

Public Distribution System (PDS) and Food Security in Rural Kerala: A Study of Manjeswar Taluk, Kasaragod District

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The Public Distribution System (PDS) was introduced with the objective of making food grains and other essential commodities available to people at subsidised rates (or free) through a network of shops across the country. Kerala has the unique distinction of being the forerunner among states in establishing universal PDS, ensuring equity and social justice. The introduction of the Targeted Public Distribution System (TPDS) in 1997, replacing the universal food distribution system, was a major policy shift in the wake of globalisation. While the TPDS provided subsidised food grains to BPL families, several equally deserving APL families were thrown out of the scheme. Though the PDS ensured food grains to every deserving family in the state, the distribution system remained leaky. There was insufficient mechanism to monitor the off-take system. Mismanagement, corruption and bureaucratisation were rampant during the earlier regime. The AePDS has radically transformed the rationing system in Kerala. The present study examined the efficiency and effectiveness of the Aadhar Enabled Public Distribution Mechanism (AePDS) established in 2015. Through the study, the authors attempted to unravel the accessibility of PDF, service delivery satisfaction, and efficacy of the electronic system developed for the purpose. A select number of authorised ration dealers from Manjeshwar Taluk of Kasaragod district were studied. The study was completed by selectively incorporating quantitative as well as qualitative data. The authors conducted in-depth interviews with ration card holders, shop owners, and taluk-level officials of the AePDS.

Keywords: Food Security, Public Distribution System, Fair Price Shop, Rural Food Insecurity

Food security has once again gained prominence with the recent publication of the Global Hunger Index 2021, wherein India finds itself at 101 out of 116 countries. Despite the Food Security Act 2013, poverty and hunger are endemic in India. Though the country has made strides in eradicating poverty, nearly 84 million people (6% of its total population as of May 2021) are under extreme deprivation. Food insecurity has assumed significant proportions in states like MP, UP, Bihar, Chhattisgarh, Jharkhand, Manipur, Assam, and Arunachal Pradesh, with the Dalits, Adivasis, poor, and subsistence peasants facing the worst crisis. Data shows that poverty and hunger are not the result of poor agricultural production but mainly due to a lack of access to food (Food and Agricultural Organisation, 2002). Existing socio-economic structures also prevent people from accessing food in India (Food

and Agricultural Organisation, 2002).

Food is one of the most basic requirements for the survival of human beings. Ensuring food security is one of the top priorities of every country in the modern world. History has noted that hunger and poverty are the biggest enemies of food security. Historical records have documented a number of incidences where human society has struggled to deal with food insecurity (Asian Development Bank, 2013). Man Made disasters like world wars and natural disasters like famine have harmed food security. In 1974, an international effort to raise the voice and awareness of food security resulted in the World Food Conference, which has since become a cornerstone in discussing and highlighting the problems of hunger and malnutrition. This conference concludes that “every man, woman, and child has the inalienable right to be free from hunger and malnutrition in order to develop their physical and mental faculties” (Rapporteur General, 1975). Various internationally recognised institutions, such as the Food and Agricultural Organisations (FAO), the United Nations World Food Programme (WFP), and the International Fund for Agricultural Development (IFAD), are contributing to a multidimensional platform to achieve food security. Ensuring food security is a widely debated topic with the rapid growth of the population in the 21st century. According to the United Nations population prospect, the world population will surpass eight billion in mid-November 2022 (United Nations, 2022). The Food and Agricultural Organisation statistical book in 2021 shows 770 million people were undernourished in 2020, of which 418 million people, almost half of the world’s undernourished, belong to Asia (Monakoyo, 2021). According to the World Poverty Clock, an international tool to monitor progress against poverty at the global level, 700 million people are still under the clusters of extreme poverty across the globe in January 2022 (World Data Lab, 2022).

Similarly, the world hunger clock has shown that currently, 690 million people around the globe are suffering from chronic hunger (World Data Lab, 2022). It has been a gigantic task for more extensive and highly populated countries to ensure self-sufficiency and availing of food needs in balancing the accelerated population growth rate. Irrespective of the economic position and development status of the developed, developing, and underdeveloped countries are facing various challenges like economic, social, geographic, and irregular climate changes in meeting food security. In its annual reports, Food and Agricultural Organisation (FAO) has noticed a gradual decrease in poverty and malnutrition issues in overall decadal performance up to 2020 (Dongyu, 2020). Nevertheless, the unrealistic hamper created by the pandemic has already shown stagnation in all dimensions of development. International institutions have warned that the Sustainable Development Target of zero hunger in 2030 will become impossible due to the current adverse impact created by prolonged and interrupting pandemic challenges. The war between Russia and Ukraine has further deteriorated the world food supply. Both countries have a significant share of the world wheat market (Guterres, 2022). From this development, one must be sure that there are many reasons behind world food insecurity (Guterres, 2022). Here, this study would like to evaluate the possibilities of PDS and its challenges in ensuring rural food security in Kerala.

What does food security mean?

Food security is generally defined as access to food through an ensured supply system. Most of the food security definitions are by international institutions. In one

of the publications of IFPRI authored by John Hoddinot, it has been highlighted that food security has approximately 200 definitions and 450 indicators (Hoddinot, 1999). According to the United States Department of Agriculture (USDA), “food security for a household means all members’ access to enough food for an active, healthy life. Food security includes at a minimum (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies)” (Saikia & Dutta, 2018). Here, this definition has covered the meaning of household food security, which in the practical sense, stresses that completion of household security is a basis for further achieving macro forms of national and international food security. Secondly, concern about nutritional requirements and contaminated food shows that this definition has made the maximum attempt to cover the sub-dimensions of food security. Finally, an attempt to include both positive and negative connotations on food security has distinguished this definition from the general perception of food security. In 1996, the World Food Conference defined food security as “it declares that food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Saikia & Dutta, 2018). This definition of food security thus covers all dimensions like availability, accessibility, utilisation, and absorption.

Hunger is both a violation of human dignity and an obstacle to social, political, and economic progress. International law recognises that everyone has the fundamental right to be free from hunger, and 22 countries have enshrined food rights in their constitutions. National governments must do everything possible to ensure people have physical and economic access to enough safe, nutritious food to lead healthy and active lives. According to the UN, the Right to food is the “right to have regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensures a physical and mental, individual and collective, fulfilling and dignified life free of fear” (United Nations Human Rights Commission, 2022).

Violations of the right to food include blocking access based on race, sex, language, age, religion, or political belief. Food should neither be used to exact political or economic pressure nor through food embargoes nor blocking humanitarian convoys. Amartya Sen argues that famines are much less likely to occur when fundamental civil and political rights are respected (Sen, 1981). A rights-based approach to food security holds that people have a fundamental right to be free from hunger. It considers the beneficiaries of development not merely passive recipients but active stakeholders. It also puts the primary responsibility on the State, requiring it to do everything possible to ensure people have physical and economic access at all times to enough nutritious, safe food to lead healthy and active lives.

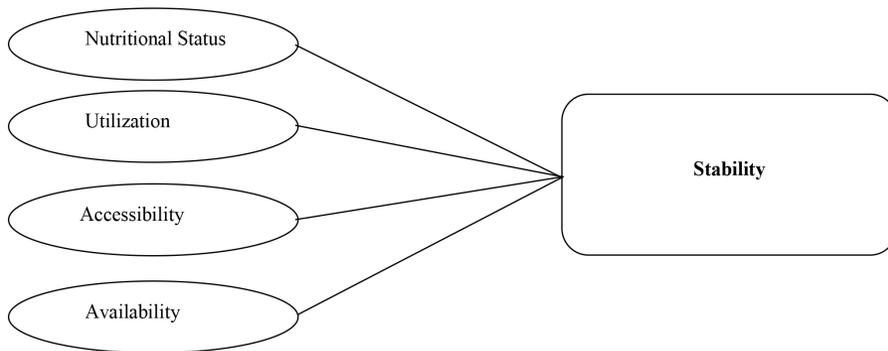
“Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Food and Agricultural Organisation, 2006).

Food insecurity threatens individuals’ survival, especially the poor and marginalised. The problem of food insecurity should not only be seen as a matter of

famine and hunger. The increase in the price of food is forcing people to consume cheaper foods with lower nutritional status. If high food prices persist, the Millennium Development Goal of halving poverty by 2015 could be jeopardised (Rehman, 2008).

Food security is built on four pillars: Food availability: sufficient quantities of food available consistently. Food access: having sufficient resources to obtain appropriate foods for a nutritious diet. Food use: appropriate use based on knowledge of essential nutrition and care, adequate water and sanitation, and Nutrition (Gross et al., 2000)

FIGURE 1: Pillars of Food Security



Source: Parvathy (2015)

Food must be socially and culturally acceptable and satisfy physiological needs in quantity, quality, and safety. To address the physiological demands of the target populations, only food aid that does not alter eating habits and is socially and environmentally suited should be given out. Food availability, accessibility, and use are vital components of food security (Gross et al., 2000). Including utilisation underlines that ‘Nutrition Security’ is more than ‘Food Security.’ Two determinants that influence the food security framework are physical and temporal. The physical factor is the flow of food, which includes accessibility, availability, and utilisation. Achieving availability is having enough food available for people to consume. Access is guaranteed when all families and members of those households have enough money to produce, buy, or donate the foods needed for a healthy diet. The ability of the human body to consume and digest food is referred to as adequate utilisation. The proper use of food is ensured by nutritious and secure meals, a suitable biological and social environment, and good health care to prevent illnesses. Food security should not be seen just from a biological perspective. It can only be accomplished when households and communities can access enough culturally appropriate food to suit their physical and social demands (Gross et al., 2000). Stability is the temporal determinant. The elements of availability, access, and usage should be combined with stability. The term “stability” in the context of food security refers to potential threats to any one of the three elements (Availability, Accessibility, and Utilisation) (Parvathy, 2015).

Besides, the study has incorporated two academic supports in connection with the need for food security. Among them, Thomas Malthus’s theory of population is

one of the fundamental theories that explain the relationship between the growth rate of population and food production. According to him, population and food production are increasing, and food security will be ensured only if both factors grow balanced or if additional food production becomes available. However, as per this theory, food production increases at arithmetic progression (1, 2, 3, 4, 5,6,...), and population growth increases at geometric progression (1, 2, 4, 8,16,6... According to him, after a certain level, population growth will increase, and food production will not be able to match the food grain demanded by the population (Burger, 2020). This theory hasn't been validated to date, but the world has been experiencing a tremendous population explosion. Technological advancement has nullified the assumptions of the theory that food production cannot be increased at an accelerated rate. The criticism of this theory is valid once there is regulated population growth. But climate change and natural calamities have caused large-scale food production loss (Burger, 2020). At the same time, the conversion of agricultural land to non-agricultural purposes declines the scope for cultivation. The increase in the trend of food import countries shows that this theory remains valid. Whether the impact is created by internal or external causes of food supply, one must be sure that the world is going towards grave danger. Ensuring future food supply orders is complex in the overrated population growth era. (Dongyu et al., 2021). This theory is straightforward; suggested regulatory and restrictive population policy will help sustain the future world food supply order.

Abraham Maslow's Hierarchy of Needs theory is universally accepted for its clarity on the concepts. According to this theory, there are four stages of human needs. In which the first priority is physiological needs. These include basic needs: food, liquid, sleep, oxygen, sex, and freedom of movement. According to Maslow, further needs will only arise by satisfying these needs. These must be satisfied to at least ensure basic human needs. (Anderson, 2013)

Here, food is given first preference among the basic needs. In a primitive society, man is responsible for meeting his appetites. Nevertheless, in modern society, due to the high prevalence of the population, very few people have either command over resources or the ability to access or produce them. This results in most of the population needing help to meet their basic needs. So, in a democratic society, when people are unable to meet their basic needs, it becomes the ultimate responsibility of the State to do that. To that extent, the introduction of PDS in India has great significance in overcoming hunger and poverty challenges. This program has played an essential role in transporting and supplying food grains to remote areas at a reasonable price. It must be required to benefit the needy people most to uplift the vulnerable section. According to the significant components of food security, such as availability and accessibility, PDS in India is the backbone for reaching food grains at an affordable and comfortable price. In India, PDS has ensured and fulfilled the primary stage of Maslow's needs hierarchy theory. This theory, in the second stage, also talks about security requirements. Besides, PDS in India has gotten legitimacy for ensuring national food security since implementing the National Food Security Act in 2013. (Ministry of Law and Justice & Government of India, 2013).

Food security in India: A Glance

The awareness of food security has emerged in India since the outbreak of two major famines in the Bengal region of India. The geographical nature of India shows

it was one of the most fertile lands on the earth. But the fertile geographical structure and abundance of the river system were not at all able to curb the famine throughout India. Twelve major famines broke out during British rule, and among them, the Bengal famine of 1943 is considered one of the biggest tragedies in the history of India. Records show that the Bengal famine alone was responsible for the death of approximately 3.8 million people (Sen, 1981). The negligence of colonial rule and exploitative British policy is the main reason for the deteriorated food security situations during the last phase of British rule. Failure of timely monsoon and irresponsible governance of the British led to consequences created by the famine becoming further high. Since India's independence, the high prevalence of food insecurity has become one of the major challenges faced by the policy. In order to address the food insecurity issues, the first five-year plan was given priority to the development of the agricultural sector. To manage the initial domestic food scarcity, India signed Public Law 480 with the USA in 1954 (Cochrane, 1960). As per the agreement, surplus food grain production from the USA will be distributed in India at a reasonable price rate. This import policy has helped manage the food supply through PDS in India. Since the green revolution, food production in India has improved on a large scale, shifting India's food deficit status into a food surplus state (Yadav & Anand, 2019). According to the Reserve Bank of India publication data, India produced 82.2 million tons of food production, reaching 3086.5 million tons in 2021 (O.P.Mall, 2020). At the same time, population growth in 1961 shows 439.3 million to 1027 million in 2001. While considering the data shown by the government of India in 2021 decadal population growth rate (12.5 %) is still alarming. The higher growth rate trend of the population will be problematic in ensuring food security (O.P.Mall, 2020).

India's food security performance could be better among the most vulnerable food-insecure countries. The importance of food security in India has once again gained prominence with the recent publication of the Global Hunger Index 2021, wherein India finds itself at 101 out of 116 countries (Concern Worldwide & Welthungerhilfe, 2021). Being one of the most fertile geographic lands, leading food producers, and the second most populous country in the world, India is re-shifting again into the vulnerability of status of food insecurity. The achievement of the green revolution influenced surplus production in India and has been experiencing an unregulated population explosion. By the end of 2021, India will have reached a population of 139 crores at a 1.0% annual population growth rate. India has produced 308.65 million tons of food grains during the financial year 2020-21. (The Economic Times, 2021) Despite the rapid population growth rate, India is one of the few countries capable of producing a surplus of its annual domestic demands. The data revealed by the Food Corporation of India in 2021 shows annual surplus food grain stock is 2.7 times higher than the buffer norms parameter (Chandra, 2021). However, the concern of food security in India is that the margin of surplus food production is diminishing yearly with the disproportionate population increase since the 1970s green revolution has made a tremendous contribution to the food production rate, and its impact on population growth rate become proportional to food production rate at the end of 20th century.

Public Distribution System: A Principal Instrument of Food Security

The idea of the public distribution system is a colonial legacy of India. It started

as a wartime rationing measure but was later extended to the urban areas to check the high inflationary situation. Since independence, policymakers in India have decided to continue this practice to fight against the high prevalence of chronic hunger. The core and basic principles of the public distribution system were laid down in the 6th Price Control Conference of 1942. (Swaminathan, 2003). Sixth five-year plan (1980-85) had envisaged that the public distribution system would “have to be so developed that it remains hereafter a stable and permanent feature of our strategy to control prices, reduce fluctuations in them, and achieve equitable distribution of essential consumer goods” (Ahluvalia, 2005). The public distribution system is a State-funded chain of stores that distribute basic food and non-food goods at relatively cheap rates to the poor sections of society (Thushar, 2018). PDS evolved as a system of managing scarcity by distributing food grains at affordable prices.

Progress Evaluation Commission, Government of India (1985) defined PDS as a “set up under which specified commodities of everyday use are procured and made available to consumers through FPSs in urban as well as in rural area” (Ahluvalia, 2005). The definition of a public distribution system shows it is bulky. Since the implementation of the Universal Public Distribution System and Revamped Public Distribution System, the scope of PDS was enlarged and extended all over the country. In India, the public distribution system is one of the crucial tools in welfare policies. It had a greater penetration and impact on the improvement and stability of food situations in the country.

Emerging trends and situational context of the 20th and 21st centuries demanded the public distribution system be updated to meet new challenges. Post-independence situations in India have forced Indian policymakers to adopt a Universal Public Distribution System to counter the high prevalence of chronic food insecurity in India (Das, 2015). Due to the public distribution system’s welfare motive nature and huge operational cost, the efficiency and effectiveness of the system are outdated. Enlarged operation of public distribution to meet other populations at a subsidised rate made policy makers reconsider modifying the existing nature of the public distribution system. To extend the reachability of the public distribution system to geographically challenging and remote corners of the country, a new form known as Revamped Public Distribution System was introduced. Revamped PDS shifted from urban-natured rationing to rural and remote-centric operation (Das, 2015). Ensuring rural food security in a country like India is a significant requirement for overall development. Being dominated by an agri-based economy and rural-centric characteristics, much-needed attention has been required to address the rural food insecurity of India. The Statista Research Department report at the beginning of 2022 shows 905 million people living in rural India. India’s rural areas are still persistent, with 32% of poverty-ridden people (Kanwal, 2020), due to diversified causes like lack of infrastructure, proper storage facilities, seasonal, cyclical imbalance, lack of purchasing ability, absence of social security measures, lack of compensation and awareness, etc. All these challenges have made the hunger of the producer not satisfied from his plate (Kanwal, 2020). The condition of non-food producers and the rest of the rural population is severe and pathetic. The pandemic resulting in a nationwide lockdown in India has destroyed everyday life, and the overall negative impact on the economy has widely been believed to be responsible for new challenges in food security (Pathak, Gope & Bader, 2020).

The food deficit situation of Kerala has been identified for this study. Being able to

produce only 15% of the total domestic demand, this State has a history of relying on the better-performing public distribution system to meet the overall food grain demands (Venu, 2020). Western Ghat-influenced terrains and people's engagement in growing primary non-grain cultivations like rubber, coconut, and arecanut had made the rural population in Kerala extremely vulnerable to food insecurity. This study strongly believes that the universal presence of the Kerala model of public distribution system would be beneficial towards ensuring food security in rural Kerala. Kerala is one of the very few states in India with an excellent public distribution system. Introducing an electronic-enabled public distribution system has brought more structural and functional modifications to the system (Nair, 2014). This study has two significant objectives, *vis.* to comprehend the efficiency and effectiveness of the electronic-enabled public distribution system and its ability to meet rural food security needs and, to identify the accessibility challenges the rural population faces in meeting food security.

Methodology

The universe of the study was Manjeshwar taluk of Kasaragod district, the northernmost Taluk of Kerala. It is predominantly a rural one with linguistic and cultural diversity. The taluk is characterised by poor transportation and lack of physical access to PDS. Both quantitative and qualitative methods have been used for the study. Manjeshwar taluk has been selected as the universe of the study. Ten remotely located ration shops were selected out of the total 66 Fair Price Shops (FPS). From each FPS, 10 ration cardholders were selected. The total sample size of the study was 100.

Data has been collected by administering closed-ended questionnaires in Kannada and Malayalam. Multi-stage sampling technique was used to collect the data. A total of 100 respondents were selected, and questionnaires were given. Questions were set according to the Likert scale method. A Likert scale is a psychometric rating scale used to measure opinions, attitudes, or behaviors. It consists of a statement or a question, followed by a series of five or seven answer statements. Respondents choose the option that best corresponds with their feelings about the statement or question.

Results and Discussions

The objective of the study has been divided into three major variables. They are service delivery satisfaction, electronic initiative, and the accessibility of public distribution systems by the respondents. Each variable has further split into a set of questions. Likert's five-point scale ('strongly agree, agree, neutral, disagree and strongly disagree') responses were used here.

There is an individual mean value to each question, and the variable mean value will be calculated through the aggregate mean value of the question set of particular variables. The overall mean value is used to understand the overall people's perception of the performance of government programmes.

The mean value between 1 and 2 indicates positive perception, neutral if it comes closer to 3, and negative if it crosses 4 and 5. The mean value would be the best measuring tool to identify the average of the answer point. To get overall people's perception, the aggregate mean value was taken.

TABLE 1: Public Distribution System and its Service Delivery Satisfaction

Variable	Description	Mean value	Average Mean
Service delivery satisfaction	PDS food grains helped me to improve my quality of life.	1.28	1.66
	Subsidized PDS food grains help to reduce food expenditure of the family.	1.59	
	Timely and efficient distribution of food grains through FPS	1.66	
	The amount of food grain allotted for my family is sufficient for one month.	2.34	
	I am availing quality consumable food grains from PDS.	1.22	

Source: Primary Data, 2022

The effectiveness of the public distribution system was identified through the above five service satisfaction criteria. The first description is the public distribution system and quality of life. This question is intended to know whether the respondent benefited from the public distribution system or not. The mean value of 1.28 shows most of the respondents highly benefited from the service of the public distribution system. Kerala is a consumer state. Only 15% of the domestic demand is produced by the State, and major portions of food grains are imported from other states. Apart from that, the highly inflationary market situation shows not only the poor but even the middle class are significantly dependent upon the public distribution system to meet the demand for household food grains.

The second description is the continuation of the first one and about the relevance of subsidised food grains. Out of the total respondents, 83% belong to the BPL card category. The mean value of 1.59 denotes that most of the respondents are satisfied by availing subsidised food grains. In addition, Prime Minister Garib Kalyan Yojana (PMGKY) extended a subsidised benefit of 5 kg of rice and 1 kg of pulses during the pandemic period.

The third description concerns the timely and efficient food grain distribution through FPS. The mean value of 1.66 shows that the people have a positive attitude toward the service delivery pattern PDS and they also have a positive attitude towards the FPS owner's service. The pattern of precautionary measures taken since the introduction of the electronic initiative and the taluk level, the National Food Security godown, played a major role in ensuring timely food grain supply to each ration shop.

The study shows that 66.7 percent of the respondents are satisfied with the present quantity of food grains allotted to them, while 32 percent are not satisfied with the food grains. Most of those who are unsatisfied are white and blue card owners (non-

priority/ non-subsidy and priority cards).The mean value of the off-take of quality consumable food grains is 1.22. This shows that the respondents are highly satisfied with the quality of food grains. The study found that the quality of food grains distributed before the pandemic was poor, which improved during the pandemic.

The overall mean value of 1.22 shows that the present food grain distribution system has improved a lot in meeting the demand and aspirations of the people. It is also proved that; the public distribution system of Kerala is the most effective system among the Indian states. The political and administrative will to improve the system and the vibrant society are strong reasons behind the effective implementation of the public distribution system in Kerala.

TABLE 2: e-*pose* initiative in Public Distribution System

Variable	Description	Mean value	Average Mean
e- <i>pose</i> initiative	Introduction of e- <i>pose</i> (Biometric Authentication System) machine in PDS is good.	1.32	1.41
	Introduction of printed receipts from an e- <i>pose</i> machine is a better practice compared to the previous one.	1.35	
	Mobile linked PDS is helpful to know the status of food grain availability	1.56	
	Satisfaction with the electronic weighing machine	1.44	

Source: Primary Data, 2022

This table represents the respondents' views on electronic applications and the mode of usage in the FPSs. The awareness about the e-*pose* machine was checked with the first description. The mean value of 1.32 shows that most respondents are well aware of the implementation and impact of e-*pose* machines in PDS. The respondents appreciated this development as it helps reduce system leakages. The e-*pose* machine or biometric authentication system was to identify and facilitate the food grains to actual beneficiaries only. This initiative was popularised throughout India to avoid bogus cards and manual manipulations. About 86 percent of the respondents strongly believed that introducing e-*pose* machines is effective in all ways.

The second description is the continuation of the e-*pose* machine, and the intention was to know whether the respondents were aware/properly checking the printed receipt of food grains from the ration shop allotted to them. About 77 percent of the respondents agree that they are aware of it. The mean value of 1.56 shows that the respondents agree that the system is improving and getting transparent.

The third description was about the mobile message alert for availing the food grains from the ration shop. This message includes the family member's name, the allotted quantity of food grains, and the time and date of supply. This initiative was

implemented by linking Aadhar numbers with their ration cards. This process will help the beneficiaries to ensure the accessibility of assured monthly allotment of food grains to the respective cardholders. About 90 percent of the respondents opined that they are receiving messages on time.

The last description is about using electronic weighing used in FPSs to measure the food grains. Conventional balance was used earlier to measure the weight of food grains. The accuracy of the balance was disputed by the cardholders earlier. With the introduction of digital weighing machines, transparency, and accuracy were ensured. About 96 percent of the respondents opined that their respective ration shops use digital weighing machines.

TABLE 3: Convenience and Ability to Access the Public Distribution System

Variable	Description	Mean value	Average Mean
Accessibility	Distance between ration shop and home	3.49	2.45
	Mode of transport of food grains from the PDS Outlets to home	1.99	
	Proper road connectivity	1.13	
	Difficulty in transporting a bulk quantity of food grains from PDS to home	2.75	
	Transportation difficulty due to the remoteness of dwelling place	2.91	

Source: Primary Data, 2022

This variable aimed to understand rural people's convenience, ability, and constraints in accessing nearby ration shops. The researchers studied the impact of the geographical features like hilly areas in Manjeswar taluk, the availability of road connections and the mode of transportation facility, and other complex issues rural beneficiaries face. Out of the total respondents, 61 percent are below the poverty line. For them, owning a vehicle and hiring is a challenge. Only 22 percent of the respondents have a vehicle, and almost 55 percent depend on taxis because of the difficulty of covering long distances. As per the data, 23 percent of the people are still manually transporting the food grains. Besides this, 70 percent of the respondents' houses are more than 2 km from the ration shop. This hampers the easy transportation of food grains from the ration shop to their dwelling place. About 48 percent of the respondents shared that they face difficulty accessing food grains. There should be FPSs available to people within a radius of 2 km. The need for enhancing appropriate measures to address the remote area difficulty is significant.

Findings and suggestions

Rural people are positive toward electronic tools like e-pose machines and other instruments. They firmly believe that the scope of the space for corruption is reduced, and the service delivery patterns are improving gradually. Since the introduction of

e-*pose* machines, some issues have cropped up. Sometimes, the e-*pose* machine doesn't recognise the fingerprints of manual workers. Instances were reported when the food grains were denied to such consumers. Besides, server disconnection or malfunctioning has also brought delays in the distribution of food grains. Special attention must be given to solving the issue related to the fingerprint identification of manual workers. Alternative methods like valid document verification can be effectively implemented to ensure the timely delivery of the services to them. Upgrading the technical tools is essential to avoid malfunctioning and technical breaks down.

The freebies with special food grain kits during the pandemic and the Onam festival greatly relieved consumers from the inflationary market price. For the blue ration card category or priority ration card holders, the insufficiency of food grains to meet the overall household food expenditure was a significant issue. At the same time, Antyodaya Anna Yojana cardholders revealed that they were receiving more than they wanted. The government must ensure the periodical evaluation of subsidised and priority cards and the type and quantity of food grains each cardholder needs.

As per the Kerala Rationing Order 1966, there is a proper direction that ration shops must be set up with an average periphery distance of two kilometer. Unfortunately, such criteria were not fulfilled in rural locations. This scenario is not a good sign for the subsidy and priority ration card holders. Carrying larger quantities of food grains will adversely affect their health. If a cardholder hires a taxi to transport food grains, the government shall reimburse the taxi charges.

More ration shops shall be opened in deprived areas to ensure the supply of food grains and improve the recipients' physical and financial access. Another suggestion is to open mobile ration shops in remote areas. Supplyco has already started this initiative. Only political and economic support is needed to expand this service. Beneficiaries who are unable to transport their goods or who must travel a long distance must be identified, and arrangements for the distribution of food grains every week should be started. To prevent the inflationary problem the rural people face, special food grain kits should be given to fulfill their needs.

Conclusion

The PDS in Kerala constitutes the foundation on which the entire food security system is founded. The state has the distinction of running the best PDS in India in terms of efficiency and access. The PDS has gone a long way in Kerala during the last decade. Modernisation and digitisation activities, renovation and automation of ration shops and implementation of the E-Ration Card Project has revolutionised the sector. The issue of ATM card type ration cards, introduced One Nation One Ration Card for easy accessibility of ration from anywhere and installation of E-PoS machines in all fair price shops in the State and an efficient enforcement mechanism ensured a better delivery system. The state ensured universal coverage by issuing ration cards to almost all sections of the people and families even beyond the scope of NFSA. The state ensured end to end computerisation, grievance redressal portal, supply chain management from Food Corporation of India to the authorised ration dealers-level, GPS tracking of vehicle carrying food grains and CCTV installation for efficient and transparent service delivery. The study shows that revolutionary changes has occurred in the PDS in Manjeswar Taluk. The priority sectors were particularly benefited by the revamped system. The system could ensure better availability and accessibility. Availability and utilisation were not covered in the study as it requires

extensive research based on scientific tools and techniques.

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