again lies then the people can call on helpline numbers.

11. Food Coupons
At the beginning of each year, each BPL household is supposed to get 12 coupons, one for each month of the year. Each time a household purchases grain they are expected to deposit the coupons for that month with the dealer. Each month, the FPS dealer can only get as much grain as the number of coupons he deposits. This wonderful idea will give incentive to FPS owner to to work correctly.

4 Proposed design for new PDS

4.1 PURPOSE OF THE SYSTEM

The primary objective of the project is to shift the processes, systems and approach from Government centric to citizen centric by leveraging the effective usage of ICT. The key objectives of the system are:

1. Introduce a Smart Card based Public Distribution System.
A smart card is any pocket-sized card that has embedded integrated circuits.
Benefits of smart card are :-
1.Portability
2.Reliability that is virtually unaffected by electrical and magnetic fields.
(Described in detail in Section 4.3.)

2. To introduce e-mail and SMS alert.
An email and SMS alert system is installed which will send messages of when the ration shops have got filled with grains, when the shop opens. This will ensure that people will not get their time wasted.

3. Replacement of existing Paper based Ration Cards with Smart Card based Ration Cards.
Smart card will revamp the whole system and will take to a whole new level. Then they will not get cheated.

4. Replacement of manual records with computerized standardized documents.
This will ensure proper data entry. Data management system will be implemented which track record how much grain is present in a PDS shop, how much in State godowns and how much in National godowns.

5. Electronic weighing system
This will be linked E-POS machine so that how much weight is calculated can directly get feeded into the system without extra problem of data entry. This will ensure smooth functioning of the system and will not create any hassles.

6. Faster request processing in delivery of services with better turnaround time (TAT). With E-POS, database management and electronic weighing system, any request of grain coming to any level in the system will be proceed fast and that data will be pushed into the system. This will create large network of storing of foodgrains and help the nation in many ways.

7. Ensure more Transparent distribution of essential commodities at the Fair Price Shops.
Generation of meaningful MIS(management information system) from the system enabling the department in informed decision making.

8. Elimination of Bogus Cards.
   With the introduction of smart of cards, if PDS shop owners are having bogus cards then will not be able to divert foodgrains from it because smart cards cannot be made on fake cards.

9. Elimination of Cards for a Family holding more than one card.
   With the introduction of smart of cards, one family will have one card so any family having two cards will get their card eliminated.

10. Elimination of members in case a particular member is present in more than one card.
    Since this creates database of all the country, then it will give ability to find if single person is having added into two families then he/she will automatically get removed from the one of the cards which less food grains are purchased.

11. Reduce the chances of forged documents being circulated.
    Since, the current system is having paper ration card, this makes it easily duplicatable. With this system, since smart cards are hard to duplicate, will reduce the chances of forged documents being circulated.

12. Procurement storage and distribution
    This system will give keep track of how much food grains are available in any godowns then this will ensure that if any diversion of foodgrains happens from godowns then an inspection team will be sent to that godown and can seal it if found guilty.

13. Feedback System and Helpline numbers
    One of the novel system this system will have is the feedback. In the current PDS, no feedback is their for greivances redressal. But what I am introducing is that just like CM helpline number in MP, this system will have helpline numbers where one can call to give any information pertaining to food trucks, godowns, FPS hops, quality of food grains, etc. So that the system can change itself and become better and better and increase its presence.

14. Coloring of trucks which brings the foodgrains to the PDS shops.
    This novel feature will prevent FPS shop owners to make shortages and diverting foodgrains. Because this when reach the city or town or village will give indication to people that foodgrains have arrived and will give transparency to the system.

15. GPS tracking of food trucks
    This feature will prevent diversion of foodgrains by lorry drivers and keep track of surely the grain is reaching the destinations.

4.2 Implementing a software for PDS

The software automates various functions of PDS System, like:

1. Replacement of Paper based Ration Cards with Smart Card based Ration Cards authenticated by finger print based biometrics.
   The software will provide bio metric authentication so even if smart cards are duplicated then also bio metrics are not and will keep the system secure.

2. Fair price shop Operations (Inventory management system)
   This software will keep track of how much food grains are coming and going from the PDS shops and will provide real time amount of foodgrains in the shops.

3. Registration of a new Ration Card
   This software when given AADHAR no. will create new Ration cards for them and will give service to the needy who have still not get their cards registered in the system.

4. Registration of a new ration shop
   This software gives the option that if someone wants to open a PDS shop then get their shop registered from this software and will have registration process simpler.

5. Cancellation/modification of Ration Cards and ration shops
   Modification of ration cards are very important in the PDS as many people change their families and move to new places but no updates the cards because of its cumbersome procedure and cancellation also has same problems but since this software can do that in seconds. This will surely help the people and system itself.

6. Cancellation/addition of member(s) in ration cards and the corresponding database
   Adding a member to ration card was a heck! but with this software we can add any member to the ration card if his address matches the ration card.

7. Identification of Inactive Cards (Bogus Cards)
   If no ratio is taken from a card for six months then this system will automatically remove those cards. And keep the system up to date.

8. Assigning Ration Cards to Fair Price Shops / Kerosene Outlets
   Ration shops will themselves have to keep a ration cards which will get updated whenever they storage full.

9. Shop wise allocation and per card allocations
   This will keep track which shop is nearest to your address and gets you added to that shop and your grain will get to that shop. From there you can get the grains.

10. Reporting daily Transactions from each Fair Price Shop / Kerosene Depot
    At the end of the day, all transactions happened from the shop will get synced with the server.Thus, the system will remain up to date.

11. Inventory Status for essential commodities
    Amount of all the food grains present in godowns or shops are in the system so if any of those get their storage to half then automatically a request will be sent to the the level above so that the deficiencies can be fulfilled as soon as possible.

12. Change in member data for each ration card
    This system has the ability to update the data of any member if any discrepencies in present in the system.

13. Change in the number of Ration Cards per FPS/KO
    The no. of ration cards alloted to one FPS shop will be determined fort nightly and updation help in proper allocating of resources.

14. Complaint Monitoring System The software it-self will help to improve by getting feedbacks on the software and new features can be added accordingly.

15. e-mail and SMS alert The software will send emails to cards holders and SMS alerts also and also to the concerned authorities of all the relevant messages of the PDS system.

16. Card transfer from one FPS to another This will enable card to be transferred from one PDS shop to other automatically if they migrate and will also has the option of getting their cards manually updated in terms of addresses.

17. Catching PDS shop owners who are diverting food grains
    If some FPS is getting 100kgs of grains and suddenly demands 500kgs of grain then inspection team will be sent to that shop and if found guilty then serious action will be taken like imprisonment because they are preventing people from getting food.

18. Feedback mechanism. This feature will improve the functioning of the whole system and will make our country with best PDS ever!

4.3   Smart Card

The smart card is modified as smart ration card by coding the microprocessor chip present in it according to the requirements. Each smart ration card contains unique barcode. We need to collect the data from all the valid ration card holders and estimate the total number of smart ration cards to be created. After the complete data has been collected a database is created. It contains separate record for each family which includes details like no of members in family, names of the members, head of the family, permanent address, present living address, phone number, CREDIT S etc. These credits are like units or points that are issued to each family every month by the respective state governments. Here we will be having two databases for two different categories i.e. one for the card holder information and the other one to store the details of the items(products) that are being distributed. Now, the smart ration cards are generated and distributed to the valid card holders.

With the introduction of new PDS, ration card holders will be provided with a smartcard along with their paper ration card and an Electronic Point of Sale (E-POS) machine will be installed at each FPS. The smartcard stores the details of the beneficiary, their family and their monthly entitlements. The E-POS machine is connected to a server, where all the records are stored.

The smartcard has to be inserted into the E-POS machine, in the same way as in an automatic teller machine (ATM); the machine reads the card, fetches the data from the server, verifies the data, and displays the monthly entitlements of the beneficiary on the machine. Each time a purchase is made, apart from updating the record on the server, it is also recorded on the smartcard.

The smart card can function in an offline mode also: even in situations when there is no connectivity, the E-POS machine will get information on the last purchase. Every beneficiary continues, however, to be tied to a particular FPS so that he/she can get his/her quota of ration even in the event of loss of the smartcard.

4.4   Major Challenges

For successful implementation it is necessary to also consider the possible challenges and to develop mitigation strategies. Connectivity and the speed of Internet connections are major problems in India. However, baseline surveys on the status of connectivity in a particular area can ensure that the relevant FPS is connected.

Another crucial aspect is to understand that the implementa-tion of such a smart card system may partly act against the interest of many FPS agencies. With black marketing being a lucrative secondary business opportunity the increased trans-parency could make shop keepers hesitant to support the new technology. It is therefore possible that some shop owners may sabotage the new system by e.g. forming a nexus and claiming that the PoS does not work, thereby boycotting the system.

However, such problems can be mitigated if beneficiaries' enti-tlements are portable and beneficiaries can choose the FPS from which they want to purchase their food. Under such circumstances, any dealer claiming that his PoS does not work would risk losing his business. Another possibility is to make available a special PDS truck whenever reports are received that many FPS are not working in one area. The trucks can then distribute food to the beneficiaries in front of the FPS – with the latter losing out on their business.

4.5   Privacy

One of the major issues the aadhar is facing is that the data is leaked so this system will keep the secure as far as possible and will mask the numbers if any data is required from the system. So even if data leaks so information of any individual will leak out.

5 Conclusion

In the nutshell, if these PDS reforms are implemented then one can hope that the inefficiency in the system would be removed and it will ensure the food security millions of people in our country.

6 References

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