Food Security Situation In The Respondents Of Mandla-Dindori Region, (M.P.), India

Ghanshyam Prasad Jhariya

Abstract: Present research work, food security situation in Mandla-Dindori region is based on primary data which is collected through stratified random survey of 635 households. These collected data have been analysed with the help of Food Security Index (Z) method which is recommended daily per capita caloric intake of the respondent and logistic regression model has been used to identify the determinants of food security among sampled households. On the basis of this analysis, there has been found that, about one-half of the respondent families are not able to consumed sufficient amount of food as they required. The consumption of foodgrains of the respondent's family was also varied by their socio-economic status. Therefore, there is need to pay attention to create equal opportunities in food security.

Key words: Caloric Intake, Farmers, Nutrition, Social Communities.

1 INTRODUCTION

One of the basic needs of man, food is one that sustains him. His physical and mental development and his capabilities depend on what he eats. Because of this fact, anxiety of assuring food security for everyone, taking people out of poverty and ensuring a dignified comfortable life is expressed on global level. It is accepted as one of the many facets of human development. This is a difficult task considering one in nine people in the world suffer from hunger [1]. This problem becomes complicated with the high concentration of population in the Asian countries, where, the highest number of the malnourished population are living [2]. To ensure the human development, the largest mission, millennium development goals was launched in the Millennium Summit of United Nations in 2000, where a large number of countries promised global partnership and set the time bound quantified targets with 2015 deadline. Food security has emerged as a matter of great concern all over the world. The concept of food security, though very complex and multidimensional, remains closely tied to local food production for many people in the developing countries [3]. Countries with large food insecure populations are often also those whose agricultural systems are highly vulnerable to climatic vagaries, particularly in northern Africa and South and Southeast Asia. Experience of countries that have succeeded in reducing hunger and malnutrition shows that economic growth originating in agriculture; in particular the smallholder sector is at least twice as effective in benefiting the poorest as growth from non-agriculture sectors. Because of the close link between local production and food security, investment in the agricultural sector for increasing food availability and strengthening the resilience of the food production system has been attempted in food insecure regions. Fluctuation in production and food supplies over time and space and rising of food prices are the basic problems of food security. It can be visualized at international, national, local and even at individual level.

- *Ghanshyam Prasad Jhariya is a Guest Lecturer in the Department of Geography, Govt. College Anjaniya, District Mandla, Madhya Pradesh, India. Email: jhariyageosgo@gmail.com*

Realizing the importance to provide basic food requirement of the population, India has a long established Public Distribution System (PDS) which has played a significant role in keeping the chronic hunger at bay and has a strong impact on the reduction of poverty. For the purpose of basic requirement of food for all people Government of India passed the 'National Food Security Act, 2013'. The present research work is visualized in this perspective.

2 THE STUDY AREA

For investigating the problem of agricultural development and food security, the Mandla – Dindori region has been selected. This region, comprising present Mandla and Dindori districts of Madhya Pradesh, extends over an area of 14899 square kilometres (4.83 percent of total geographical area of the state) between $22^0 12`$ to $23^0 22`$ North latitudes and $80^0 18`$ to $81^0 51`$ East longitudes (Fig.1). It is entirely highly dissected and hilly tract and lies in the catchment of the Narmada River. The region is bounded on the north by Umaria and Jabalpur, northeast by Anuppur, south by Seoni, west by Balaghat and east by Kabirdham districts of Chhattishgarh state. Administratively region is divided into 8 Tahsils and sixteen developments block i.e. Mandla, Nainpur, Bichhiya, Mohgaon, Mawai, Ghughari, Narayanganj, Bijadandi, Niwas, Dindori, Shahpura, Mehadwani, Amarpur, Samnapur, Bajag, and Karanjiya.

Fig 1. Location of the Mandla-Dindori Region

According to the Census of India 2011, the study region have 17, 57,730 population out of 8, 76,839 was males and 8, 80,901 was females, which is 2.42% of total population of

Madhya Pradesh. The population density of this region is 138 per Km^2. Average literacy rate was 66.9%, male and female literacy rate was 78.55% and 55.35% respectively.

3 OBJECTIVE OF THE STUDY

The primary objective of the present work is to study the nature of food security in the respondents and to ascertain the socio-economic status and food security of the respondents in the study region.

4 DATA BASE AND METHOD

For the analysis of food security situation in the respondents, primary data have been used which is collected through the interviewing farming households, using structured interview schedule. The study region has 2145 villages and 417869 households, but it is not possible to processes information about every farming household for each of the village. Therefore, the refining of the result of this study, sample size used is 635 households with 95 percent confidence level, 50 percent estimated proportion of an attribute and 3.87 percent margin of error. For the measurement of Food Security Index (Z), per person per day calories intake from different food items in a household has been analyzed. Daily per capita calorie requirement is recommended by the ICMR approach has been used to analyze the food security status of sampled households. Food security index (Z) has been prepared based on the per capita calorie intake for determining the status of food security in households, after which a household consuming 2400 kcal calories per day is considered to be food secure, and households which consumed less than 2400 kcal per day is considered as food insecure. Based on this measurement, sample households of the study region have been classified in the category of food secure households and food insecure households which is calculated as:

$$Zi = Yi/R$$

Where Zi is represent the food security situation of ith household.
Yi = daily per capita calorie intake of ith household and
R= per capita daily caloric requirement recommended by ICMR (2400 kcal).

If the Zi comes equal or more than 1 the households is food secure and if the Zi is less than 1 the household are food insecure. The logistic regression model has been used to identify the determinants of food security among sampled households. This expressed as:

$$Zi = \beta Xi + Ui$$

Where Zi = the food security situation of ith household.
Xi= vector of explanatory variables
Ui= the error term and
β= vector of the parameter estimates.

5 RESULT AND DISCUSSION

On the basis of recommended daily per capita caloric intake of 2400 kcal, the respondents of the study region have observed that the 46.77 percent of the households have food secure condition and 53.23 percent of households have found less than 2400 kcal or food insecure condition (Table 1). On the other hand, 44.76 percent population of the sampled households are found food secure condition while 55.24 percent population are under the food insecure condition.

TABLE 1 FOOD SECURITY* SITUATION OF THE RESPONDENTS

Food Security Situation	Households		Population	
	Frequency	Percentage	Person	Percentage
Food Secure	297	46.77	1393	44.76
Food Insecure	338	53.23	1719	55.24
Total	635	100	3112	100

**Recommended per capita daily calorie intake (R) is 2400 Kcal*
Source: Field Survey, 2015-16.

6 SOCIO-ECONOMIC STATUS AND FOOD SECURITY OF RESPONDENTS

The socio-economic status of people or households affects the food security status and living standard of people. Human resources determine the minimum level of subsistent and requirement of cash [4] and it have able to provide to workforce for other workers. Age and sex composition is an important indicator which decides the requirement and level of food and nutrition [5]. In the study region, about 92.76 percent households are operated by the male head while only 7.24 per cent households are operated by the female head. The education level in the study region is low which is limited to provide opportunities to the better socio-economic status of people. There is only 1.26 percent households head have post-graduated, 7.72 percent have graduated, 16.85 percent of higher secondary, 23.78 percent middle school, 22.36 percent have the primary level of education, whereas about 28.03 percent of households head is no any education. The education level in any region affects the food security condition and the coefficient of this variable to the food security condition is positive and significant at 1 % level. This means the households with the higher educated head are more food secure than an uneducated head.

TABLE 2 SUMMARY STATISTICS OF FOOD SECURITY INDICES OF THE RESPONDENTS

Variables	Mean		
Food Security Indices	Food Secure	Food Insecure	All
Age of Households Head	46.21	45.26	45.65
Size of Household	4.69	5.08	4.9
Per Capita Monthly Income	2356	856	1606
Size of Landholdings	3.15	2.03	2.57
Food Security Index	1.21	0.88	1.03
Per Capita Caloric Availability from Own Production	2739	1991	2341

Source: Calculation is based on Field Survey, 2015-16.

The number of members in a family (size of household) have great implications for labour supply of own farm and which play an important role in food security. A large number of family members expected more money from other sources but if the number of dependent members is high then it has adverse effects. The average size of

households in the study region has 4.9. There is negatively coefficient of food security with the size of households and significant at 1 percent level. This means the larger size of households the food security is decreased while the small size of household the food security is increased. The social communities of any region determine the important indicators of food security. Upper caste or other communities have more food secure and they are using various food item while backward or lower caste (Scheduled population) have less quantity of food security. In the study region, there is 45.35 percent of the population belongs to the scheduled tribes and 13.54 percent of the population belongs to scheduled caste while 30.39 percent population is under the other backward communities (OBC). This variable of socio-economic determinants is found negative coefficient and also found a negative relation with 1 percent level of significance. This means the households of lower caste or backward communities have food insecure. In another word, the higher proportion of upper communities are more likely to be food secure.

The income level of people affects the food security status as well as the living standard of households. The total income of household monthly income has been converted into the per capita monthly income. On the basis of which, the mean monthly income of the study region is Rs. 1606 which is upper than the poverty line that is the monthly expenditure of a person which is Rs. 972 in rural areas and Rs.1407 in urban areas are not under the poverty line [6]. Per capita, monthly income for food secure households has Rs. 2356 and for the food insecure households have Rs. 856. The monthly income of the study region is positive coefficient with food security and also significant at 1 % level. This means the higher household's income, the higher level of food security as well as higher the accessibility of food.

TABLE 3 REGRESSION ESTIMATES FOR THE DETERMINANTS OF FOOD SECURITY OF RESPONDENTS, 2015-16

Variables	Coefficient	Pearson's correlation
Constant	-0.096	
Households Monthly Income	0.869	0.464**
Size of Landholdings	0.180	0.260**
Age of Household Head	0.016	0.041
Gender of HH Head	-0.383	-0.055
Educational Status of HH Head	0.219	0.312**
Household Size	-0.495	-0.137**
Social Communities	-0.178	-0.127**

*Source: Calculation is based on Field Survey, 2015-16. ** Significant at 1 % level*

The size of land holdings is an important indicator of the determinants of food security status. The larger the size of the holdings, the production is likely to be higher [7]. The average size of land holdings in the study region is 2.57 hectare and the average size of holdings in food secure household has 3.15 hectare while it has 2.03 hectare in the food-insecure household. The coefficient of the size of land holdings has negative with food security and significant at 1 % level. This means the probability of food security decreased with the increase of the size of holdings.

7 CONCLUSION

The status of food security in terms of recommended daily per capita caloric intake of 2400 kcal, the respondents of the study region have observed that the 46.77 percent of the households have food secure condition and 53.23 percent of households have found less than 2400 kcal or food insecure condition. On the other hand, 44.76 percent population of the sampled households are found food secure condition while 55.24 percent population are under the food insecure condition. The socio-economic structure of farmers and households reveals that the socio-economic status of farmers influenced their consumption of food and dietary score. Although, the general literacy rate in the study region is satisfactory but among the farmers it is low which in turn have adversely affected the status of food security.

8 REFERENCES

[1] B. Suchiradipta and R. Saravanan, "ICTs for Agricultural Development and Food Security in Developing Nations," Agricultural Development and Food Security in Developing Nations, W.G. Ganpat, R. Dyer and W.P. Issac, eds., IGI Global, Hershey, pp. 106-129, 2017.

[2] FAO, Regional Overview of Food Insecurity, Asia and the Pacific: Towards a Food Secure Asia and the Pacific, Bangkok:Thailand, 2015.

[3] FAO, Food Security and Agricultural Mitigation in Developing Countries: Option for Capturing Synergies, Rome, 2009.

[4] A. Akinsanmi and W. Doppler, Socio-Economic and Food Security of Farming Families in Southeast Nigeria, A Paper presented at Tropentary, Conference on International Agricultural Research and Development, University of Honhentiem, Stuttgart, Germany, 2005. Retrieved from http://www.tropentag.de/2005/abstracts/full/558.pdf

[5] R.P. Mishra and K. S. Som, "Nutritional Scenario in Rural Areas of Sagar District", Madhya Bharti Journal of Science, Vol. 60, no. 6, pp. 82-88, 2016.

[6] Planning Commission, GOI, "Report of the Expert Group to Review the Methodology for Measurement of Poverty", 2014.

[7] R.O. Babatunde, O. A. Omotesho and O. S. Sholotan, "Socio-Economic Characteristics and Food Security Status of Farming Households in Kwara State, North Central Nigeria", Pakistan Journal of Nutrition, Vol. 6, no. 1, pp. 49-58, 2007. Doi:10.3923/pjn.2007.49.58