

An Analysis of the Public Distribution System: Coverage and Utilization in The Sikkim Himalayas”

Pragya Tamang^{1*}, Praveen Rizal²

^{1*}Research Scholar, School of Social Sciences, Department of Economics, SRM University Sikkim, tamangpragya.nov@gmail.com

²Associate Professor, School of Social Sciences, Department of Economics, SRM University Sikkim, praven.rizal@gmail.com

How to cite this article: Pragya Tamang, Praveen Rizal (2024) An Analysis of the Public Distribution System: Coverage and Utilization in The Sikkim Himalayas”. *Library Progress International*, 44(3), 26219-26231

1. ABSTRACT

The Public Distribution System (PDS) in India is a government program aimed at ensuring food security, especially for those who belong to below the poverty line. It distributes essential commodities like rice, wheat, and kerosene at a subsidized rate through Fair Price Shops. In Sikkim, limited agricultural capacity due to geography results in high living costs, increasing dependency in importing food grains from neighbouring states. The Public Distribution System helps economically weaker sections by providing affordable food, contributing to the state's economic development and improving residents' quality of life. Therefore, the present study is focused on ascertaining the utilisation of the Public Food Distribution System in accordance with its coverage, aiming to identify any potential gaps to determine the effectiveness of the PDS in Sikkim state. The study is based on primary data collected from the ration card holders following a stratified random sampling method and the gap analysis has been conducted by making a difference between the coverage wise utilisation and the utilisation which has actually been undertaken by the beneficiaries. The study discloses a gap of 325 metric tons of rice indicating underutilization of foodgrains. It was observed that PHH beneficiaries often overconsume, while those under the Antyodaya Anna Yojana (AAY) and Other Priority Household-General (OPH-General) schemes face under consumption due to misguidance from shop owners and rigid distribution practices.

Keywords: Public Distribution System(PDS), Fair Price Shop (FPS), Food Security

2. INTRODUCTION

The Public Distribution System (PDS) in India has evolved significantly since its inception, starting as a wartime rationing during World War II to manage food shortages. Originating during the 1940s to manage wartime shortages, the PDS has expanded its coverage over the decades to encompass a wider range of essential commodities, including rice, wheat, sugar, and kerosene, distributed through a network of Fair Price Shops (FPS) across the country (**Planning Commission of India, 2014**). The Green Revolution of the 1960s and 1970s marked a pivotal period for the PDS, leveraging increased agricultural production to distribute surplus grains efficiently across the country aiming to ensure food security to masses of population in India. Over the years, since its initiation the system has undergone significant transformations in terms of coverage and utilization, reflecting its evolution as a critical mechanism for ensuring food security and alleviating poverty.

Over the years, the system witnessed significant reforms in the 1990s with the introduction of the Targeted Public Distribution System (TPDS), which aimed to enhance targeting efficiency by focusing subsidies on Below Poverty Line (BPL) households through income and asset-based criteria (**Ministry of Consumer Affairs, Food and Public Distribution, Government of India, 2020**). Additionally, technological innovations such as

computerization, Aadhaar linkage for beneficiary authentication, and Direct Benefit Transfer (DBT) mechanisms have been adopted to improve transparency and reduce leakages within the PDS (**National Food Security Act, 2013**). The enactment of the National Food Security Act (NFSA) in 2013 further solidified the legal framework of the PDS, expanding its scope to provide subsidized food grains to a larger section of the population.

In the context of Sikkim, the Public Distribution System operates to mitigate challenges posed by the state's adverse geographical terrain, which limits local food grain production and increase the dependency on neighboring states for importing food grains and other essential food commodities causing a higher cost of living. Despite these challenges, the PDS plays a crucial role in ensuring food security by distributing essential commodities through a network of Fair Price Shops (FPS) at subsidized rates, thereby alleviating economic burdens for vulnerable sections of society (**Singh & Ghosh, 2020**). Efforts in Sikkim focus on improving the efficiency of distribution channels and ensuring equitable access to subsidized food grains, contributing to overall economic stability and the well-being of its residents. Although with rigorous efforts laid down by the Government of Sikkim in effective operation of the system it was observed by the Comptroller and Auditor General of India in the year 2016 that the system lacked in updating the beneficiaries list which can possibly lead to a gap in the coverage and utilization of PDS in Sikkim state. The present study aims to identify and address the gaps between the coverage and utilization of the PDS and determine the factors responsible for these gaps in the effective operation of PDS in Sikkim state.

In Sikkim, the system has its origin in the year 1978 (**Tamang & Rizal, 2023**). Since its establishment, the total coverage of the system has oscillated over time. Coverage refers to the total number of ration card holders or beneficiaries accounted under the system who are eligible enough to acquire food security from the government through the Public Distribution System. In Sikkim, the types of ration cards are not just limited to the National Food Security Act (NFSA) beneficiaries that is Priority Households (PHH) and Antyodaya Anna Yojana (AAY) but the system also provides shelter to Non-NFSA beneficiaries which are divided into three categories namely Other Priority Household- General (OPH-Gen.), Other Priority Household-Special (OPH-Spe.) and Non-Priority Household (NPH). The NFSA beneficiaries such that PHH is entitled to 5 kg of rice per person per month at 3 rupees per kg and AAY is entitled to 35 kg of rice per kg per household at 3 rupees per kg. On the other hand, Non-NFSA beneficiaries namely OPH-General and OPH-Special are entitled to 9.18 kg of rice per person at 11.34 rupees per kg every month (Government of Sikkim, 2022). Moreover, no allocation of rice is made for NPH card holders as it belongs to wealthy people such as retired government officers, etc., and is used for documentation purposes only.

Since the entitlements differ across different types of cards, therefore, the study puts forward towards comprehending the utilization of commodity rice by beneficiaries distributed through the system concerning its coverage in Sikkim in order to observe if there is any gap between the coverage and utilization of distributed food commodity rice in Sikkim and what are the major cause for it if witnessed so.

2.1 REVIEW OF LITERATURE

In exploring the utilization and effectiveness of the Public Distribution System (PDS) across India, a detailed narrative emerges from various empirical studies that shed light on the system's intricate workings and its impact on diverse socio-economic groups. **Gupta & Mishra (2018)** provide insights into Uttar Pradesh's PDS dynamics, where the distribution of Antyodaya Anna Yojana (AAY) and Below Poverty Line (BPL) cards is pivotal in supporting marginalized communities in economically backward regions, ensuring substantial utilization of subsidized food grains. However, the study also highlights challenges such as additional costs borne by consumers at fair price shops, which can undermine the affordability benefits intended by the PDS. Meanwhile, **PG's (2017)** examination of the Colachel Municipality in Tamil Nadu reveals local nuances affecting PDS utilization, including issues with irregular operating hours of fair price shops and inadequate communication channels between beneficiaries and shop operators. Despite these challenges, the study notes a moderate level of satisfaction among respondents regarding the overall functioning of the PDS.

In Rajasthan, **Kheera (2011)** discusses factors contributing to low utilization rates of PDS commodities, attributing this phenomenon to the competitiveness of market prices and logistical constraints in distribution networks. **De's (2000)** study on Tripura underscores broader challenges in food security, where physical and economic barriers hinder the effective implementation of PDS initiatives aimed at bolstering local production and distribution systems. **Dutta and Ramaswami's (2001)** comparative analysis between Andhra Pradesh and

Maharashtra reveals contrasting levels of PDS coverage and operational efficiency, emphasizing the role of administrative transparency in optimizing system performance.

Das and Sengupta (2017) highlight disparities in food security across different social groups in India, with vulnerable communities such as Muslims and tribal populations experiencing heightened levels of insecurity.

Rahman's (2014) examination of rural India underscores the critical role of the PDS in improving food security among Scheduled Castes and Tribes, demonstrating a positive trend in consumption patterns over time. **Nair's (2011)** study on Kerala reflects shifting consumption trends following the implementation of the Targeted Public Distribution System (TPDS), suggesting that socio-economic factors continue to influence household reliance on PDS provisions. **Chakraborty and Sarmah's (2018)** forward-looking analysis forecasts future demands for PDS services based on demographic trends, advocating for infrastructural upgrades to accommodate growing needs.

Goli's (2011) research highlights disparities in PDS offtake among socio-economic classes, pointing to bureaucratic hurdles and eligibility criteria discrepancies as barriers to equitable access. **Kheera's (2008)** critique of Rajasthan's BPL selection criteria reveals systemic flaws in targeting methodologies, contributing to inefficiencies in reaching intended beneficiaries.

Pal's (2011) examination of operational inefficiencies in PDS commodity distribution underscores governance challenges at the grassroots level, where inadequate infrastructure and logistical management contribute to consumer dissatisfaction. **Kishore and Chakrabarti (2015)** analyse the impact of TPDS reforms across five states, noting improvements in grain distribution efficiency and diversified food consumption patterns among beneficiaries. **Mahendran (2013)** explores the complexities faced by tribal communities in accessing PDS benefits, citing infrastructural inadequacies and administrative lapses as critical barriers to effective service delivery. Collectively, these studies illuminate the complex interplay of policy frameworks, socioeconomic dynamics, and administrative capacities that shape the outcomes of the PDS across India's diverse geographical and demographic landscape.

2.2 RESEARCH GAP

This study fills the gap by conducting a research on the effective operation of the PDS in Sikkim as such minimum research has been conducted in context to Sikkim. Also, the study fills the gap on studying the actual utilization of food grains by ration card holders from the Public Distribution System (PDS) in Sikkim according to its coverage to determine if there is any gap between the coverage and utilisation of distributed food commodities by beneficiaries in Sikkim.

2.3 STATEMENT OF THE PROBLEM

From the review of literature, it has been observed that the PDS plays a crucial role in providing subsidized food grains to economically vulnerable populations all over India, yet it faces significant hurdles such as operational inefficiencies, bureaucratic hurdles, and eligibility criteria discrepancies. Regional variations in PDS implementation further complicate its effectiveness, with issues ranging from irregularities in fair price shop operations to logistical constraints in distribution networks. Despite these challenges, the studies also underscore moderate levels of satisfaction among beneficiaries regarding the PDS's overall functioning.

In context to Sikkim, it has been observed that according to the CAG report, 2016, the Public Distribution System in Sikkim has been criticized for not updating the list of beneficiaries, issuance of dual ration cards resulting in availing double benefits of rice, and diversion of kerosene oil to Department officials led to the exclusion of benefits from the actual intended beneficiaries. Therefore, it is a major concern to look at whether the state government keeps an update of the beneficiary lists or not at present because any failure in the update of the beneficiary lists will lead to a larger quantity of foodgrains allocated by the central being left unused or it may create a space for diversion of grains out of the PDS chain. Therefore, an attempt has been made to conduct a gap analysis between the coverage and utilization of the Public Distribution System in Sikkim and also to determine the factors responsible for a gap between the coverage and utilisation of PDS commodities by beneficiaries in Sikkim state.

2.4 OBJECTIVE OF THE STUDY

1. To analyse the gap between coverage and utilisation of Public Distribution System in Sikkim state.
2. To determine the factors responsible for the gap between the coverage and utilisation of PDS in Sikkim state.

2.5 HYPOTHESIS OF THE STUDY

The hypothesis of the study are as follows:

1. Utilization of the PDS does not differ on a particular type of ration card in Sikkim.
2. Utilization of the PDS does not differ among rural and urban areas in Sikkim

2.6 METHODOLOGY

2.6. Research Design

The present study has been designed to carry out a descriptive and analytical research to comprehend the coverage and utilisation of PDS in Sikkim state to determine the gap if there is any.

2.6. Data and Sources

The study comprises of both primary and secondary data. The primary data has been collected following a survey questionnaire targeting the ration card holders enrolled under the system to consume the benefits offered by the government through the Public Distribution System to comprehend the actual utilisation of distributed PDS commodities according to its coverage in Sikkim state. On the other hand, the secondary data was collected from the Ministry of Consumer Affairs, Food and Public Distribution System, Department of Food and Public Distribution, Government of India as of 1st September 2021, Food and Civil Supplies and Consumer Affairs, Government of Sikkim.

2.6. Statistical Tool Used

The statistical tool used in the study for testing the hypothesis was independent sample ttest and One-Way ANOVA.

To observe the coverage of the Public Distribution System in Sikkim, secondary data was collected from the Ministry of Consumer Affairs, Food and Public Distribution (Government of India and Government of Sikkim). This will give us the total number of the PDS population as per the ration card type spread across all four districts of Sikkim. The observation of the coverage of the Public Distribution System in Sikkim will be done district-wise concerning the type of ration card.

The primary data was collected from the ration card holders to determine the actual quantity of foodgrains consumed by them from nearby fair price shops per month against their entitled quota depending upon the type of ration card an individual hold. Once the average quantity of foodgrains consumed by ration card holders from fair price shops is collected through a primary survey its value is further multiplied by to total PDS population as per the ration card type which will therefore provide the total actual utilisation of PDS foodgrains in Sikkim. The total number of PDS population as per the ration card type was referred from the data collected to observe the coverage of PDS in Sikkim. The total quantity of PDS foodgrains utilized in Sikkim per month was calculated by multiplying an average quantity of rice consumed per month by beneficiaries with the population or coverage of PDS according to its card type in Sikkim which has been formulated by the researcher itself.

2.7 Gap Analysis

The utilization gap of commodity rice in the study was observed by taking a difference between the coverage wise utilisation of rice and actual utilization of rice according to different types of card in Sikkim state which has been formulated by the researcher itself.

2.7. Sample Design

The study is based on a mixed method of collecting data for comprehending a coverageutilisation gap analysis of Public Food Distribution System in a small Himalayan Sikkim state. The secondary data has been collected from the Ministry of Consumer Affairs, Food and Public

Distribution System, Department of Food and Public Distribution, Government of India (1st September 2021), Food and Civil Supplies and Consumer Affairs, Government of Sikkim. The primary survey has been conducted by targeting a ration card holders using a proportionate stratified random sampling method. The total number of PDS ration card holders is 1,38,056 lakhs in Sikkim. Out of the total number of ration card holders in Sikkim, the sample size is determined as 390 following a Slovin's formula with 5 percent as a margin of error. The distribution

of ration card holders across districts of Sikkim is according to the old formation of districts as such the data was extracted in September 2021 before the formation of two new districts with the already existing four districts.

Of the total 390 sample size, 256 ration card holders from East Sikkim and 134 ration card holders from West Sikkim were surveyed for the study. In East Sikkim, 256 ration cards were proportionately distributed to rural – Nandok (43), W-Pendam (40) and urban – Sichey (81) and Arithang (92). In Nandok, 43 samples were again proportionately distributed to different types of cards in Sikkim that is PHH (30), AAY (5), OPH-General (5), OPH-Special (1), NPH (2), and 40 sample data from W-Pendam was proportionately distributed to PHH (25), AAY (8), OPH-General (4), OPH-Special (0), NPH (3). In urban Sichey, 81 sample data was proportionately distributed to PHH (35), AAY (2), OPH-General (33), OPH-Special (0), NPH (11) while 92 sample data from Arithang was proportionately distributed to PHH (31), AAY (1), OPH-General (53), OPH-Special (0), NPH (7). On the other hand, 134 ration card holders from the West were proportionately distributed to rural: Sombaria (40), Lingchom (8), urban: Soreng (49), and Gyalshing (37). In rural Sombaria, 40 samples were again proportionately distributed to different types of card in Sikkim i.e. PHH (27), AAY (6), OPH-General (5), OPH-Special (0), NPH (1) and 8 sample data from Lingchom was proportionately distributed to PHH (2), AAY (2), OPHGeneral (2), OPH-Special (0), NPH (2) and in urban Soreng, 49 sample data was proportionately distributed to PHH (32), AAY (8), OPH-General (8), OPH-Special (0), NPH (1) while 37 sample data from Arithang was proportionately distributed to PHH (22), AAY (5), OPH-General (8), OPH-Special (1), NPH (1).

2.7. Limitation of the study

1. The present study is confined towards comprehending the effective operation of the Public Distribution System to determine the coverage-utilisation gap in Sikkim state from the vision of the ration card holders.
2. The findings of the study are limited to Sikkim state; therefore, they may not be applicable to the study of the system in other states.

2.8

2.9 RESULT AND DISCUSSION

The Public Distribution System has been operative in India to offer food security to economically weaker sections of society for a very long period. Though the coverage as well as structure evolved, its objective has still remained the same. In Sikkim, the system roots its origin in the year 1978 (Tamang & Rizal, 2023). Since its establishment, the total coverage of the system has oscillated over time. Coverage refers to the total number of ration card holders or beneficiaries accounted under the system who are eligible enough to acquire food security from the government through the Public Distribution System.

In Sikkim, the types of ration cards are not just limited to the National Food Security Act (NFSA) beneficiaries that is Priority Households (PHH) and Antyodaya Anna Yojna (AAY) but the system also provides shelter to Non-NFSA beneficiaries which are divided into three categories namely Other Priority Household- General (OPH-Gen.), Other Priority Household-Special (OPHSpe.) and Non-Priority Household (NPH). The NFSA beneficiaries such that PHH is entitled to 5 kg of rice per person per month at 3 rupees per kg and AAY is entitled to 35 kg of rice per kg per household at 3 rupees per kg. On the other hand, Non-NFSA beneficiaries namely OPH-General and OPH-Special are entitled to 9.18 kg of rice per person at 11.34 rupees per kg every month (Government of Sikkim,2022). Moreover, no allocation of rice is made for NPH card holders as it belongs to wealthy people such as retired government officers, etc., and is used for documentation purposes only.

Since the entitlements differ across different types of cards, therefore, the study puts forward towards comprehending the utilization of commodity rice by beneficiaries distributed through the system concerning its coverage in Sikkim in order to observe any gap between the coverage and utilization of distributed food commodity rice by beneficiaries in Sikkim and what are the major cause for it if witnessed so.

2.10 Total Coverage of Public Distribution System in Sikkim

The coverage of the system has been stretched more widely after the implementation of the National Food Security Act. Since 1978, the system has been offering shelter to some sections of the population in Sikkim which time to time oscillates depending upon the economic status and growth of the population in Sikkim over a while. Moreover, as such there is no domestic procurement followed in Sikkim resulting in the offtake of required food grains from the Central Food Corporation of India (FCI) based on the coverage of the system concerning respective entitlements.

The following table displays a detailed study of the coverage of the Public Distribution System in Sikkim according to the district as well as card-wise.

Table 4.2.1: District-wise total coverage of PDS beneficiaries in Sikkim

District	PDS Beneficiaries	Percentage
East	239687	45
North	33731	6
South	131040	24
West	131016	24
Total	535474	100

Source: Ministry of Consumer Affairs, Food and Public Distribution System, Department of Food and Public Distribution, Government of India (1st September 2021)

Table 4.2.1 exhibits a district-wise total coverage of PDS beneficiaries in Sikkim. The distribution of PDS beneficiaries across districts of Sikkim is according to the old formation of districts as such the data was extracted in September 2021 before the formation of two new districts with the already existing four districts. The major difference between the ration card and beneficiaries of the Public Distribution System (PDS) in Sikkim is that the holder of the ration card will be as per the household or welfare institution whereas the other members of the household will be listed on the same card which differs from one household or welfare institution or organization to another depending upon the size of a family known as PDS beneficiaries. Out of 5,35,474 lakhs beneficiaries under Public Distribution System, 45 percent (2,39,687 lakhs) of the beneficiaries were located in the East district of Sikkim. This is mainly because the East district is the most populated area with Gangtok being the main administrative and business centre. The beneficiaries were found to be minimum in the North district of Sikkim with 33731 lakhs which is only 6 percent. The predominant inhabitants in North district are majorly tribal Lepcha, Bhatia's and Nepalese are in lesser numbers. A larger part of the areas falls under restricted and prohibited areas and special permissions are required to visit some of the areas in North Sikkim. Since, North district is the least developed among the four districts, therefore, majority of the people migrate to capital hub which is Gangtok for better education for their children and other requirements. On the other hand, a minimal difference was found to be seen between the South and West district of Sikkim with 1,31,040 lakhs (24 percent) beneficiaries in the South and 1,31,016 lakhs (24 percent) beneficiaries in the West district.

Table 4.2.2: District-wise total coverage of ration cards in Sikkim

District	Ration cards	Percentage
East	65295	47
North	8979	6
South	33048	24
West	31249	23
Total	138571	100

Source: Ministry of Consumer Affairs, Food and Public Distribution System, of Food and Public Distribution, Government of India (1st September 2021)

Table 4.2.2 elucidates that out of a total of 1,38,571 lakhs ration cards, the majority of the ration cards were located in the East district of Sikkim which is 65,295 thousand ration cards (47 percent) and only 8979 thousand ration cards (6 percent) were found to be in the North district of Sikkim. A total of 33,048 thousand ration cards (24 percent) were found to be located in the South district and 31,249 thousand ration cards (23 percent) in West Sikkim.

Table 4.2.3: Card-wise total coverage of PDS ration card holders in Sikkim

Type of Ration Cards	Ration Cards	Percentage
PHH	73848	53
OPH (Special)	94	0

OPH (General)	36831	27
AAY	16500	12
NPH	11298	8
Total	138571	100

Source: Ministry of Consumer Affairs, Food and Public Distribution System, Department of Food and Public Distribution, Government of India (1st September 2021)

Table 4.2.3 determines card wise total coverage of ration card holders in Sikkim. Out of a total of 138571 lakhs ration cards, most of the ration cards are Priority Household (PHH) card holders in Sikkim i.e. 73848 thousand (53 percent). The minimum number of cardholders is Other Priority Household-Special (OPH-Spe.) with only 94 cards in Sikkim because the OPH-Special category includes welfare institutions located across the state in Sikkim which is less in comparison to the number of household acquiring benefits from the system. Furthermore, the study observed a total of 36831 thousand (27 percent) ration cards as Other Priority Household-General (OPH-Gen.), 16500 thousand (12 percent) ration cards were Antyodaya Anna Yojana (AAY) and 11298 thousand (8 percent) ration cards belonged to the Non-Priority Household (NPH) category in Sikkim. **Table 4.2.4: Card-wise total coverage of PDS beneficiaries in Sikkim**

Type of Ration Cards	PDS Beneficiaries	Percentage
PHH	310503	58
OPH-Special	2358	0
OPH –General	126451	24
AAY	57805	11
NPH	38357	7
Total	535474	100

Source: Ministry of Consumer Affairs, Food and Public Distribution System, Department of Food and Public Distribution, Government of India (1st September 2021)

Table 4.2.4 depicts card wise total coverage of PDS beneficiaries in Sikkim. Out of a total of 535474 lakh beneficiaries in Sikkim, it has been observed that a maximum number of beneficiaries that is 310503 lakhs (58 percent) belonged to the PHH category due to a large number of PDS population holding PHH ration cards. On the other hand, the lowest number of beneficiaries has been observed in the OPH-Special category which is only 2358 thousand beneficiaries resulting from a minimum number of OPH (Special) ration card holders in Sikkim. Further, a total of 126451 lakhs (24 percent) beneficiaries belonged to the OPH (General) category, 57805 thousand (11 percent) beneficiaries and 38357 thousand (7 percent) beneficiaries belonged to AAY and NPH categories respectively in Sikkim.

2.10. 4.3 Utilization of Public Distribution System in Sikkim

Utilization of the Public Distribution System in Sikkim is observed by understanding what is the real or actual utilization of the allocated quantity of rice in comparison to the total coverage of the system according to its card type to comprehend if there is any gap between the actual utilization being undertaken and the utilization that was supposed to be conducted concerning the coverage of the system in Sikkim. Therefore, the utilisation of the distributed commodity rice by beneficiaries from the system in the study has been determined by observing the actual utilisation through primary survey and utilisation that is supposed to be conducted according to its coverage in Sikkim state such that their difference will determine

2.11 Actual Utilisation of Commodity- Rice According to Card Type in Sikkim

The following table shows the calculated value of actual consumption of commodity rice distributed through PDS system to beneficiaries against their allocated quota of rice using primary data collected through questionnaire

Table 4.3.1: Card-wise actual utilization of rice per month in Sikkim

Card Type	Ration cards*	Average Quantity Consumed (per household/month (kg))	Utilization (rice per month-in kg)	Utilization Of rice (in percentage)
PHH	73848	23	1698504	52
OPH-Spe.	94	235	22090	1
OPH –Gen.	36831	28	1031268	31
AAY	16500	32	528000	16
NPH	11298	0	0	0

Source: Computed using primary and secondary data. *Ministry of Consumer Affairs, Food and Public Distribution System, Department of Food and Public Distribution, Government of India (1st September 2021)

Total Actual Utilisation of Rice = 3279862 (kg) or 3279.862 MTs

Table 4.3.1 showcases card-wise actual utilization of rice per month in Sikkim. The study observed that the average quantity of rice consumed by households per month differs across different categories of ration cards in Sikkim resulting from variations in the entitlement according to different types of cards. The average quantity of rice consumed by each household belonging to the PHH category is 23 kilograms per month.

Similarly, 28 kilograms, 32 kilograms, and 235 kilograms of rice are consumed by each household belonging to OPH (General), AAY, and OPH (Special) cards respectively. The study observed that the average utilisation of commodity rice by each OPH-Special card is more in comparison to other card types. This variance is attributed to the fact that each OPH-Special card covers a greater number of beneficiaries’ who reside in a welfare institution like orphanages and monasteries. Consequently, these leads to higher consumption of commodity rice compared to households who are covered by other card types in Sikkim. On the other hand, the average consumption of rice by households having NPH ration cards is zero because this type of card belongs to a wealthy family and they only use cards for document purposes.

Furthermore, the card-wise total utilization of rice per month in Sikkim is determined by multiplying the average consumption of rice with the PDS population such that the total number of ration cards and summation of card-wise utilization of rice provides a total value of actual utilization of Public Distribution System in Sikkim. Table 4.3.1 shows that maximum utilization has been undertaken by the PHH category viz. 1698.504 metric tons (52 percent) resulting from extreme coverage of PHH in Sikkim. A quantity of 22.09 metric tons (one percent), 1031.27 metric tons (31 percent), and 528 metric tons (16 percent) rice were utilized by OPH (Special), OPH (General), and AAY cards respectively which exhibit a total value of approximately 3279.862 metric tons (MTs) of rice being actually utilized from Public Distribution System in Sikkim every month.

The utilisation varies among different card types due to the three reasons. Firstly, the coverage of the system varies between NFSA and Non-NFSA where NFSA includes PHH and AAY card holders while Non-NFSA includes OPH-General, OPH-Special and NPH. Secondly, the entitled quantity and price differs among different card type issued by the government. Thirdly, while doing survey the study observed that a majority of the cardholders who are covered under OPH-General card type were unsure about the availability of subsidised commodity rice for them resulting from misguidance by fair price shops giving them false information that there is no ration available for them while some of the household were found to be consuming only occasionally during festive season.

2.12 Coverage wise Commodity Rice to be consumed by ration card holders with respect to its government entitled quota in Sikkim

The following table shows the coverage wise utilisation of commodity rice that should be consumed by ration card holders with respect to the respective entitlements.

Table 4.3.2: Coverage wise utilization of Public Distribution System in Sikkim

Types of Ration Card	*PDS Population	*Allocated quantity of rice	Utilisation of rice per month (in Metric Tons)	Converting Utilisation of rice per month -kg into Metric tons	Percentage
PHH	310503	5kg/person	1552515	1552.515	47
OPH-Special	2358	9.18/ person	21646.44	21.64644	1
OPH-General	126451	9.18/ person	1160820.18	1160.82018	35
AAY	16500	35 kg/household	577500	577.5	17
NPH	38357	0	0	0	0

Source: Computed using secondary data. *Ministry of Consumer Affairs, Food and Public Distribution System, Department of Food and Public Distribution, Government of India (1st September 2021), Food and Civil Supplies and Consumer Affairs, Government of Sikkim

Coverage wise utilisation of rice = 3312481.62 (in kg) or 3312.482 MTs

Table 4.3.2 displays utilization of the Public Distribution System that should have been undertaken concerning its card wise coverage in Sikkim. The above table includes the allocated quota of rice which differs across different types of cards and accordingly, the PDS population has been extracted from the Ministry of Consumer Affairs, Food and Public Distribution System, Department of Food and Public Distribution, Government of India (1st September 2021). The study observed that for households having PHH, OPH (General), and OPH (Special) cards the allocation of commodities is conducted per person which denotes that the larger the size of the family listed under their respective head of the family ration card the greater the possibility for more quantity of commodity rice to be consumed. Therefore, the PDS beneficiaries have been taken as the PDS population for PHH, OPH (General), and OPH (Special) cards because beneficiaries refer to the whole total of PDS population in Sikkim while ration card includes only the head of the family on whose name the ration card is made and under which the family members gets added.

On the other hand, the number of ration card holders has been taken as the population for the AAY category because the allocation for this type of card is regulated on a per household basis. Now, the evaluation of the total value of coverage-wise utilization of rice per month according to its card type has been formulated by multiplying the PDS population with the allocated quantity of rice. The total utilization of rice that should have been attempted concerning its coverage in Sikkim is 3312.482 metric tons of rice out of which a maximum of 1552.52 metric tons (47 percent) should have been utilized by the PHH category followed by a quantity of 577.500 metric tons (17 percent), 1160.82 metric tons (35 percent), 21.64644 metric tons (one percent) to be utilized by AAY, OPH (General) and OPH (Special) category respectively. Moreover, the allocation for Non-Priority Households is zero because this type of card belongs to wealthy households like retired government officers who use it for document purposes only resulting in the utilization being zero.

2.12. 4.4 Utilisation Gap Analysis

The gap analysis has been conducted to determine if there is any gap between the actual utilisation and coverage-wise utilisation of commodity rice according to its types of card in Sikkim. The utilisation gap has been evaluated by making a difference between the total calculated value of actual utilisation and coverage wise consumption of distributed commodity rice per month under Public Distribution System (PDS) in Sikkim state.

Table 4.4.1: Utilisation Gap

Type of Ration Cards	Actual Utilisation of rice per month (MTs)	Coverage wise utilization of rice per month (MTs)	Gap (MTs)	Percentage (%)

PHH	1699	1553	146	45
OPH (Special)	22	22	0	0
OPH(General)	1031	1161	130	40
AAY	528	578	50	15
NPH	0	0	0	0

Source: Computed using primary and secondary data

Total Utilisation gap =325 MTs

Table 4.4.1 delineates that a total quantity of 325 metric tons of rice is bridging a gap between the coverage wise and actual utilization of distributed commodity rice under the system in Sikkim. According to the coverage of the Public Distribution System in Sikkim, the utilization of rice was supposed to be 3312 MTs but the study constituted that metric tons of rice is being utilized marking a gap of 325 metric tons of rice conveying under exploitation of PDS commodity rice in Sikkim which can be remedied by bringing transparency while distributing commodity – rice and making beneficiaries aware of their entitled quota and entitled price accompanied by consistently scrutinizing the distribution action of the fair price shop by the Food and Civil Supplies and Consumer Affairs, Government of Sikkim.

According to the different types of card that exist under the PDS system in state, the study observed that out of a total of 325 metric tons of rice, a quantity of 146 metric tons (45 percent) of rice was overly utilized under the Priority Household category. On the other hand, utilization of rice was found to be underexploited in the case of two types of card namely OPH – General and AAY such that it was underused by 130 metric tons (40 percent) and 50 metric tons (15 percent) of quantities respectively.

2.13 Testing of Hypothesis

On the basis of the analysis and discussion, the hypothesis has been tested accordingly. The hypothesis of the study has been tested as per the requirement of the kind of statistical tools. For the first hypothesis, Independent Sample T-test has been applied. In the second hypothesis, a One- Way ANOVA has been conducted and the third hypothesis has been tested using Multiple Linear Regression Analysis.

2.14 HYPOTHESIS- 1

The first hypothesis of the study has been framed as;

“There is no significant difference on utilization of the PDS among rural and urban areas in Sikki”

Table 4.6.1: Independent Sample T-test

t	df	Sig. (2tailed)	Mean Difference	Std. Error Difference
0.755	388	0.451	2.05685	2.72474

Source: Computed using primary data collected through questionnaire

An independent sample t-test was conducted to observe the differences in utilisation of PDS commodity rice by ration card holders residing in rural and urban areas in Sikkim. The study observed that there is no significant difference in the utilisation of PDS commodity rice between rural and urban areas in Sikkim with p-value equals to 0.451 (mean difference = 2.0 and standard error difference = 2.7). Hence, the study accepts the hypotheses indicating no significant variations in the utilization of PDS commodity rice between rural and urban areas in Sikkim.

HYPOTHESIS- 2

The second hypothesis of the study has been framed as;

2.15 “Utilisation of the PDS does not differ on particular type of ration card in Sikkim”

2.16

2.17

2.18

2.19

Table4.6.2: Significant test

Variable		Sum of Squares	Df	Mean Square	F	Sig.
Utilisation of CommodityRice	Between Groups	150626.941	4	37656.735	144.480	.000
	Within Groups	100344.703	385	260.636		
	Total	250971.644	389			

Source: Computed using primary data collected through questionnaire

A One-way ANOVA was conducted to observe the differences in the utilisation of PDS commodity-rice categories of card holders in Sikkim. The result revealed a statistically significant difference in utilization among the different types of cards ($F(4, 385) = 144.480$) with p value equals .000. Based on the utilisation of commodity rice, there is a relative difference between PHH card holders (mean= 23.16), AAY card holders (mean= 32.7), OPH-General (mean= 28.1) and OPH- Special (mean= 234.6). Hence, the study rejects the hypotheses. This indicates that there are distinctions in the usage patterns of PDS commodity rice across the various card holder categories. Consequently, the study rejects the hypothesis, suggesting that there are indeed differences in utilization based on the type of card held by individuals in Sikkim.

2.19. Discussion

The Public Distribution System (PDS) stretched across all the states in India stands as a cornerstone of public intervention, promising to enhance food security to a wide spectrum of economically disadvantaged segments of society. The utilization of a Public Distribution System (PDS) is generally an outcome of the household decisions which are shaped by a multitude of factors. These factors comprise of various household characteristics such as income, taste preferences, family size and so on. Additionally, the operation of the system is intricately linked with the functioning of Fair Price Shops (FPS) which includes the availability of commodities on time, a distance of fair price shop, issue price and quality of commodities. Moreover, liquidity constraint faced by ration card holders at the time of the arrival of commodities in fair price shops constitute a significant challenge to the effective utilisation of the system by beneficiaries. Thus, the functionality and accessibility of the Public Distribution System (PDS) are dependent upon a complex socio-economic variable, all of which influence households' decisions to engage with the system in pursuit of food security.

The present study observed that utilisation of Public Distribution System in Sikkim varies among different card types due to the three reasons. Firstly, the coverage of the system varies between NFSA and Non-NFSA where NFSA includes PHH and AAY card holders while NonNFSA includes OPH-General, OPH-Special and NPH. Secondly, the entitled quantity and price differs among different card type issued by the government. Thirdly, while under doing a survey the study observed that maximum utilization has been undertaken by the PHH category resulting from extreme coverage of PHH in Sikkim. While, on the other hand, a majority of the cardholders who are covered under OPH-General card type were unsure about the availability of subsidised commodity rice for them resulting from misguidance by fair price shops giving them false information that there is no ration available for them while some of the household were found to be consuming only occasionally during festive season. The study exhibits a total value of approximately 3279.862 metric tons (MTs) of rice being actually utilized every month by beneficiaries from Public Distribution System in Sikkim which is not up to the margin concerning the coverage of the system.

Now, according to the total coverage of PDS in Sikkim, the total utilization of rice that should have been attempted concerning its coverage in Sikkim is 3312.482 metric tons of rice which is way more than the actual value estimated in the study therefore constituting a gap between the coverage wise and actual utilization of distributed commodity rice under the system in Sikkim. According to the coverage of the Public Distribution System in Sikkim, the utilization of rice was supposed to be 3312 MTs but the study constituted that only 3279.862 metric tons of rice is being utilized marking a gap of 325 metric tons of rice conveying under exploitation of PDS commodity rice in Sikkim which can be remedied by bringing transparency while distributing commodity – rice

and making beneficiaries aware of their entitled quota and entitled price accompanied by consistently scrutinizing the distribution action of the fair price shop by the Food and Civil Supplies and Consumer Affairs, Government of Sikkim.

According to the different types of card that exist under the PDS system in state, the study observed that out of a total of 325 metric tons of rice, a quantity of 146 metric tons (45 percent) of rice was overly utilized under the Priority Household category, resulting from PHH household consuming an additional quantity of rice from Fair Price Shops (FPS) against their entitled quota while some were found to be consuming greater than their entitlements at a price 11 rupees per kg which is higher than the issue price for PHH card holders. Additionally, it was also noticed that in the urban area of East Sikkim, some OPH-General card holders were enjoying the benefits of the PHH category that is consumption of five kilograms of rice per person at three rupees per kilograms instead of availing the benefits of the OPH- General category.

On the other hand, utilization of rice was found to be underexploited in the case of two types of card namely OPH –General and AAY such that it was underused by 130 metric tons (40 percent) and 50 metric tons (15 percent) of quantities respectively because many of the households holding OPH-General cards were unaware about their entitlements. They were misguided with the wrong information and no rations were provided to them. Many AAY households were receiving benefits lesser than their entitled quota while some were not availing of the benefits offered by the system. This resulted from some of the fair shop owners reasoning particularly OPH-General card holders with no ration available for them every time the beneficiaries interrogated about their entitlements which drained out their interest and made them feel unbothered to seek benefits from the system. They also believed that the provided quantity of subsidized rice is insufficient to feed their families while on the other hand there were group of respondents consuming rice occasionally only during the festive season. The study also noted that the beneficiaries had to collect their ration by the end of the month, and if they failed to do so then their ration for that month would be cancelled out, and were not allowed to offtake missed out ration collectively in the next preceding months. Along with it most of the people failed to avail benefits from the system due to migrating from rural to urban areas. Besides, it was on notice while collecting data that in urban areas specifically in Arithang, fair price shop owners were ceasing one kilogram of rice from each ration card holders thereby depriving them of prevailing full benefits offered by the system. Thus, although the Public Distribution System in Sikkim offers crucial support to households, there is still a pressing need for some improvements in making the system operate more effectively and reach the beneficiaries as per their entitlements.

CONCLUSION

The Public Distribution System (PDS) is a crucial social welfare initiative implemented by governments globally, including in Sikkim, India. Its primary goal is to ensure food security for economically vulnerable segments of society by providing essential commodities like rice at reduced prices through a network of fair price shops. The study of Public Distribution System in Sikkim state in terms of its coverage and utilisation reveals several significant exposures. The coverage of ration card across districts indicates majority of them located in the east district. Additionally, since there are both NFSA beneficiaries and Non-NFSA beneficiaries in Sikkim, the type of ration card held by the beneficiaries also varies, with Priority Household (PHH) who comes under NFSA category being the most prevalent in the state.

The study observed a gap of 325 metric tons of rice conveying an under utilisation of Public Food Distribution System in Sikkim state concerning its coverage. Among different types of card in Sikkim, the study observe that utilization of rice under PHH scheme demonstrates overconsumption while utilization under Antyodaya Anna Yojna (AAY) and Other Priority Household-General (OPH-General) scheme demonstrates under consumption patterns resulting from fair price shop owner misguiding the beneficiaries with their entitlements, some cutting off one kg of rice from the entitled quota of rice every month, and in some surveyed areas the shop was not flexible enough in terms of collecting ration as beneficiaries missing out ration by the end of the month was no longer able to access the missed out ration anymore in the next preceding month therefore all this leading to inefficiencies in distribution and constituting a gap between the coverage of the system and its utilisation of distributed commodity rice in Sikkim state. Thus, the observed patterns of overconsumption and underutilization underscore systemic inefficiencies in the operation of PDS in Sikkim state. Overall, while the Public Distribution System in Sikkim provides a vital support to households there is a need for systematic reforms to address updating of beneficiaries list time and again to avoid leakage, making people aware of their entitlements specially OPH-General card

holders that rations are made available for them also, expansion of more variety of essential items in the basket of PDS commodities or increase the quota of rice to make it more effective on the livelihood of the beneficiaries and enhance the overall efficiency of the distribution of the system.

2.20 REFERENCES

1. Chakrabarti, S., Kishore, A., & Roy, D. (2018). Effectiveness of food subsidies in raising healthy food consumption: public distribution of pulses in India. *American Journal of Agricultural Economics*, 100(5), 1427-1449.
2. Dutta, B., & Ramaswami, B. (2001). Targeting and efficiency in the public distribution system: Case of Andhra Pradesh and Maharashtra. *Economic and Political Weekly*, 1524-1532.
3. De, U. K. (2000). Food security and PDS in Tripura: A policy intervention. *Food Security and Public Distribution System Today: Failures and Successes*, Vol. Food S, 348-367. (Accessed-19/8/2022)
4. Das, P., & Sengupta, A. (2016). Poverty and food security: Trends among socio-religious groups in India. *Indian Journal of Human Development*, 10(3), 384-396.
5. Gupta, A., & Mishra, D. K. (2018). Public distribution system in Uttar Pradesh: access, utilization and impact. *Indian Journal of Human Development*, 12(1), 20-36.
6. Goli, S. (2011). Conundrums in public distribution system in India: an assessment by states and social groups. Munich Personal RePEc Archive. Available online: https://mpra.ub.uni-muenchen.de/53450/1/MPRA_paper_53450.pdf
8. Khera, R. (2011). Trends in diversion of grain from the public distribution system. *Economic and Political Weekly*, 106-114. (Accessed- 22/03/2022)
9. Kishore, A., & Chakrabarti, S. (2015). Is more inclusive more effective? The 'New Style' public distribution system in India. *Food Policy*, 55, 117-130.
10. Khera, R. (2008). Access to the targeted public distribution system: a case study in Rajasthan. *Economic and Political Weekly*, 51-56. (Accessed- 30-08-2019)
11. Mahendran, A. (2013). Targeted Public Distribution System in Food Grains: An Effective Method for the Tribal's of Rural Karnataka (India). *Journal of Business Law and Ethics*, 1(1), 33-43.
13. Nair, R. (2011). Public distribution system in Kerala reassessed. *Indian Journal of Social Work*, 72, 23-53.
14. PG, B. (2017). A Study on the Performance of Public Distribution System with Reference to Colachel Municipality. *IOSR J. Econ. Finance.*, 8(03), 61-68.
15. Pal, B. (2011). Organization and working of public distribution system in India: A critical analysis. *International Journal of Business Economics and Management Research*, 1(1), 40-48.
16. 40-48.
17. Rahman, A., (2014). Revival of rural PDS: expansion and outreach. In Indira Gandhi Institute of Development Research. <http://www.igidr.ac.in/pdf/publication/WP-2014-012.pdf> (Accessed- 23/02/2020).