

Public Policy and Food Security: A Case Study of Lakhimpur District of Assam, India

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Abstract- Food is one of the most important basic necessities of human life. Hence, a healthy and well-nourished population is imperative for building a strong nation. Therefore, food security should ensure both adequate food availability and desired nutrition. In this study, an attempt has been made to examine the effectiveness of PDS in ensuring food security of the people of Lakhimpur district of Assam. For finding out the level of food security Per Capita per day Calorie Intake (PCCI) has been employed. Calculated calorie intake of sample households have been compared with 2730 and 2230 kilocalories, which is recommended by Indian Council of Medical Research for an adult man and woman doing moderate activity respectively (NIN, 2010). In the present study, it has been found that PDS has a positive impact on the level of household food security. Coverage of PDS across the area has been found as 69.47 percent of the total sample households. It is quite impressive; among total beneficiary households Priority Household covered 64.23 percent and Antyodaya Anna Yojana covered 35.77 percent. But targeting is found defective. It has found that currently PDS has been providing only two food item, i.e. rice and atta across the study area. Distribution of atta has been found irregular; out of the total requirements, only 23.59 percent of rice and 34.22 percent of atta is met by PDS. Regarding adequacy and quality of PDS items, majority of the beneficiaries has been found dissatisfied. Hence, it has been found that there is acute food insecurity in the study area both in terms of quantity as well as quality.

Index Terms- Food Security, PDS, Per Capita per day Calorie Intake, Lakhimpur.

I. INTRODUCTION

Adequate and good quality of food is the necessary pre-condition for everybody's health, which ultimately determines the productivity as well as capability of every human being. Ensuring the food security continues to be a challenging issue of vital importance for the developing countries like India. The Millennium development goals provide us with the starting point to assess the level of food security and prioritize our efforts to achieve it. Removal of malnutrition and hunger from the country is not only socially desirable but also necessary for improving overall economic development, as healthy people contribute more to the economy with their relatively higher level of productivity and efficiency. Hunger and malnutrition put enormous cost burden on the society. A World Bank Report states that malnutrition brings down three percent of countries GDP annually. The Indian planners, right from the beginning, realized the need to attain self-sufficiency in food grains as one of the important goals of planning (Singh, 2013).

Food security refers to a household's physical and economic access to sufficient, safe and nutritious food that fulfils the dietary needs and food preferences of that household. The Universal Declaration of Human Rights in 1948 recognized right to food as a core element of an adequate standard of living. Following this, and more especially from world food crisis of 1972-74, food security became an important "organizing principle" in development. Following are the some important definitions of food security:

Food and Agriculture Organization (FAO, 1983) defined food security as “ensuring that all people at all times have both physical and economic access to basic food they need.”

World Development Report (1986) defined food security as “access by all people at all times to enough food for an active, healthy life.”

Staatz (1990) defined food security as “the ability to assure, on a long term basis, that the food system provides the total population access to timely, reliable and nutritionally adequate supply of food.”

The 1996 World Food Summit redefined food security as “Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.”

In 2001, the FAO Expert Consultation on Food Security gives a working definition of food security: “Food security exists when all people, at all times have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life.” Food insecurity exists when people do not have adequate physical, social or economic access to food as defined above. Food insecurity, thus, is just an opposite situation of food security.

Improving food security ought to be an issue of great importance for a country like India where one-third of the population is estimated to be absolutely poor and one-half of children malnourished in one way or another. However, the process of economic liberalization and WTO agreements has cast a shadow on this basic national agenda. Increase in food prices, shrinkage of area under foodgrains and increasing food subsidy have emerged as major concerns with regard to food security. The recent policy changes in the public distribution system (PDS), announced by the central government, has generated a heated debate in the country. But this is confirmed in the Indian context as revealed by the NSSO data. The public distribution system (PDS) as a social safety net can be understood by the fact that aggregate availability of food grains per se is not enough to ensure the ability to acquire food grains. Production does not automatically guarantee consumption. The mere presence of food in the economy, or in the market, does not entitle a person to consume it. Even the ability to buy may not guarantee food security, unless there is an efficient distribution system (Majumdar, 2004).

Initially, Assam was a surplus state in respect of food production during the pre-independence period. With the gradual increase in the size of population, the increase in production of foodgrains has failed to keep pace with it leading to a fall in per capita availability of food. The state maintained near self-sufficiency level in food supply until 1960's. Thereafter, the state started to face the problem of food deficit continuously and the quantum of deficit has reached to such an extent in recent years that it is estimated to be more than 30 percent of the self-sufficiency level (Dhar, 2009). As Assam is depending heavily on outside sources for supply of a large number of essential commodities the need for an effective public distribution system is very important for the state. In recent time, providing food security is a major objective for central government as well as state government and PDS is an instrument for achieving this goal.

II. OBJECTIVES

The major objectives of the study are-

- (1) To examine the effectiveness of Public Distribution System in ensuring food security of the people of Lakhimpur district.

- (2) To suggest ways for improvement of the level of food security on the basis of findings of the study.

III. AREA OF THE STUDY

Lakhimpur District is located in the north-east corner of Assam and lies between $26^{\circ}45'$ and $27^{\circ}53'$ northern latitude and $93^{\circ}42'$ and $94^{\circ}20'$ east longitude (approx). The district lies on north bank of the mighty river Brahmaputra. It is bounded by Siang and Papumpare district of Arunachal Pradesh on the north and on the east by Dhemaji district and Subansiri river, Majuli district, the largest river-island is on the southern side and Gahpur subdivision of Sonitpur district is on the west. As per 2011 census, the district covers an area of 2277 sqkm out of which 2257 sqkm is rural and 20 sqkm is urban.

According to the Population Census in 2011, the total population of Lakhimpur district is 1,042,137; out of which 529,674 are male and 512,463 are female population. The population of the district constituted 3.34 percent of total population of Assam. Sex ratio of the district is 968. Child population in the age group of (0-6) years is 1,56,739. Again, in terms of rural-urban division, 950,804 are rural and 91,333 are urban population. Percentage of urban population of the district is 8.76 and it is almost half of the all Assam average (14.1 percent). Density of population of the district is 458 persons per sq/km. Decadal growth rate of population is 17.22 percent. Out of total population ST and SC population of the district are 23.93 percent and 7.85 percent respectively. The literacy rate of the district is 77.20 percent, among this male literacy rate is 83.52 percent and female literacy rate is 70.67 percent. The total literates in Lakhimpur District were 697,526 of which male and female were 383,026 and 314,500 respectively. The literacy rate of females are found to be lower than the male counterpart.

IV. DATABASE AND METHODOLOGY

The information regarding the present study has been collected from both primary and secondary sources of data. The main sources of secondary data are the publications of government agencies such as National Sample Survey Organization; Office of the Census of India, Directorate of Food and Civil Supplies; Agriculture and the Economic and Statistics; Government of Assam and Government of India; District Census Handbook of Lakhimpur. Beside the information collecting from above secondary source, unpublished statistics has been gathered from office of agriculture; Lakhimpur district, office of the three development blocks of Lakhimpur, which has been selected purposively from 9 blocks of the district, office of co-operative societies located in these three blocks.

Since the study area is Lakhimpur district, the micro level analysis has been made mainly based on primary data collected by carrying out field survey from the district. The sample has been selected through a process of multistage mix-sampling. As per 2011 census, there are 9 development block in the district. Among these 9 blocks, 3 have been selected purposively on the basis of BPL households. After this, five villages from each block has been taken for household survey. Lastly, a number of representative families, 15 to 20 percent (depending upon the population of the villages) of total households has been selected randomly from each village and finally 511 households have been surveyed. A structured schedule has been used to collect the necessary information on household food security level. For finding out the level of food security from primary information the Per Capita per day Calorie Intake (PCCI) has been employed. The survey has been conducted as per the guideline prepared by Smith and Subandoro (2007) of International Food Policy Research Institute. For analyzing the level of food security per consumer per day calorie intake has been calculated for each household, based on average nutritive value of Indian food (Gopalan, et al, 2000). Calculated per capita calorie intake of sample household has been compared with the 2730 and 2230

kilocalories, which is recommended by Indian Council of Medical Research for an adult man and woman doing moderate activity respectively (NIN, 2010). The households' calorie intake above the recommended level has been considered as food secure and food insecure otherwise.

V. DISCUSSION AND FINDINGS

5.1 Coverage of Public Distribution System (PDS):

Coverage of Public Distribution System (PDS) of sample households across the study area has been shown in Table 5.1. Surveyed households across the area are found with 69.47 percent PDS coverage. Lowest coverage is found in Narayanpur block, where 63.74 percent households are found as beneficiary household under PDS. Highest coverage (73.89 percent) is found in Ghilamara block. Again, among total sample households, Priority Household Card (PHC) coverage 44.62 percent and Antyodaya Anna Yojana Card (AAYC) coverage 24.85 percent households.

Table 5.1 Coverage of Public Distribution System.

Type of Ration Card	Number and Percentage of Households			
	Dhakuakhana Block	Narayanpur Block	Ghilamara Block	Overall
PHC	83(45.36)	73(42.69)	72(45.86)	228(44.62)
AAYC	47(25.68)	36(21.05)	44(28.03)	127(24.85)
Total Beneficiary (TB)	130(71.04)	109(63.74)	116((73.89)	355(69.47)
Non-Beneficiary (NB)	53(28.96)	62(36.26)	41(26.11)	156(30.53)
Total=TB+NB	183 (100.00)	171 (100.00)	157 (100.00)	511 (100.00)

Source: Calculated from primary data, (Figures in the bracket indicates percentage to total).

5.2 Targeting of Public Distribution System:

Identification of poor households and poverty target is a much debated and gap area in Public Distribution System. During survey it has been found that so many households which are not supposed to get Ration Card possessed the same. Again, there has been found households not having Ration Card in spite of they are supposed to get the same. Table 5.2 depicts the percentage of beneficiaries of ration card among different income groups across the study area. From the table it is clear that among income group 20 to 40 thousand, out of 47 households 21.28 percent possessed Priority Household (PH) Card, 61.70 percent households possessed Antyodaya Anna Yojana (AAY) Card and 17.02 percent households have not possessed any ration card. Among the APL category (annual income more than 1 lakh) out of total 113 households, 33.63 percent households possessed PH ration card. But, according to government norms they should not possessed the same.

Table 5.2 Percentage of beneficiaries of ration card among different income groups.**(In thousand)**

Income Group*	Percentage of Beneficiaries			Overall
	PH Card	AAY Card	No Card	
20 – 40	9(21.28)	29(61.70)	8(17.02)	46(100)
40 – 60	44(39.64)	51(45.95)	16(14.41)	111(100)
60 – 80	67(56.30)	40(33.61)	12(10.08)	119(100)
80 – 100	70(76.09)	07(7.61)	15(16.30)	92(100)
100 & above	38(26.57)	0(0.00)	105(73.43)	143(100)
Overall	228(44.62)	127(24.85)	156(30.53)	511(100)

*annual income

Source: Calculated from primary data, (Figures in the bracket indicates percentage to total).

5.3 Percentage Share of PDS to total Consumption of Rice and Atta:

During the survey, it is found that currently government has been providing only two food items, i.e. rice and atta through Public Distribution System. Hence, comparative percentage share of PDS rice and atta to total consumption has been discussed here. It has been observed that 69.74 percent of the sample households are covered by PDS. However, to what extent PDS has been able to cover the required household demand of these commodities is reflected in Table 5.3. From the table it is clear that only 23.59 percent of the total requirement of rice is met by the PDS. As income rises, people are found to prefer better quality rice in the market than the PDS rice. Again, 43.63 percent is met by own source of total consumption of rice. For consumption of atta PDS contributed 34.22 percent of total requirements. Distribution of atta has been found to be irregular.

Table 5.3 Comparative Percentage Share of PDS to total Consumption of Rice and Atta.

Source	Rice	Atta
PDS	23.59	34.22
Own Source	43.63	13.85
Open Market	28.82	56.74
Others	3.96	0.67
Total	100.00	100.00

Source: Calculated from primary data.

5.4 Level of Food Security among different Beneficiary Households:

Household's food security among the PDS beneficiaries is shown in the Table 5.4. From the table, it is clear that out of total 355 beneficiary households across the survey area, only 43.38 percent are found as food secured. Among the Priority Household Card (PHC) beneficiaries 49.12 percent are found as food secured and among the Antyodaya Anna Yojana Card (AAYC) beneficiaries only 33.07 percent households are found as food secure. So it is found that after implementation of Food Security Act and in spite of having Public Distribution, a large section of beneficiaries have been found as food insecure.

Table 5.4 Level of Food Security among different Beneficiary Households.

Beneficiaries	No. & percentage of food secure households	No. & percentage of food insecure households	Total
PHC	112(49.12)	116(50.88)	228(100)
AAYC	42(33.07)	85(66.93)	127(100)
Overall	154(43.38)	201(56.62)	355(100)

Source: Calculated from primary data, (Figures in the bracket indicates percentage to total).

5.4 (a) Food Security among Beneficiaries of Priority Household Card:

Level of household food security among Priority Households has been depicted in Table 5.4 (a). It is clear from the table that per capita per day calorie intake among priority households has been found as 2305 kcal across the survey area. Among the beneficiaries of priority households, 49.12 percent has been found as food secure across the study area, with an average intake of 2981 per capita per day. Again, in this category 50.88 percent households are found as food insecure, among these food insecure households the average intake is found as 1836 kcal per capita per day. Highest percentage (52.05 percent) of food secure household has been found in Narayanpur block and lowest (46.99 percent) is found in Dhakuakhana block. Among priority household highest average per capita per day calorie intake has been found in Ghilamara block (2343 kcal).

Table 5. 4 (a) Food Security among Beneficiaries of Priority Household Card.

Blocks		Food Secure Households	Food Insecure Households	Overall
Dhakuakhana	Per capita per day calorie intake	3012	1866	2107
	Number & Percentage	39(46.99)	44(53.01)	83(100)
Narayanpur	Per capita per day calorie intake	2978	1874	2312
	Number & Percentage	38(52.05)	35(47.95)	73(100)
Ghilamara	Per capita per day calorie intake	3041	1928	2343
	Number & Percentage	35(48.61)	37(51.39)	72(100)
Overall	Per capita per day calorie intake	2981	1836	2305

	Number & Percentage	112(49.12)	116(50.88)	228(100)
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Source: Calculated from primary data, (Figures in the bracket indicates percentage to total).

5.4 (b) Food Security among Beneficiaries of Antyodaya Anna Yojana Card:

Level of household food security among Antyodaya Anna Yojana (AAY) households has been depicted in Table 5.4 (b). As it is clear from the following table, among AAY beneficiaries across the survey area, 33.07 percent households are found as food secure with an average intake of 2305 kcal per capita per day. Among the three blocks, highest percentage (41.67 percent) of food secure households has been found in Narayanpur block, with an average intake of 2778 kcal per capita per day. Again, lowest percentage (23.40 percent) of food secure households has been found in Dhakuakhana block, with an average intake of 2831 kcal per capita per day. But, it has been found that among food secure households, per capita per day calorie intake is found highest in Dhakuakhana block.

Table 5.4 (b) Food Security among Beneficiaries of Antyodaya Anna Yojana Card.

Blocks		Food Secure Households	Food Insecure Households	Overall
Dhakuakhana	Per capita per day calorie intake	2831	1782	2041
	Number & Percentage	11(23.40)	36(76.60)	47(100)
Narayanpur	Per capita per day calorie intake	2778	1768	1991
	Number & Percentage	15(41.67)	21(58.33)	36(100)
Ghilamara	Per capita per day calorie intake	2796	1874	2215
	Number & Percentage	16(36.36)	28(63.64)	44(100)
Overall	Per capita per day calorie intake	2801	1795	1871
	Number & Percentage	42(33.07)	85(66.93)	127(100)

Source: Calculated from primary data, (Figures in the bracket indicates percentage to total).

5.5 Food Security among Non-Beneficiary Households:

Level of household food security among non-beneficiary households has been shown in Table 5.5. From the table it is clear that out of 156 non-beneficiary households 72.44 percent has been found as food secured (including APL households). Among non-beneficiary households, highest percentage (80.49 percent) of food secure has been found in Ghilamara block, with an average intake of 3079 kcal per capita per day. Again, lowest percentage (66.04 percent) of food secure households have been found in Dhakuakhana block, with an average intake of 3084 kcal per capita per day.

Table 5.5 Food Security among Non-Beneficiary Households.

Blocks		Food Secure Households	Food Insecure Households	Overall
Dhakuakhana	Per capita per day calorie intake	3084	1974	2479
	Number & Percentage	35(66.04)	18(33.96)	53(100)
Narayanpur	Per capita per day calorie intake	2986	2009	2447
	Number & Percentage	45(72.58)	17(27.42)	62(100)
Ghilamara	Per capita per day calorie intake	3079	1936	2459
	Number & Percentage	33(80.49)	8(19.51)	41(100)
Overall	Per capita per day calorie intake	3049	1953	2461
	Number & Percentage	113(72.44)	43(27.56)	156(100)

Source: Calculated from primary data, (Figures in the bracket indicates percentage to total).

5.6 SOME SUGGESTIVE MEASURES

For improvement of the level of food security, following recommendations can be considered-

- The Public Distribution System should be improved so as to ensure a success in the operation of agricultural price policy. The operation of fair price shops should be streamlined and be made more efficient and transparent.
- Purchasing capacity of all the buyers however is not par with the prices at which the foodgrains are marketed in many parts of the district. Thus adequate arrangement has to be made by the government to meet such gap.
- Government should provide better storage facilities to the farmers, and thereby prevent from selling grains just because of loss during storage. It has been found that due to lack of storage facilities made the marginal poor farmers to sell their grains immediately after harvest. It will ensure the availability of food- grains at affordable price to the general consumer.
- Agricultural extension services are needed to disseminate knowledge on the income generating potential of rural people. They need to be advised on low labour requirement crops, and crops need minimum land preparation, weeding techniques and sources of irrigation.
- For increasing economic accessibility of food, employment guarantee schemes should be implemented successfully.

- Micro-credit facilities should be examined as an effective and sustainable strategy for supporting livelihood, which would have direct bearing on the nutritional status of the family.
- Edible oil, more amounts of sugar and salt should be made available under PDS like other states of the country.
- Moreover, problem of irregular supply, supplying bad quality PDS items in remote areas should be addressed properly.

VI. CONCLUSION

Food is one of the most important basic necessities of every human being. Hence, a healthy and well-nourished population is imperative for building a strong nation. In the present study, it has been found that PDS has a positive impact on the level of household food security. Coverage of Public Distribution System across the area has been found as 69.47 percent of the total sample households. It is quite impressive; among total beneficiary households Priority Household covered 64.23 percent and Antyodaya Anna Yojana covered 35.77 percent. But argeting is also found defective and there is found food insecure households among both beneficiary and non-beneficiary households. It is found that currently PDS has been providing only two food item, i.e. rice and atta across the study area. Distribution of atta has been found irregular; out of the total requirements, only 23.59 percent of rice and 34.22 percent of atta is met by PDS. Regarding adequacy and quality of PDS items, majority of the beneficiaries has been found dissatisfied. Hence, it has been found that there is acute food insecurity in the study area both in terms of quantity as well as quality.

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