

Food Productivity and Food Security: an Analysis in the Context of North-East India

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ABSTRACT: Food security is one of the significant aspects of human security discourse. Though India is one of the largest producers of food in the world, yet nearly 300 million people struggle for meeting two square meals a day and 21% of the national population (230) million is malnourished. Food security refers to access for people, especially poor who are below poverty line, to adequate food necessary for a normal life. In terms of quality, the food must be reasonably nutritious that enables a person's sustain and develop his physical and mental faculties and personality. The North-Eastern region, comprising of eight states also comes under the prevailing food insecurity dilemma in India. The paper aims to bringing up the overall scenario of food production in North-Eastern region along with aims to give up a view of the perspective of food security in North Eastern region.

KEYWORDS: Food security, Food production, Malnourished, Nutritious, Poverty line.

I. INTRODUCTION

The North-Eastern region has eight states Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Sikkim and Tripura. It have an area of 262180 sq km. About 70 percent of the region is hilly and topography varies within each state. The region receives an average annual rainfall of 2000 mm accounting for about 10 percent (42.5mm) of the country's total perception of 420 mm. Food security is the most important step to eradicate poverty and lay a foundation of growth and development of the society.

The World Food Summit of 1996 defined food security as existing "When all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life."

According to Monirul Hussian, "There are three interlinked dimension involved in the definition of food security-availability, stability and access. The first dimensions means that an average sufficient food supplies should be available to meet consumption needs adequately. The second dimensions-stability means minimizing the probability that in difficult times, food consumption might fall below the requirement. The third dimensions of access refer to the fact that everyone should have the resource to provide or purchase the food they need".

The North East region is a bio-diversity hot spot, therefore rising food production and productivity made the effort much easier. Now a days there is a growing trend of people moving away agriculture sector. Therefore achieving sustainable food production to feed the increasing population of the fragile land of the region is an enormous challenge and the stamp at background has been altitude to these regions suffering food and nutritional security.

II. OBJECTIVES OF THE PAPER

- To analyze the perspective of food production and food security in North eastern region.
- To examine the challenges associated with food production and food security in North Eastern region.
- To recommend remedial measures for the improvement of food security and productivity in North Eastern region.

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III. METHODOLOGY

The study is based on secondary data collection from various books, journals, research papers, articles and report of government organization.

IV. ANALYSIS OF THE STUDY

4.1 The scenario of North Eastern Region (NER) on food production and food security

Prospects of food production

The prime source of livelihood of NER is agriculture. The majority (85%) of the population is rural in the region. The hilly terrain of NER and the pattern of land availability have led to two distinct system of agriculture.

- a) Settled agriculture in the plains, valleys and gentler slopes.
- b) Jhum (slash and burn) cultivation in hilly areas.

The region has its own unique food culture and it is one of the major production houses of some special food crops. The NER of India accounts about 8 % of the total geographical area of the country but has only 3.4% of the total land put under agricultural purposes. The region falls under high rainfall zone and the climate ranges from subtropical to alpine. The region is characterized by difficult terrain, wide variations in slopes, altitude, land tenure system and diver's cultivation practices.

The dynamics of total production of food grain in NE is represented in table 1 state-wise.

Table 1: Production and requirement of food grains in NER, 2014

State	Production		Increase 2003-04 (%)	Requirement as per 2014 population ('000 tonnes)	Deficit/ Surplus (%)
	TE 2001-03 ('000 tonnes)	TE 2012-14 ('000 tonnes)			
Arunachal Pradesh	234.7	376.4	60.37	256.1	46.97
Assam	3984	5409	35.77	5773.8	-6.32
Manipur	378.7	628.5	65.96	504.2	24.66
Meghalaya	228.5	278.8	22.04	549	-49.21
Mizoram	131.6	80.6	-38.72	202.1	-60.09
Nagaland	384.4	582.7	51.59	366.9	58.83
Sikkim	98.4	102.7	4.41	112.6	-8.73
Tripura	579.5	730.4	26.05	6850	7.42
NE Region	6019.8	8232.8	36.76	8444.7	-2.51

TE=TRIENNIAL AVERAGE (Source: Roy et al: Food Security in North-East Region of India)

The above table shows that between 2003 and 2014 all states, except Mizoram achieved considerable increased in food grains production. This increased was highest in Manipur (66%) followed by Arunachal Pradesh (60%), Nagaland (52%) and Tripura(26%). Assam and Meghalaya despite achieving considerable increase in production during the period, remained deficit states.

Perspective of food security in North Eastern Region

Food is the most basic human needs and is central to the discussion of human rights and social development. Food security refers not only to an adequate aggregate supply of food, but also means that "All people at all time have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life (FAO)". In this sense food security is a broad concept and implies not only producing sufficient food but also making food accessible to the entire throughout the year on sustainable basis.

The following table shows the per capita unit intake of the percentage share of food and cereals into total household consumer expenditure 2009-10.

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Table 2: Per-capita unit intake of and percentage share of food and cereals in total household consumer expenditure (2009-2010)

State	Per-capita food grain p/day (gram) (exclude imports)	Expenditure on food (%)		Expenditure on cereals (%)		Rural			Urban		
		Rural	Urban	Rural	Urban	per capita per day intake of					
						Caloric (Kcal)	Protein (gm)	Fat (gm)	Caloric (Kcal)	Protein (gm)	Fat (gm)
Arunachal Pradesh	612	57.8	13.8	51.7	9.2	2251	65.3	27.3	2159	61.4	35.5
Assam	144	64.4	20.7	52.9	12.8	2120	54.4	28.6	2176	58.8	36.9
Manipur	344	60.1	28.7	55.9	24.3	1993	50.4	16.2	1952	47.9	17.4
Meghalaya	221	54.6	14.0	42.4	11.3	1801	47.5	25.7	1701	44.6	23.9
Mizoram	157	57.7	13.3	50.4	9.4	21282	55.6	29.4	2240	59.8	41.9
Nagaland	490	57.8	19.5	48.5	14.9	1983	61.1	15.3	1968	61.9	18.6
Sikkim	528	53.5	10.5	47.5	10.4	2074	53.5	41.8	2109	55.7	36.3
Tripura	482	62.4	15.4	55.5	11.8	23.84	63.6	30.2	2431	58.8	53.0
All India	444	57.0	13.7	44.4	8.1	2147	59.3	43.1	2123	58.8	53.0

Source: NSS 66th Round, Nutritional Intake India, Ministry of Statistics and Programme Implementation.

As the range of income pattern increases, the household level expenditure on cereals, table 2 indicate there expenditure on cereals lower level than national average and it much below in the states of Sikkim followed by Meghalaya while other state are little higher then national average during the year of 2009-2010.

Per capita availability of food grains shows that wide variations among the states in which the availability of food grains per day is high in Arunachal Pradesh followed by Sikkim and extreme low in Assam followed by Mizoram. On the contrary to that the percentage share of expenditure on food was very high in Assam followed by Tripura and Manipur and lowest in Sikkim followed by Meghalaya, whereas in urban areas Manipur has been dominating at the rate of 28.7% of total expenditure on food items followed by Assam and lowest in Sikkim followed by Mizoram. On the other hand per capita intake of calories among the states reveals that none of the state has been meeting the minimum 2400 caloric norm and all states in NER are insecure in terms of calories. The data reveals the failure of production but also due to distribution failure.

4.2 Problems associated with Food production and food security in NER

Problems related to food production

a) Poor credit facilities: Credit facility is minimum throughout the region. It is considered as an important infrastructural facility for increase of food production.

b) Dependence on traditional agriculture: The region is far behind in use of modern technologies in agriculture. Average farm size, irrigation coverage, average fertilizer consumption and power consumption in agriculture are all below the national average.

c) Land tenure system: Community ownership of land in North-East ownership by the village chief and prevailing land tenure system often act as a disincentive for sustainable development and maintenance of land for cultivation. In

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the plain area, the average land holding are very small and unavailable as sustainable economic units. Besides tenurial relationships do not encourage adoption of technological advances are often highly iniquitous.

Issues relating to food security

- a) Technological backwardness:** The agricultural system of NER is still permanently based on primitive method, poor transport and communication system and inadequate institutional credit. Poor economic conditions of the farmers have led to reduce purchasing power and thus affected the food security and nutritional availability.
- b) Climate constraints and environmental safeguard:** The climate of the region varies from sub-tropical alpine. Despite diverse physiographic characteristics of the region, sub regional variations in the average seasonal temperature are not striking. Bulk of annual rainfall in the region (64 %) is received during June-September period. Extreme weather events and climate anomalies have major impacts on crop productivity and food security in NER.
- c) Public distribution system:** The existing PDS in NER is not able to meet the requirement of the poor. In the states that have high concentration of poor like Meghalaya, Sikkim and Mizoram the per capita availability of food grains under PDS are less due to lower lifting off- take from the central pool.
- d) Population Explosion:** Another important factor which creates hindrance on the way of food security and agricultural development is the population explosion in the region. The total population of the region is about 45.6 million according to 2011 census. The region's growth rate of population is much higher than national average.

4.3 Recommendations

The following measures should be adopted to solve the problem of Food productivity

- i)** Diversification of agriculture should be promoted through productivity synergized-mix of rice, pulses, oil seeds, horticulture and fishery.
- ii)** Soil and water resources of the region need to be properly inventoried, characterised and evaluated for appropriate uses.
- iii)** Increase adoption of capital high yielding variety of rice especially in Arunachal Pradesh, Nagaland and Mizoram.
- iv)** Increase in agricultural inputs of all NER states develop small farmers-oriented technologies.
- v)** For efficient market system, entrepreneurship development is indispensable. Inadequate database is a serious constraint NER, in needs to be streamlined for effective analysis of the agriculture economy.

Remedial measures for food security

- i) Efficiency in Public Distribution System:** There should be enough store houses to put the surplus produce whenever needed. There should also be adequate number of fair price shops and APL (Above Poverty Line) and BPL (Below Poverty Line) cards should be ensured to those people who really deserve if so that there is proper distribution of essentially food products among needy people equitably.
- ii) Proper public investment:** The agriculture sector needs well-functioning markets to derive growth, employment and economic prosperity in NER. To provide dynamism and efficiency into the marketing system, large investment is needed for the development of post-harvest and cold chain infrastructure nearer to the farmer's fields.
- iii) Proper pricing of agricultural products:** In fixing up the price of the agricultural produce, the interest of the farmer are to be looked into. Unless the prices give the farmers some incentives, they will not feel free to put their attention to produce more and more.

V. CONCLUSION

From the above study found that the overall food production in this region has outpaced the population growth and the average food consumption has been increasing on the one side and on the other hand, the production growth has been decelerating and which divulge adversely impact on food and nutritional security. It can be concluded from the above discussion then if the region has to become a food self sufficient instead of a deficit one and the long term sustainability of the resource for utilization of the future generation are the goals.



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