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FOOD SECURITY MANAGEMENT: A CONCEPTUAL FRAMEWORK

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ABSTRACT

In the contemporary scenario, our nation is set to emerge as one of the world's most thriving and promising economies. It is imperative that an inclusive approach to resolve the problems facing rural India be undertaken. India is largely an agrarian based rural economy with a predominant unorganized sector. 68.84 percent of India's population lives in rural areas. Distribution of main workers by industrial category in Census-2011 shows that agriculture sector still employs the largest number of workers. The dependence on agriculture is brought out by the fact that of the 313 million main workers in the country, 166 million (56.6 percent) have been engaged in 'Agricultural and allied activities'. Sustainable Development Goals (2030) aim to end all forms of malnutrition, including achieving by 2025 the internationally agreed targets on stunting and wasting in children under five year of age and address nutritional needs of adolescent girls, pregnant and lactating women and older persons. The United Nations Decade of Action on Nutrition (2016-2025) promotes policy coherence between food system, nutrition and health to accelerate efforts to reduce malnutrition. This paper attempts to study the conceptual framework of Food Security Management as well as its role in reducing Malnutrition.

KEYWORDS : Food Security Management, Malnutrition, National Food Security Act (NFSA), Sustainable Development Goals.

INTRODUCTION: -

Food Security means availability of sufficient food grains to meet the domestic demand as well as access at the individual level, to adequate quantities of food at affordable prices. This is a paradigm shift from a welfare approach to a rights based approach. About two thirds, approximately 67 per cent of population will be entitled to receive subsidized food grains under Targeted Public Distribution System Also Malnutrition is adversely impacting the country's development and health expenditure.



Food Security has evolved over time from 'freedom from hunger in the early 1940s into broad concept encompassing three determinants: availability of food, access to food and absorption. Food Security concerns can be traced back to the trauma faced during the Bengal Famine in 1943 under British Colonial rule. Revolutionary self sufficiency in food was achieved with the Green Revolution in the late 1960s and 1970s. The White Revolution (Operation Flood) and structural transformation in agriculture has helped to ensure food security to a large extent.

Ensuring food and nutrition security is a challenge for India even though it is a net agricultural exporter, particularly of milk, fruits, vegetables and cereals. However, food availability is affected by climatic condition, declining water resources and pests which decrease agricultural output. Despite rapid economic growth in recent year, economic access to food by persons living below poverty line remains problematic. The level of food absorption is also low. About 44 percent of children under the age of 5 are underweight. 72 percent of infants and around half of pregnant women are anaemic. Research has conclusively shown that malnutrition during pregnancy causes the child to have increased risk of future diseases like physical retardation and reduced cognitive abilities. India has been ranked 97th in 118 countries in Global Hunger Index in 2016. The GHI is a multidimensional index composed of four indicators- proportion of undernourished, prevalence of child mortality, child stunting and child wasting. The seriousness of hunger is reflected by data which shows that 15.2 percent Indians are undernourished. The United Nations annual report for 2014-15 stated that India has the world's highest number of hungry people in the world. Around one-fourth of world's hungry population is in India.

DETERMINANTS OF FOOD SECURITY

Availability of Food (Physical Access):

Food availability is determined by domestic production, import capacity, food stocks and food aid.

Table 1: India's Per Capital availability of Food Grains (2009-2013)

Year	Food Grains (gms per day)
2009	444.0
2010	437.1
2011	453.6
2012	450.3
2013	510.8

Source: Website of Press Information Bureau Government of India, New Delhi.

Fluctuations in per capita net availability are mainly due to changes in production on account of variation in weather conditions, increasing population, change in stocks etc. Government of India implements various programmes/schemes e.g. Rashtriya Krishi Vikas Yojana, National Food Security Mission etc. with the objective of increasing productivity. In addition, India Council of Agricultural Universities have developed a number of improved varieties/hybrids of food grains crops to enhance production and productivity. Government also imports agricultural commodities to augment their domestic availability.

Accessibility (Economic Access):

In the post reform period, more than 300 million people continue to live in poverty and food accounts for more than 50 per cent of monthly per capita expenditure in India. To tackle with food security problem, India operation one of the largest food safety nets in the world- the National Food Security Act 2013.

Government of India is implementing this scheme which provides nearly 800 million people (67 percent of the country's population and 10 percent of the world's) with subsidized monthly households rations. India's PDS (Public Distribution System) is the largest distribution network of its kind in the world. In addition, the Antyodaya Anna Yojana was launched in 2000 for the poorest of BPL families. Other measures taken by the Government include providing incentives through higher Minimum Support Price of agricultural commodities, developing rural infrastructure through MGNREGA, increase in credit flow to agriculture sector, interest subvention on crop loans etc. An interrelated aspect which needs immediate address is nutritional security. The Tenth Five Year Plan focused on comprehensive interventions aimed at improving nutrition security. Population need adequate quantities of balanced diet to remain healthy.

Nutrition Security has evolved over time from Multi-Sectoral Nutrition Planning approach in the 1970s and UNICEF conceptual framework. Body size and physical activity levels are two major determinants of human nutrient requirements. The 1996 World Food Summit provided a comprehensive definition of food security bringing into focus the linkage between food, nutrition and health. Nutrition includes assessment of under five underweight and low BMI in adults. The National Nutrition Monitoring Board and National Family Health Survey provide data on nutritional status using Gomez classification and Bio-Mass Index (BMI).

**Table 2: All India Projections of Households Food Demand
(Million tons per annum)**

	2010	2020
Rice	97.99	118.93
Wheat	72.07	92.37
Pulses	14.58	19.53
Milk & Milk Products	106.43	165.84
Meat and Fish	7.25	10.80
Fruits and Vegetable	75.21	113.17

Source: Website of Centre for Economic and Social Studies, Hyderabad)

Nutritional Security requires 'food', 'health' and 'care' simultaneously. Nutrition Security, therefore, cannot be achieved without Food Security at the household level. The nutrition status can be improved even if food insecurity and poverty continues to exist, through improved 'nutrition supportive' decision and behaviour or measures such as mandatory fortification of carefully chosen food consumed by majority of population to deliver much needed micronutrients. In practice, Food Security is not always understood comprehensively. The term does not give adequate emphasis on importance of food for better nutrition. Nutrition Security encompasses access to adequate food, child care and feeding practices and socio-economic indicators such as health and sanitation.

The two major determinants of human nutrient requirements are body size and physical activity. The revised recommended dietary allowances (RDA) for Indians takes cognizance of the current body weight and physical activity while computing the energy and nutrient requirements. In Policy formulation, a distinction should be made between transient and chronic food security. Transient food insecurity is related to risks in

either access or availability of food during the off-season, drought or inflationary years. In contrast, chronic food security is associated with poverty and arises due to continuous inadequate diet. Market oriented policies expose the rural poor to the risks of market uncertainties.

The policy guideline to overcome this issue includes intervention by the Government to encourage agricultural production programme and productivity, create sustainable rural infrastructure and providing rural skilling and training to raise the purchasing power of the rural poor.

Achieving long term food security demands that research in production of non-cereal food and technology access to rural small farmers should be improved. Enhancing food quality and improving market access need to be priority goals.

The National Sample Survey Office (NSSO) data for 2011-12 data on Nutritional intake showed that per capita calorie consumption rose to 2099 kilocalories per day in rural areas and 2058 kilocalories per day in urban areas. However, the erstwhile Planning Commission's benchmark was 2400 calories per day. The implication of the per capita calorie intake in India which grew marginally after three decades are unclear. For one, India's most developed States have the lowest average calorie consumptions, pointing to the fact that higher calorie intake may not be directly correlated to overall well being. However, calorie consumption is expected to rise steadily with family incomes. The top five per cent of rural Indians consume double the calories as the bottom five per cent. The share of cereals in total calorie intake has steadily declined and is down to 50 per cent in rural India. The average India had access to 2455 kilocalories per day with protein and fat availability at 60 gm and 52.1 gm respectively, according to OECD (2014). This is far lower than at least the 3000 kilocalories per day availability for OECD nations. Factors such as wastage of stocks are also to blame for poor availability. However, per capita food availability does not reveal the whole picture. Data from NSSO shows that both total calories and proteins consumed have fallen in the two decades to 2011.12. The overall nutritional status of half of the populations is not very encouraging as there is severe under nourishment in the bottom 30 percent of expenditure class.

FOOD FOR ALL: A BIG CHALLENGE

Vastness of the country having many geographically challenged place and the economic disparities pose a big challenge in ensuring physical and economic access to all sections of the society, especially the poor ones. But Government of India worked in a dedicated manner to realize the vision of 'Food for All' and launched strategic schemes programs to provide food to weaker sections of the society at affordable price near their households. As a response to the food shortages at the time, Government of India launched well structured Public.

Distribution System (PDS) during 1960s, which relied mainly on procurement of food grains by Food Corporation of India and their distribution through fair price shops. By the 1970s, PDS had evolved into a universal scheme for the distribution of subsidized food and currently it, is the largest distribution network of its kind in the world. In the 1990s, Government revamped the PDS to improve access of food grains to people in hilly and inaccessible areas and to target the poor. The PDS, in its new 'avatar' is Targeted (TPDS), operates through a multi-level process in which the Centre and States share responsibilities. States such as Chattisgarh and Madhya Pradesh have implemented IT measures to streamline TPDS, through digitization of ration cards, the use of GPS tracking of delivery and SMS based monitoring by beneficiaries. TPDS provides 35 kilogram of food grains to each poor households at subsidized rates. Centre has made special efforts to deliver food grains to remote areas, such as hilly tracts of north-east region and Himalayan areas. Under a special provision,

Government of India releases extra food grains, beyond the allocated state quota, to provide relief to states suffering from natural calamities.

While implementing TPDS, Government realized the plight of 'poorest of poor' who are not able to afford food even on subsidized prices. Hence, to ensure their food security, a special scheme, 'Antyodaya Ann Yojana' was launched in the year 2000 targeting families having monthly income of less than Rs. 250/- only. Such families were identified and issue a special 'Antyodaya Card' which entitles the family to get 35 kilogram of food grains per month (Wheat @ Rs. 3/- per kilo) from the fair price shop. The scheme is a great success ensuring food security for the 'poorest of poor'.

Moving further, Government has notified the National Food Security act. 2013 to provide food and nutritional security to its people as a legal right. However, the Act does not disturb the structures and provision of the Antyodaya Ann Yojana. The Act also has a special focus on the nutritional support to women and children. It provides meals to pregnant women, lactating mothers (upto six month of child birth) and children upto 14 year of age. Nutritional meals are provided to this target group as per the prescribed nutritional standards. So far, the Act has been implemented in 32 States and Union Territories, and out of these, Chandigarh and Puducherry are implementing the Act through cash transfer of food subsidy to the beneficiaries.

Taking an innovative step, Government of India launched an unique 'Mid Day Meal Scheme' in 1995 with a view to encourage enrolment and attendance in primary school along with improvement in nutritional levels of the children. initially, the scheme was implemented in 240 blocks of the country, but the overwhelming success and popularity of the scheme prompted Government to cover all blocks by the 1997-98. Simultaneously, the coverage was also extended to upper-primary schools and the nutritional standards of the meals were also improvised. Now, the meals of students of upper-primary classes have been standardized as 25 to 30 grams pulses, 65 to 75 grams vegetables and a moderate quantity of all (7.5 gram). The scheme is ensuring nutritional security of 11-12 crore school children along with educational benefits, Government of India is also operation an integrated Child Development Scheme (ICDS) since 1970 to provide a sound base for overall development of children which includes nutritional security. Target groups of this scheme include children in the age groups of 0 to 6 year, pregnant women and lactating mothers. Services such a health, nutrition and early learning are provided at the village level through Angawadi Centres across the country. The scheme is providing nutritional support to more than 3.40 crore children and 70 lakh women especially in rural areas.

The National Food Security Act, 2013

In the Indian context, the underpinning for food security of the people can be found in the Constitution, though there is no explicit provision on right to food. The fundamental right to life enshrined in Article 21 of the Constitution has been interpreted by the Supreme Court and National Human Right Commission to include right to live with human dignity, which includes the right to food and other basic necessities. Under Directive Principles of State Policy, it is provided under Article 47 that the State shall regard raising the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties.

To further strengthen the efforts to address the food security of the people, the Government has enacted the National Food Security Act (NFSA), 2013. It marks a paradigm shift in approach to food security from a welfare to right based approach. The Act legally entitles upto 75 per cent of the rural population and 50 percent of the urban population to receive subsidized food grain under Targeted Public Distribution System. About two-thirds of the population therefore, will be covered under the Act to receive highly subsidised food grain. There is a special focus in the Act on nutritional support to pregnant women and lactating mothers and children upto 14 years of age by entitling them to nutritious meals. Pregnant women will also be entitled to

receive cash maternity benefit of Rs. 6000 in order to partly compensate her for the wage loss during the period of pregnancy and also to supplement nutrition. Keeping in view the important role that women play in ensuring food security of the family, the Act contains an important provision for women empowerment by giving status of head of the household to the eldest women of the household, for the purpose of issuing of ration cards.

The National Food Security Act (NFSA), 2013 aims at covering overall 67 percent of population (75 per cent of rural and 50 per cent urban) and promised to give them rice/wheat/coarse cereals at Rs. 3/2/1 Kg through Public Distribution System (PDS).

The quantity promised is 35 kg/ months for Antyodaya households and 5kg/ per person for priority households. At the current average size of the family of around 5, this will work to 25kg/household per months. The total annual requirement of food grains for beneficiaries of PDS and other welfare schemes is estimated to be 61.2 million tons (MT). The cost of handling grain by the Government was about Rs. 30/kg for rice and Rs. 22/kg for wheat in 2014 (including costs of carrying stocks), against Minimum Support Price (MSP) of rice at about Rs. 20/kg (converted from paddy) and Rs. 14/kg for wheat. The budgeted food subsidy for FY 2014-15 was Rs. 1.15 lakh crore and there were pending arrears of almost Rs. 500 billion that need to be cleared on account of food subsidy.

NFSA provided for a period of one year after the commencement of the Act, i.e. up to 04.07.2014, for identification of eligible households for receiving subsidized foodgrains under Targeted Public Distribution System (TPDS). All 36 states/UTs implemented the act since November 2016. Aspects which need focused attention of State Government and UT Administration relate to beneficiary identification in a fair and transparent manner so as to avoid errors on inclusion and exclusion, delivery of foodgrains up to door-steps of fair price shops computerisation of TPDS operations, strengthening of the mechanism of Vigilance Committees at various levels and effective grievance redressed mechanism. Such reforms measure are crucial to ensure a leakage and diversion free PDS and also to ensure that no needy person is denied benefits.

Challenges of NFSAI

The existing system of foodgrain management is characterized by the dominant presence of the government in all the basic aspects of marketing viz., procurement, storage, transport and distribution, with all these operations being bundled and carried out by the FCI. Currently, FCI's operations are intended to build buffer stocks to meet any exigency, open market purchase/sales to stabilize domestic price and provide food security requirements through sale of subsidized grain. It procures, mainly wheat and rice, for the Central Pool at the MSP announced by the Government and distributes it through the State managed PDS. In addition, several states procure directly for decentralized procurement and distribution. Over the years, inefficiencies have been observed in the operations of FCI through concentration of procurement operations to a handful of States, an ever increasing central pool of stocks. NFSA throws various operational and financial challenges.

Access to Public Distribution System

The long established PDS has played a vital role in partially meeting the essential food and fuel needs of households in India. The operation of the PDS is supplementary in nature and does not meet the entire food requirements of any household. However, it does effectively protect the household by providing a basic entitlement at affordable prices and at convenient locations through its wide network of Fair Price Shops. The Proportion of food grains accessed through the PDS in the total household consumption provides an indicator of the effectiveness of the PDS in ensuring food security in India.

Table 3
Rice and Wheat Purchase from PDS (per capita per month)

State	Rice (in kg)		Wheat (in kg)	
	Rural	Urban	Rural	Urban
Assam	3.57	3.29	0.21	0.06
Bihar	2.67	2.27	1.8	1.81
Chhattisgarh	6.49	6.6	1.32	1.59
Karnataka	4.26	3.49	1.43	1.4
Uttar Pradesh	4.56	4.52	1.58	1.53
West Bengal	2.48	2.16	1.01	1.11

Source: NCAER, 2015

In 2004-05, 100 percent of the sample BPL cardholders lifted grain from the PDS in Assam and West Bengal, while the proportion was 80 percent in Karnataka (GOI 2005). The magnitudes were comparatively lower in Bihar (25 percent and Uttar Pradesh (54 percent) In 2011-12, the proportion of AAY and BPL cardholders purchasing grain from the PDS was as high as 90 percent at the national level. In 2014-15, 100 percent of the AAY (Antyodaya Anna Yojana) cardholders purchased grain from the PDS in the six selected states, while the proportion ranged from 98 percent in West Bengal to 100 percent in Assam and Chhattisgarh among BPL/PHH (Priority Households) cardholders (Table 4)

Table 4
Usage of PDS among Ration Cardholders (In Percent)

State	APL	BPL/PHH	AAY
Assam	93.25	100	100
Bihar	NA	99.65	100
Chhattisgarh	94.38	100	100
Karnataka	NA	99.42	100
Uttar Pradesh	77.08	99.52	100
West Bengal	98.35	97.33	100

Source: NCAER, 2015

Among the six selected states, Bihar has experienced a significant rise in PDS usage, which can be attributed to two reasons. First, the coverage has increased significantly over the past decade. Second, there has been an improvement in the PDS delivery programme because the state adopted strict measures in 2011-12 starting with a system for tracking food coupons. The Bihar government also has put in effort since 2013-14 to cancel old ration cards after new cards were issued under the NFSA. Chhattisgarh and Karnataka, two good performer states in public distribution that allocate food grain from the states's own food security scheme on top of the NFSA entitlement, have adopted a significant change in grain entitlement from May 1, 2015. Chhattisgarh, burdened with a considerable proportion of fake cards and a consequently huge subsidy burden on the state exchequer, has switched from household-based allotment to individual allotment of food grain. Karnataka has made a similar shift from household entitlement to an individual allotment of 5kg of food grain per person.

The average monthly per capita rice and wheat purchase from the PDS is given in Table 3.8. The average rice purchase is the highest in Chhattisgarh as expected. The state, which is the best performer as far as public distribution of food is concerned, also has the highest relative coverage of beneficiaries. While many other states have stopped allocation for APL households under the NFSA, Chhattisgarh still supplies food grain to this group at prices that are significantly lower than market prices.

However, there are wide interstate variations in the performance of PDS that it has performed much better in meeting house hold requirements in some states as compared to others. Tamil Nadu follow universal PDS system and the involvement of women - SHG has ensured safety, transparency and accessibility in the system along with reduction in transaction costs. The improved functioning of the PDS would become most essential for effective implementation of NFSA.

DISTRIBUTION BETWEEN CENTRE & STATES

The Central Government has limited its responsibility to procure for the central pool and delivery to the State government for distribution through the TPDS. The State Government is made responsible for collection of foodgrains from FCI depots and further ensure that the legal entitlements are enforced. If the Central Government is unable to provide foodgrains from its Central Pool, it has to provide funds to the extent of short supply of food grains from its central pool to the State Government that also as determined by itself. But if the State Government is unable to provide the entitled grains, then it has to pay a "Food Security Allowance" to the excluded beneficiaries. It would be very difficult for state government to distribute that cash to ultimate beneficiaries without developing a proper financial structure.

Way Forward

The Power and potential of science and innovation promises hopes for sustainable food and nutritional security through enhanced production and productivity of crops and livestock including fisheries. Genetic enhancement of plants/animals/fish is considered to be a major option to sustain the food security by increasing productivity. Biotechnological advances in agriculture may improve soil productivity and may provide a safety net to food production through employment of environment friendly tools for insect and pest management. Mechanization of agriculture and food production systems may enhance the overall productivity to save labour and cut down the production cost. Currently, India is lagging behind in food processing sector and consequently, high losses are being registered across supply chains. Therefore, to sustain food security a substantial increase in food processing sector is suggested by increasing investment, infrastructure and facilities. The issue of energy development and management in agriculture sector requires urgent attention as it is crucial to both food production and processing. A core program in the efforts to secure national food security is the promotion of gene revolution aiming at lowering the net production costs, raising the yields and net farm incomes, reducing the use of pesticides and herbicides, and thereby lowering the consumer prices. Agricultural research preparedness needs support of strategic framework and supporting policies for maintaining long-term food security, Government policies regarding agricultural pricing, agricultural marketing, land use and investment in subsidies in agriculture need to be reoriented and repositioned to meet the food demand in future. Policy institutions have initiated the proceedings in this direction by deliberating various critical issues among stakeholders. It is hoped that these endeavours will take care of India's concern for national and household nutritional and food security, reducing poverty at a rapid rate, and achieving accelerated growth of agricultural sector, and in turn of the whole economy.

CONCLUSION

As the country's economy grows rapidly, the expected trend is for people to eat less cereals and switch to more costlier nutritious food such as meat, milk, fruits and fish. Indians, including the poor, are now consuming fewer cereals but they are not increasing their intake of calorie-rich food. NSSO data also reveals that, over time, more and more Indians, despite rising wages, have not been meeting recommended calorie requirement of 2400 calories per person per day in rural areas and 2100 in urban areas. It is important to note that in the past decade, access to and availability of food has increased through the Public Distribution System, Midday Meal Scheme for school children and the integrated Child Development Services for kids upto the age of six and their mothers. The MGNREGA, which was launched more than a decade back, guarantees at least 100 days of work a year for every rural household, has also improved the purchasing power of the rural poor and has created rural assets which have resulted in better calorie intake in rural areas. Annapurna Scheme under the National Social Assistance Programme (NSAP), under which 10 kg of food grains per month are provided free of cost to those senior citizens who, though eligible under Indira Gandhi National Old Age Pension Scheme (IGNOAPS), are not receiving old age pension scheme under NSAP need to be reviewed with implementation of National Food Security Act, 2013. The Act provides for coverage of up to 75 percent of the rural population for receiving subsidized food grains under Targeted Public Distribution System (TPDS). Under the Act, the eligible persons are entitled to receive 5 Kgs of food grains per person per month at subsidized prices of Rs. 3/2/1 per Kg. for rice/ wheat/coarse grains. 2.49 crore Antyodaya Anna Yojana (AAY) families, which constitute the poorest of the poor, continue to receive 35 Kgs of food grains per household per month.

Raising rural income is central to ensuring Food and Nutrition Security of which colossal improvements in rural infrastructure are required. The structure of poverty alleviation programmes should suit the specific needs of poor communities, especially in rural areas. Food & Nutrition Security needs to increase production and economic accessibility needed to be addressed by technological innovations, investments in irrigation, creating rural infrastructure and raising rural employment opportunities.

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