



Science

## THE SAGA OF FOOD SECURITY IN WEST BENGAL

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### Abstract

Undivided Bengal in India was struck by series of famines during the pre-colonial and colonial periods. In post partition era though there is no record of famine, starvation and malnutrition are not unknown in West Bengal among the people lying below the poverty line. Lacunae in the public distribution system might be one major hurdle. Implementation of several welfare programs and National Food Security Act, 2013 seems to be conducive to control the menace of starvation. But the concept of food security has been deduced to food grain security only without any provision of protein, minerals and vitamins, the essential ingredients of nutrition. Nutrition of mothers, children and senior citizens along with male bias of nutrition—all are in question now. Throughout India while farmers are living in debt from hand to mouth, agriculture is no more a lucrative occupation. Several measures have been introduced to combat such a disastrous situation viz. efficient storage and marketing system, loan waiver, bank transfer of grant-in-aid, minimum support price and efficient public distribution system, apart from targeted nutrition schemes. But no one can be considered as effective action so far to break the ice.

**Keywords:** Starvation and Malnutrition; National Food Security Act; Food Grain Security; Indebted Farmers; Minimum Support Price; Public Distribution System.

**Cite This Article:** Ranjan Basu. (2020). “THE SAGA OF FOOD SECURITY IN WEST BENGAL.” *International Journal of Research - Granthaalayah*, 8(1), 189-202. <https://doi.org/10.5281/zenodo.3633216>.

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### 1. Introduction

The hapless people of Eastern India suffered from the jolt of famine at regular interval either in late medieval or in the colonial period. The last famine of 1946 was experienced by undivided Bengal just prior to partition of India as an aftermath of World War II. The then government of the Bengal Province procured huge quantity of rice and other food grains from the open market for consumption of British militia. Despite no record of crop failure in that ‘black year’, poor and marginalized section of the population had to die miserable death out of prolonged starvation; even availability of alms was rare for the victims of such a gloomy situation which was intertwined with inflation of food grains. The stream of fortune seeking grass root people was culminated in mass

exodus from the rural landscape which ended up in urban pavements thus reflecting a scenario of striking inequality between ‘haves and have not’.

### **Indian Panorama**

Taking lessons from the historical events of crop damage in the years of drought and other natural calamities or war time deficit of food grains along with sagacity of distributive injustice, emphasis was given on enhancing agricultural output in the first five year plan in the early fifties of the last century in the tune of P.C. Mahalanabish model of economic development. Formation of the Food Corporation of India (FCI) for making buffer stock of major crops was coupled with an organized structural measure of preparing a country wide network of Public Distribution System (PDS).

In the decade of 1960s ‘green revolution’ was initiated in north-western India which can be conveniently referred to as the brain child of M.S. Swaminathan. Such a capital intensive irrigation and agrochemicals based machine-seed technology paved the way for bumper cropping so far rice and wheat are concerned. This was followed by ‘operation flood’ or ‘white revolution’ which was introduced in Gujarat and signified a sudden spurt in the manufacturing of various dairy products thus justifying efficacy of George Kurien Model. with emphasis on women’s cooperative. Such a measure coupled with ‘blue revolution’ in the water bodies of West Bengal and other coastal States of India provided golden opportunity for enhanced consumption of animal protein on one hand and that of carbohydrate through staple food amply produced by the farmers on the other. Such a harmony in high scale of production generated from land, water and domesticated animal resources adequately addressed the necessity of supply side management of food though curtailment in the demand size has not yet been possible mainly because of sluggish decline in the decadal growth rate of Indian population which is already a giant of 1.24 billion as recorded in the last Census.

### **The Concept of Food Security**

Such a concept is a multidimensional one, involving availability and accessibility of food apart from consumption of the accessed food. At the first instance it was coined on the floor of Hot Spring Conference organized by Food and Agricultural Organization (FAO) way back in 1943. After series of deliberations in several forums of the United Nations since 1974, the World Food Summit (WFS) in 1996 opined that “food security exists when all people, at all time, 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” (FAO, 1996).

## **2. Objectives**

This academic endeavor has several objectives to fulfill: i) to understand gravity of the problem of food insecurity which still persists in West Bengal and to estimate her success in recovery since the last famine of Bengal in 1946; ii) to assess the role of Public Distribution System (PDS) under the National Food Security Act, 2013 in achieving distributive justice of food grains and iii) to analyze the nature of spatial variation in reducing the menace of hunger and malnutrition.

## **3. Materials and Methods**

Mainly data of secondary origin collected from different government and non government sources have formed the data base of this article. Various books and articles of renowned journals, national

and international reports apart from other information extracted out of National Family Health Survey (NFHS) as well as National Sample Survey (NSS) have been consulted for necessary updates. Growth rates of population vis-à-vis production of food grains in the area under study have been taken into consideration apart from the beneficiaries of PDS. Based on various parameters, Food Insecurity Index (FII) for rural and urban areas on one hand and district level on the other has been calculated. Spatio-temporal analysis of the relevant data set has been made with the help of statistical tools thus indicating the future trend. Apart from estimation of per capita gender specific calorie consumption, height-weight ratio too have been measured for computation of Body Mass Index (BMI) of the people lying below the poverty line or under the age of five along with focus on the mothers in their pre natal and postal natal stages.

### **Position of West Bengal in India State Hunger Index**

The International Food Policy Research Institute (IFPRI) has prepared the India State Hunger Index (ISHI) 2008, following the method of calculating Global Hunger Index (GHI). Three indicators have been chosen for the purpose—i) prevalence of under nourished population in consideration of calorie consumption, ii) proportion of underweight children below the age of five along with iii) mortality rate under the same age, because these are reflections of poverty in general and food insecurity in particular. West Bengal with a score of 20.97 ranked eighth among 17 major States of the country which cover about 95 percent of the total population. The level of hunger here has been categorized as ‘alarming’ along with 11 other States while Madhya Pradesh is the solitary State where condition is ‘extremely alarming’. Such a data base substantiates that despite being well known as surplus producer of rice, a large section of the population here suffer from insecurity of food and nutrition. This also corroborates the fact that availability of food grains in the market does not necessarily make an individual in particular or the society at large secured in terms of food. Obviously access to food items endowed with carbohydrate, protein, minerals and vitamins play crucial role in food-cum-nutritional security. It bears another message too—satisfaction of hunger does not guarantee nutrition and therefore the wider issue of food security can never be deduced to security of food grains only.

### **Rural West Bengal in Food Insecurity Index**

M.S. Swaminathan Research Foundation (2008) revealed the status of food insecurity in rural India separately because the dimensions involved are quite different in rural and urban areas. The parameters chosen for such indexing are also varied. 17 major States of India have been categorized into five different layers ranging from ‘very high’ to ‘very low’ level of food insecurity. West Bengal has secured ‘moderate’ level of food insecurity alike five other States of Hariyana, Rajasthan, Uttar Pradesh, Assam and Tamilnadu. Kerala and Punjab have achieved the status of ‘very low’ insecurity of food while it is ‘low’ in Jammu and Kashmir. On the contrary as many as seven States inclusive of Madhya Pradesh, Bihar, Gujarat, Maharashtra, Andhra Pradesh and Karnataka suffer from ‘high’ level of food insecurity whereas Chhattisgarh faces the music of ‘very high’ insecurity so far food is concerned. Obviously, such a state of dismal picture is reflected in sluggish advancement in socio-economic development. Kerala has earned the honor of being topper in rural food security.

### **Urban West Bengal in Food Insecurity Index**

Deprivation in rural areas often leads to steady stream of migration in towns and cities. Unplanned urbanization with poor state of social infrastructure involving health and education indulge in intra

urban inequality. Such a state of affair is evident from emerging high rise towers along with posh housing complexes and expansion of squatter settlements with unsound structure and meager amenities in proximal location. Access to adequate food and nutrition normally eludes these urban poor.

M.S. Swaminathan Research Foundation (2010) considered as many as 11 parameters for computation of Urban Food Security Index measured in a gap of six years. As worked out in the report, a general trend of recovery is conspicuous in almost all major States of India between 1998-2000 and 2004-2006 except Andhra Pradesh and Karnataka. Hunger and malnutrition among the urban dwellers lying below the poverty line is a common picture in Indian cities in the backdrop of overconsumption and wastage of food by the creamy layer of the society. Performance of West Bengal was better in 2004-06 in comparison to that of 1998-2000 while in both the years its record was an improved one than all India average in terms of food security. Punjab is leading other 16 major States in India in achieving urban food security whereas food insecurity scores of Bihar, Madhya Pradesh, Odisha and Rajasthan are higher than that of all India average in a gap of six years. However, recovery of Uttar Pradesh and Gujarat is prominent in this respect.

### **Role of Land Reforms**

The State of West Bengal has gone through several peasant movements of which upsurge of the farmers against compulsion of indigo plantation in nineteenth century under the Company Raj and Tebhaga movement in the first half of twentieth century are famous. Rural peasantry demanded introduction of three equal shares of the harvest of which one-third would go to the landlord while another one-third would be sent to the disposal of plough and bullock owner while the rest would be reserved for the toiling farmers. Such a demand was never fulfilled; but that legacy was reflected in land reform movement which was initiated in late 1970s with patronage of the then Government of West Bengal. This was a jolt to the erstwhile system of permanent control on land exerted by the landlords locally known as Jaminders. Any plot exceeding land ceiling of 25 acres was considered as surplus and thereby declared as vested one. Numerous such land plots were redistributed among the landless agricultural labors through a massive quasi-legal campaign. These small farmers with their best efforts of intensive farming made the tiny land holdings productive enough signifying change in the axis of power in the rural landscape of the State. As a parallel action right of the share croppers to cultivate a piece of land permanently was established through registration; these people were recognized as Bargaders while such a movement became familiar as 'operation barga'. About 1.2 million share croppers were recorded as Bargaders in the State within three years of initiation. Around 2.5 million landless or land poor peasants were beneficiaries of the distribution of nearly one million acres of vested arable land. Such an effort has been substantiated as morale booster for high productivity in small farms on one hand and it fuelled the mechanism of social engineering in rural West Bengal on the other.

### **District Level Trend of Population Growth and Food Grain Production**

West Bengal is witnessing reversal in the trend of population growth as well as production of food grains as evident from the census reports and series of data on agricultural output. Even in the decade of 1981-91 not a single district could be identified where population growth rate was low while that of food grain production was high. There was a solitary district –Puruliya where both of these twin parameters were low. In rest of the districts population growth rate was high whereas growth rate of food grain production fluctuated from low to high.

In the decade of 2001-2011 the whole gamut of the situation has undergone drastic change. Only three districts e.g. Birbhum, Murshidabad and Dakshin Dinajpur have recorded population growth of more than 20 percent and among them only Birbhum still maintains a low profile so far increase in the production of food grains is concerned. On the contrary, as many as five districts—Hugli and Haora in the south, Paschim Medinipur in the west along with Koch Behar and Jalpaiguri in the north have made substantial achievement with a record of low population growth in the backdrop of high increase in food grain production. All other districts, despite their low growth rate of population, are suffering from the problem of low escalation rate of food grain production.

It has been reported from so many districts of West Bengal that procurement mechanism of paddy at the behest of Food Department, Government of West Bengal is inefficient and ill organized even against cheque payment on the spot thus providing scope for the pro-active middlemen offering lower price than the government rate.

### **Requirement of Food Grains and Requirement-Production Gap**

Indian Council of Medical Research (ICMR) has recommended consumption of 417 grams of cereals per day per head whereas in case of pulses such requirement is 47.5 grams. In terms of production of food grains in 2015, most of the agrarian districts of West Bengal have recorded surplus in comparison to their requirement. Hilly terrain of Darjiling district, urbanization in Kolkata, Haora and North 24 Parganas besides domination of forest clad islands in South 24 Parganas is responsible for wide negative gap between production of food grains and their requirement.

### **Production of Potato, Other Vegetables, Fruits and Access to Them**

Potato is considered as a major vegetable in West Bengal by virtue of contributing almost half of the total production of vegetables in the State. With the help of high yielding seeds, irrigation and agrochemicals, its yield rate is escalating gradually as a dominant water sensitive boro (winter) crop though total production fluctuates over time. Hugli, Bardhaman, Paschim Medinipur and Nadia are leading districts in terms of production of potato.

West Bengal has recorded exceptional growth in production of other vegetables in last 25 years. But farmers are not getting the dividend out of it because of inadequate storage facility. A sizable portion of potato and other perishable summer/winter vegetables is either decomposed in the post harvest stage or the suffering farmers are compelled to opt for distress sale of their precious products. Middlemen become the beneficiaries while the toiling small farmers and share croppers along with consumers are the ultimate losers in the bargain because of faulty method of procurement and fluctuating market price. Recurrence of such unfortunate incidents often calls upon food security of the people especially of Below Poverty Line (BPL) group in absence of minimum support price for vegetables coupled with food inflation. Experiment with Sabji Mandies (wholesale vegetable markets) has failed so far as these are non starters.

Despite increasing trend of production of fruits in the State, most of the quality fruits are exported either for international market or for intra-national well-to-do urban customers. Because of high price level of the vitamin and mineral rich orchard products, financially weaker sections of the society are unable to afford these within their regular dietary intake system thus making their

nutritional security questionable. Hence, it may be reiterated that surplus or sufficiency of production need not have any bearing with food and nutritional security.

### **Production of Milk and Access to Dairy Products**

In spite of absence of dairy-centric co-operatives, following Kurien Model already experimented in Gujarat; total quantity of milk produced in West Bengal is high enough. The government run companies like Haringhata and Mother Dairy are engaged in organized commercial production of milk and other bi-products. The decadal growth rate of milk production is about 23 percent in the State, however, bulk of the products are transformed into confectionary items whereas very little is left for direct consumption especially in the households of poor countrymen. Organized 'white revolution' is still eluding the State of West Bengal. Most of the poor households in rural and urban areas prioritized satisfaction of hunger through consumption of carbohydrate thus neglecting the requirement of animal protein consumption. The food habit itself seems to be faulty in many cases and not in compliance with norms of health and nutrition.

### **Supply and Demand of Eggs, Fish and Meat**

Though production of eggs in West Bengal is increasing continuously since 1990-91, it has recorded a sharp rise since 2008-09. But despite initiative of the State Government to produce 5,000 m. tonnes in 2014-15, profound gap does exist in the market between demand and supply. Still now West Bengal is dependent on supply of eggs from other States of India in general and Andhra Pradesh in particular. In fact such a demand is not confined to direct consumption; rather it is widely used as an ingredient in bakeries and fast food kiosks. It is widely accepted as an affordable dish even in poor households as a source of tasty animal protein.

Fish is an essential component of Bengali diet; so high demand prevails in the State, both for inland and marine fish. But fresh water fish combination in its totality has remained inadequate for a long time while such an issue is being taken care of through research and artificial breeding as well as high yielding varieties on one hand and by opening supply line from the States of Odisha, Andhra Pradesh and Tamilnadu on the other. In spite of enhancement in the production of fish from less than 8,000 tonnes in 1990-91 to 1,600 tonnes in 2014-15, the gap between requirement and availability has not yet been reduced because of growing consumer size. Fish market in general remains beyond the reach of the people lying below the poverty line.

Meat is considered as a delicacy in the food habit of the Bengalis and the market is relatively smaller while the growth rate is slow. Normally it is consumed in the holidays and other occasions in the middle class families. For poor people it is a dream item only.

### **Expenditure on Different Food Items**

It is interesting to note that for nearly two decades ranging between 1993-94 and 2011-12 per capita expenditure on cereals as well as on total food was higher in West Bengal in comparison to national average. For expenditure on cereals a trend continued till 2011-12; but in terms of expenditure on total food in that year reversal is conspicuous when national

Table 1: Average monthly expenditure per person on cereals and total food consumption in West Bengal and India, 1993-94 to 2011-12

State	Average monthly expenditure per person in rupees				
	Year	Rural		Urban	
		Cereals	All food	Cereals	All food
West Bengal	1993-94	94.40	186.30	80.90	265.20
	2003-04	129.43	325.00	118.00	453.00
	2011-12	207.85	639.92	209.72	989.16
All India	1993-94	68.10	177.80	64.30	250.30
	2003-04	99.00	299.00	102.00	429.00
	2011-12	154.00	756.00	175.00	1121.00

Source: NSSO, Government of India

average exceeded the State average of West Bengal. Staple food of this State which is located in the rice bowl of India, is obviously rice whereas wheat based varieties are mainly confined in the urban areas. Such preference for a particular cereal has a reflection on the pattern of expenditure too. Variety in food items and higher frequency of intake forms two dimensions of urban food habit which are missing in rural landscape. Purchasing power of the household, awareness on healthy dietary intake, legacy of local food habit, availability in the choice-able food in the local market are the key factors responsible for heterogeneity of consumption vis-à-vis pattern of expenditure on different food items.

### Two Square Meals A Day: Poor People's Dream

Access to two square meals a day for all members of a household is universally recognized as a pre condition to satisfaction of hunger. National Sample Survey Organization (NSSO) has divided such a necessity into three categories: access of two square meals everyday throughout the year, access to the same in few months in the span of a year and access not assured even for a single month.

NSSO survey had revealed that during the period 1993-94 to 2004-05 there was existence of some households in the rural areas of West Bengal where availability of two square meals a day throughout the year was impossible. However, the situation improved somewhat in the year 2009-10 because of enhancement in household income, provision of food grains at subsidized rate with reduction in gender gap.

Table 2: Average calorie (kcal) intake per consumer unit per day in West Bengal and India, 1972-73 to 2011-12

Year	Calories intake (kcal) per day per consumer unit			
	Rural		Urban	
	West Bengal	All India	West Bengal	All India
1972-1973	1921	2266	2080	2107
1982-1983	2027	2221	2048	2089
1993-1994	2211	2153	2131	2071
1999-2000	2095	2149	2134	2156
2004-2005	2070	2047	2011	2020

2009-2010	2516	2647	2493	2604
2011-2012	2710	2752	2924	2700

Source: NSSO, Government of India

In rural West Bengal the problem of such non availability of food becomes acute during the wet spell of monsoon ranging between the months of June and October whereas in the urban landscape of the State two to three percent households were non recipients of two square meals in 1993-94, though the situation has gradually improved. Among the different occupational groups the status of agricultural laborers was most precarious in 2004-05; about 24 percent of them were not getting meals twice a day in some months of the financial year. Again, the situation was improved and such percentage figure of the people suffering from hunger came down to around six percent in 2009-10.

### Food Consumption Score and Its Spatial Variation in West Bengal

A composite score based on dietary and food frequency along with relative nutritional importance of various food categories can be obtained which has been conveniently summed

Table 3: Food categories and their weightage

Sl. No.	Food Categories	Weightage
1	Cereals and potatoes	2
2	Pulses with nuts	3
3	Vegetables	1
4	Fruits	1
5	Fish and meat	4
6	Milk and other dairy products	4
7	Honey and sugar	0.5
8	Oil, butter and fat	0.5

Source: Vhurumuku, 2014

Table 4: Food consumption score and their status

Sl. No.	Range of Score	Status
1	0-28.0	Poor consumption
2	28.1-42.0	Borderline
3	>42.0	Acceptable consumption

Source: Vhurumuku, 2014

up under the term Food Consumption Score [FCS] (Vhurumuku, 2014). Following this method FCS has been calculated for various districts of West Bengal and it was observed that the percentage of people belonging to 'poor' FCS category is quite high in the drought prone western part of the State, in the flood prone districts of Malda and Murshidabad, in sick and closed tea garden areas in and around the Dooars region as well as the Sundarban region where productivity of crop is low because of brackish water and salinity of soil. Weakness in Public Distribution System (PDS) has added a rider on such chronic physico-economic problems in these pockets of 'poor' FCS.



### Food Price Inflation

The people of India in general and West Bengal in particular are facing the music of food price inflation in last few decades (Sekhar, Roy and Bhatt, 2017). Such a menace has a negative impact not only on the agrarian economy of the State but on the mission of making it a hunger- free region also (Agarwal and Kumarswami, 2012). Prevailing inefficiency in the system of supply and distribution has aggravated the problem further. Inflation of food price was soaring during the period 2006 to 2015. Rate of inflation of food price in case of pulses, vegetables, egg, fish and meat fluctuated at regular interval in comparison to other categories of food thus making greater impact on food price inflation as a whole. For obvious reasons, below poverty line (BPL) households had to compromise with quantity of food and frequency of their intake thus leading to severe undernourishment. Food price inflation reached its maxima of 15 percent in the year 2010 and it has reached all time high by the turn of the year 2019 which are indicative of vulnerability of the BPL group at low level of consumption.

Table 5: Annual fluctuation in rate of overall inflation and food price inflation in India, 2006-2015

Year	Rate of Inflation in Percentage	
	Overall Inflation	Food Price Inflation
2006	6.0	8.3
2007	4.9	6.5
2008	8.7	7.4
2009	2.4	13.6
2010	9.6	15.9
2011	9.5	7.3
2012	7.5	9.5
2013	6.3	10.4
2014	3.8	3.8
2015	-3.0	2.3

Source: Ministry of Commerce and Industry, Government of India

### Implications of the National Food Security Act (NFSA), 2013

Following the Brazilian model of 'zero hunger' this act was given a final shape (Swaminathan, M, 2013). It is indeed a mix of structural measures and subsidy policy in view of low demand because of widespread unemployment and high income disparity, low purchasing power coupled with market exclusion of the poor people. Prior to 2013 PDS in India was most efficient in Kerala and Tamilnadu. In India, with exception of 2011-12, subsidy on food never exceeded one percent of the Gross Domestic Product (GDP). If 'food for all' in the backdrop of severe malnutrition is the goal of the country, one to two percent expenditure out of GDP seems to be justified. It necessitates on the part of Government of India to extend food grain subsidies under the PDS to 75 percent of the population in rural environ and 50 percent in its urban counterpart (Dreze, et. al, 2019). The recipients have been categorized into two separate groups jointly referred to as 'eligible households' under which there are priority households and Antyodaya Anno Yojana (AAY) households. The former households are eligible to get five kg of food grains per person per month at the subsidized rate of three rupees, two rupees and one rupee per kg of rice, wheat and millets respectively while the latter group of households are eligible to get 35 kg of food grains per month

at the same prices irrespective of their family size. This act also incorporates several reforms of PDS in order to assure transparency and to avoid leakages. 'Near universal' coverage is the most formidable achievement of PDS under NFSA for the poor States inclusive of West Bengal where mandatory coverage in rural areas tantamount to 75 percent. But unfortunately, many poor families have not yet been included wheat and millets in their food habit; they are often found to resale these crops to the open market. Pre-NFSA BPL lists contained massive errors in exclusion and inclusion whereas since implementation of the act, the ration cards are more targeted and reliable. Leakage has also come down because the age-old practice of the ration dealers to sale the defaulter's share in the open market has become difficult to continue because of open declaration of the food stock. As observed by a survey team under the leadership of Dreze (2019), West Bengal was suffering from 'unnecessary complexity' in the PDS. A system, though much more simplified after the NFSA, yet still bears some elements of complexity, viz. so many categories of ration cards, weekly in lieu of monthly distribution, individual ration cards in preference to household ones along with specific packages for certain areas or groups. Simplification of the system is need of the hour for the sake of transparency on one hand and to wipe out bubbles of corruption on the other. Targeted PDS with efficient management system has already been substantiated as a leakage-free mechanism capable of assuring distributive justice (Dreze and Sen, 1989).

### **Sustainable Food Security and Passage from Food to Nutrition Security**

For achieving sustainable food security, three dimensions of this issue involving food and non food factors need to be addressed in an orchestrated manner: i) availability of food as function of indigenous production and import; ii) access to food as function of purchasing power and employment as well as iii) absorption of food in the body as function of clean drinking water, sanitation and health care (Swaminathan, M, S, 2010). The National Commission on Farmers (NCF) has described West Bengal and her neighboring States 'sleeping giant' which have tremendous potential to produce crops, vegetables and fruits for which rain water harvesting and watershed management are twin preconditions. The Rajib Gandhi Drinking Water Mission in association with Swachh Bharat Program and the National Rural Health Mission are expected to help the process of healthy metabolism. Effective implementation of Mahatma Gandhi National Rural Employment Act (MGNREGA) can ensure enhancement of base line purchasing power. Community Grain Banks may be created in the State to preserve diversity of indigenous crops, especially the salt resisting varieties engaging Women's Self Help Groups for the purpose. Encouragement to horticulture in several districts through National Horticulture Mission will provide the most cost effective micronutrients to the people suffering from hidden hunger. Crop-livestock integrated farming will pave the way for a shift from food to nutrition security. Launch of a 'National Grid of Genetic Garden of Bio-fortified Plants' has already been put forward by M.S. Swaminathan (2018) to extend agriculture remedies to major nutrition problems. Increased production of pulses coupled with enhanced dairy and poultry output will ensure sufficient protein intake. The National Nutrition Mission (NTM) in coordination with the provisions of NFSA, 2013 is expected to overcome the constraint of calorie deficiency and protein hunger in West Bengal. With a view to cope with the threat of climate change if impacted through a rise of 1 to 2 degree centigrade, short duration varieties of rice or hybrids especially SRI would be ideal. In order to control pests and diseases adequate plant and animal protection measures should be tailored. The challenge of vector borne diseases should be taken seriously. To meet the challenge of unfavorable alterations in precipitation, drought and high temperature tolerant crop varieties for western districts of the State along with flood tolerant rice varieties for low lying areas need to be

discovered through genetic engineering. Salinity tolerant crop varieties may be encouraged in Sundarban region. M.S. Swaminathan Research Foundation (MSSRF) has recommended exploration of new technology to cope with climate change with emphasis on preservation of mangrove ecosystem in Bengal delta apart from bee keeping, mushrooming, vermin-culture and agro-forestry (M.S. Swaminathan, 2010) on waste land.

Besides, improvement in nutrition requires a combination of rights-based approach along with nutrition education while such an approach need not be confined to legal right only because all human rights are not necessarily legal rights (Dev and Sharma, 2010).

### **Theoretical Debate on Food Security and Poverty**

Often a question is raised—who feeds the teeming millions of the world? Eco-friendly feminist viewpoint provides the answer—they are agro-ecology, living soil, biodiversity, localization of feeds and the women feed them anywhere in the world (Shiva,2017). Can the State of West Bengal become an exception to that? In case such a statement holds water in the academia of the country, an inference may be drawn that availability of food is the gift of favorable natural and social components.

Definition of poverty line always seems to be a debatable issue. National Planning Commission's notion of income level below Rs. 28 in rural areas and below Rs. 34 in urban areas per capita per day as National Poverty Line is far lower than that of Global Poverty Line which remains at 1.75 US Dollar (current conversion rate is Rs. 72 per Dollar). National Institute for Transformation of India (NITI) Ayog is yet to make up its mind in this respect. Do the apex bodies attach equal importance to nutritional poverty line while identifying BPL group of people? Without consideration of both the aspects of poverty how can a list of BPL beneficiaries be prepared?

Total government expenditure (minus interest) as percentage of GDP was steadily declining immediately after India's entry into WTO. In the first decade of the 21st century it moved up no doubt, but recently it has gone down again. Greater emphasis is desirable on public expenditure with high direct and indirect effects on employment generation, as well as on resource mobilization out of taxation on the people above the luxury line (Ghosh, 1983).It has also been opined that most of the agricultural development plans in India are selective and fragmented. Adequate emphasis is required on smoke free rural energy base so that the farmers do not suffer from diseases and resultant drainage of calorie (Singh, 1985).

The next debatable issue refers to contemporary prescriptions on food security and poverty glossed over by the so called liberal policy intertwined with withdrawal of subsidy. In fact, agrarian crisis is deepening gradually and it is the creation of public policies which are deflationary coupled with trade liberalization when global primary prices are declining. It has manipulated a slow process of output growth, escalating unemployment, in addition to debt trap for the farmers in the backdrop of fall in food grain absorption and decline in average calorie intake in rural areas (Ghosh, 2011).

The so called 'modern' model of increasing land and labor productivity in agriculture through techno-centric approach is also in question. A new socio-technical regime focuses on biological synergies below and above the ground which requires convergence of eco-friendly science with traditional indigenous knowledge. In the long run it would be more productive per unit of land,

more resilient to climate change and economic depression, more labor intensive instead of capital intensive, more profitable for the farmers who would produce pesticide-free diversified nutritious food (Dorin, 2017).

What kind of measure would be most effective for taking care of the agrarian problems; that remains a million dollar question. There are several prescriptions ranging from direct cash transfer to individual bank account to extending Minimum Support Price (MSP) for crops to the farmers and their loan waiver. Expert opinions vary widely. Loan giving agencies inclusive of banks are firmly putting down their feet against any populist measure of loan waiver particularly ahead of State assembly or parliament election episode because if the recovery process fails, it would be very difficult for them to offer fresh loan. Who will bell the cat? In reality, loan waiver for the farmers can never be a cake walk like that of the business tycoon. Moreover, such benefit extended from the State exchequer does not matter to landless laborer who can never be eligible for bank loan and normally suffer from food insecurity. Sagacity for the dwellers of urban squatter settlements is almost the same.

### **Major Findings**

Based on the discussion made so far major findings of the present study can be recorded:

- 1) Implementation of modern technology has enabled the farmers of West Bengal to make surplus production of paddy and therefore it has been possible to overcome the problem of non availability of staple food rice and so to say carbohydrate. But these farmers are still reluctant to produce pulses which are considered as the sources of protein for the poor people. Bias on rice has deterred the production of wheat as a winter crop; crop diversification has also been neglected for the same reason despite higher cropping incidence.
- 2) Success of land reforms in the State has provided rich dividend to the rural poor, especially the land less ones and thereby problem of their food insecurity has been addressed in proper direction because of marginal improvement in purchasing power.
- 3) Though production of milk is increasing, there are serious lacunae in organized dairy farming. Per capita consumption of milk and other dairy products is low while bulk of these sources of animal protein is satisfying the demand of the confectionaries. Low ebb of the purchasing power is mainly responsible for poor consumption of fish, meat and egg on one hand and that of fruits on the other thus leading to nutrition insecurity.
- 4) Despite availability of food in the market in plenty, the main problem lies with access to food for the people lying below the poverty line. Sick tea garden areas in the Dooars region and the flood prone Maldah district in the north, drought prone district of Puruliya in the plateau region and the adjacent part of the Bankura district of the west along with saline-alkaline soil of the Sundarban region in the south are the worst affected areas of West Bengal where there are pockets of starvation. The recent wave of food inflation has added a rider to the prevailing problem.
- 5) Agriculture is no longer a lucrative economic activity now-a-days in absence of acceptable minimum support price for the crops grown, availability of the benefit of crop insurance in time and inefficient procurement of the crops immediately after harvest. The small and marginal farmers become easy target of the middle men who take away the products offering much lower price and distress sale is conspicuous.

- 6) Questionable quality of drinking water coupled with unhygienic sanitation in the rural areas and urban squatter settlements are responsible for defective metabolic system and resultant nutrition drainage.
- 7) Public Distribution System in West Bengal is complicated and often the beneficiaries are wrongly targeted. In fact, the whole objective of food security has been culminated in assuring food grain security only. Inadequate and unscientific storage system often leads to damage and wastage of valuable crops.
- 8) Several welfare projects meant for the weaker section of the society inclusive of creating job opportunities for the unemployed youth and marginal workers suffer from lack of trickle-down effect because of interference of the vested interest.
- 9) Because of limits to growth food production cannot be increased beyond a certain point. So far all attempts have been made for supply side management while little attention has been given on curtailment of demand through control of population growth. Production-population gap in district level is still haunting the powers that be.
- 10) Balanced diet having a combination of carbohydrate, protein, fat, minerals and vitamin is still eluding the people of West Bengal because of their food habit thus nullifying nutrition which is an integral component of food security. Gender based discrimination in the rural households is another hurdle standing in the way of universal nutrition.

#### **4. Conclusion and Recommendations**

In view of economic crises looming large on the agrarian society of India in general and West Bengal in particular, it is high time to switch over to a down to earth policy which would be pro-poor on one hand and nature-responsible on the other. Demand in the market cannot be escalated if a large section of the total population reels under starvation and malnutrition. Warehouses at the disposal of Food Corporation of India (FCI) have a huge buffer stock of cereals, a substantial portion of which is decomposed and wasted each and every year. Despite the noble desire of the honorable Supreme Court, the Government of India has denied to comply with that on the plea that the responsible ministry is unable to bear the cost of its mass distribution. In reality, storage of perishable food grains for a long time also accrues cost. It is a question of mental block reflected in the policy statement of a welfare State.

There is a counter argument which interprets erosion of purchasing power and resultant decline in demand of food grains as 'overproduction'. They even argue in favor of curtailment of food grain production. But it needs to be realized that price deflation not only affects the cultivators, it does not spare even the landless labors.

Minimum support price for the crops grown should be pragmatic one while food grain procurement centers and vegetable marketing centers should be decentralized to minimize the transport cost of the farmers. A well-knit network for rural banking facility, warehouses and cold storages needs to be developed on one hand and proper infrastructure for sanitary system and safe water supply is required to be established. Strengthening of cooperative movement, higher involvement of the self help groups, easy access to micro credit and crop insurance, establishment of community grain bank, error-free identification of the poor beneficiaries, creation of asset creating person days and emphasis on salt resisting varieties of crops are expected to pay rich dividend in the long run to assure food security.

West Bengal, despite her success in land reforms, has failed so far to overcome the problems of starvation and malnutrition in the pockets of severe poverty. A reversal of policy with unbiased mindset coupled with some structural measures and implementation of the welfare programs like mid-day meal for the school students, Integrated Child Development Scheme (ICDS) and range of such other targeted schemes are expected to make the desired breakthrough. Children and women especially mothers in their prenatal and postnatal stages deserve special attention for nutrition in order to overcome the complicated problems of reproductive health. Male bias reflected in quantity and quality of food consumption is another menace which necessitates immediate redress apart from the nutritional constraints in different geriatric stages.

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