Status of food and nutritional security and Policy Interventions in India

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Introduction

Food production, availability and access are the three major pillars of food security. The definition of food security is internationally accepted and approved by the Food and Agriculture Organization of the UN (FAO) in the Rome Declaration on World Food Security, 1996, further refined in the FAO's State of Food Insecurity in the World, 2001. "*Food security [is] a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life*" (FAO, 2009).

The concept of 'Nutrition Security' in India has defined as "physical, economic and social access to balanced diet, clean drinking water, environmental hygiene, primary health care and nutritional literacy" (Swaminathan, 1986). It was pointed out that the availability refers to the physical availability of food stocks in desired quantities, access to the entitlements, related to people's initial endowments, acquire (physical and economic access to food) and absorption (ability to biologically utilize the food consumed). India's food and nutritional security for 1.5 billion by 2030 is a big challenge to produce more and more food grains from diminishing per capita arable land and irrigation water resources and expanding abiotic and biotic stresses. India currently produces about 252 million tonnes of cereals to meet the needs of a population of ~1.25 billion. The average farm size is going down and nearly 80 per cent of the farm families belong to the marginal and small farmer categories and the ownership of livestock is more egalitarian. Enhancing small farm productivity, increasing small farm income through crop-livestock integrated production systems and multiple livelihood opportunities through agro-processing and biomass utilization, are essential both to meet food production targets and for reducing hunger, poverty and rural unemployment".

Production and availability

With a five-fold increase in food grain production from 50 million tonnes in 1950-51 to about 250 million tonnes in 2014-15, India has moved away from dependence on food aid to become a net food exporter. In 2016, the government launched a number of programs to double farmers' incomes by 2022. India is the third largest producer of cereals, with only China and the USA ahead of it. The rice and wheat production in India is about 108 and 94 million tones. India occupies the first position in milk production (164 million tonnes) and is the third largest producer of fish (10.8 million tonnes) in the world. The fisheries sector also provides livelihood to some 11 million people involved fully/partially in fisheries and on subsidiary activities connected with the sector. India ranks first in respect of cattle and buffalos and second in goats, third in sheep and seventh in poultry population in the world and nearly 90 million people work in the livestock sector.

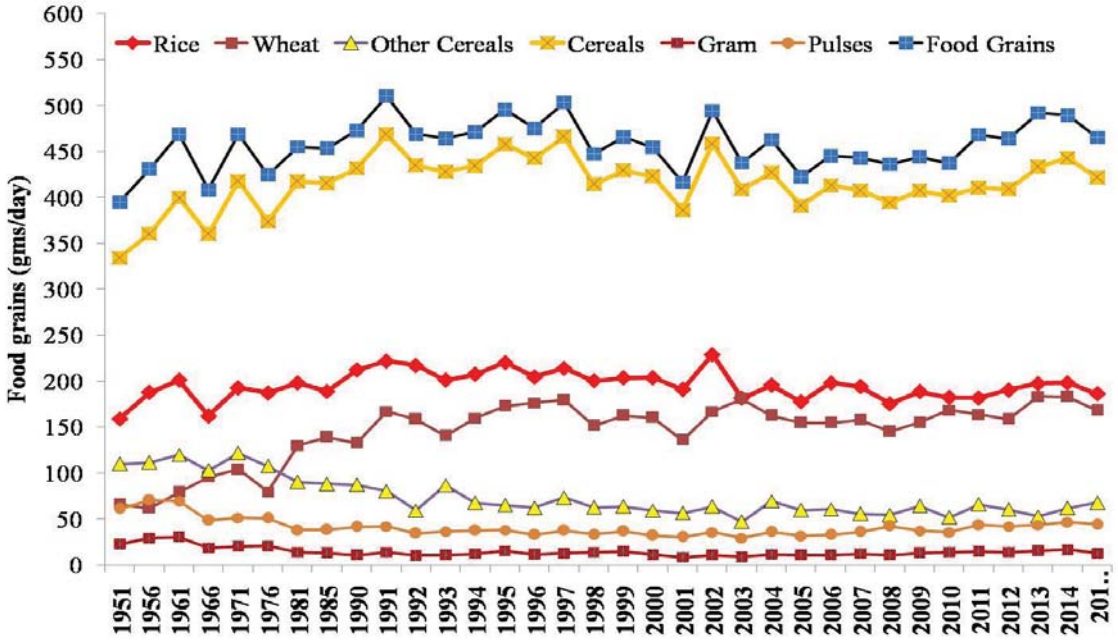

Fig. 1 Per capita net availability of food grains (Per day) in India

Availability of foodgrain recorded a decline by 8.8% between 1991 and 2015, however the availability of fruits and vegetables has kept pace with the growing demand. In the case of fruits, the per capita availability increased from 114 grams/day in 2001-02 to 172 grams/day in 2011-12. Similarly, the per capita availability of vegetables increased from 236 grams/day to 350 gram/day during this period. The per capita availability of milk increased from 124 g/day in 1950-1951 to 352 g/day in 2015-2016, a figure comparable with the global trend. Our total milk

production is the highest in the world, but productivity per animal is extremely low by international standards. Per capita availability of eggs increased from 55 eggs per head per annum in 2011-2012 to 69 eggs per head per annum in 2015-2016 (Fig 1).

The food basket has been diversified, thus per capita consumption of cereals was observed to have declined by 10 percent from a peak of 468 g per capita per day in 1990-1991 to 421 g per capita per day in 2015-2016 (GoI, 2017). Most of calorie consumption comes from cereals, which represent major food group in India. Root tubers and animal products are the second major protein supplier food group in India after livestock products (Fig. 2).

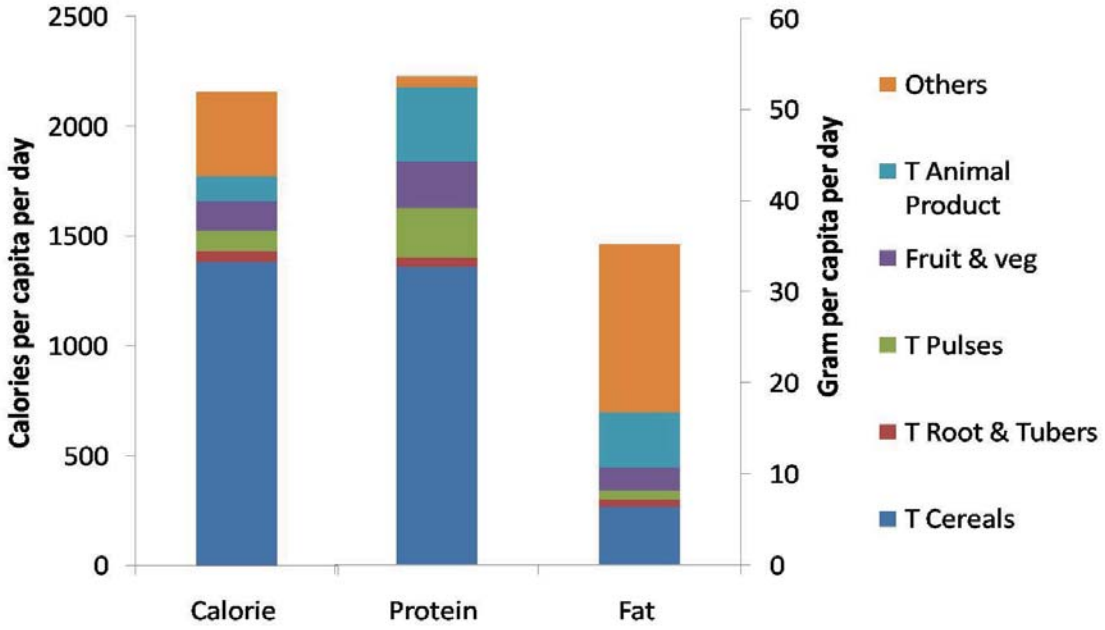

Figure 2: Calorie and nutrient intake from different food groups in India

Status of Food and nutritional security

India is home to one quarter of the world's undernourished population (194.6 million or 15 percent of India's total population during 2014-16) (FAO, 2016 a & b), over a third of the world's underweight children, and nearly a third of the world's food-insecure people. Malnourishment and food insecurity are interlinked. India's long-run progress against absolute poverty is evident from our findings using data spanning nearly six decades from 1957 to 2012. The trend decline in the national incidence of poverty for our upper line was 0.65% points per annum, accumulating to a sizeable fall in the poverty rate of more than 35% points (Datt et al.

2016). In proportionate terms, poverty incidence declined at the rate of 1.3% per annum in India.

Millennium Development Goals (MDG) aimed at eradication of extreme poverty and hunger. India's stride has achieved mixed results on these twin targets (slow) by 2015. In 1990, the all India Poverty Head Count Ratio (PHCR) was estimated to be 47.8%, in 2011-12, the PHCR figure was 21.9% two points below the MDG goal by 2015 target (23.9%) by any means a stupendous achievement in terms of poverty reduction target, though, progress is uneven. Faster reduction in poverty since the mid-2000s helped India halved the incidence of poverty. This was a result of both: economic growth (including in agriculture) as well as increased social spending on interventions such as MGNREGA and the National Rural Health Mission (NRHM). Nevertheless, estimates from 2012 revealed that, over 270 million Indians continue to live in extreme poverty – making the post-2015 goal of eliminating extreme poverty by 2030 more challenging, but feasible (UNDP, 2016). In 1990, when the MDGs were formulated, 53.5 percent of all Indian children were malnourished. Since then, progress on this account in India has been slow, the proportion of underweight children below three years has declined marginally between 1998-99 and 2005-06 to 46 percent. In 2015, malnourishment declined to 40 percent. This is still below the target of reducing malnourishment to 26 percent. India has made rapid strides in improving rates of under- and malnutrition from 21% in 1991-93 to 14.5% in 2014-16. Between 2006 and 2016, stunting in children below five years declined from 48% to 38%. Yet, India continues to have one of the world's highest child undernutrition rates, impacting the child's health and development, performance in school and productivity in adult life.

Program and policies in India

Several programs framed by Government of India to increase the availability and access of food grain to combat poverty, hunger and undernourishment prevailed among its population. The development of agricultural policy in India since independence is formulated through five year plans aimed at enhancing the production and productivity of crops. Various committees have been constituted to review and suggest policies relating to different aspects of agricultural sector like agricultural production, credit, processing, marketing etc. The first ever committee i.e. Food Grains Policy Committee of 1943 was constituted popularly known as Gregory Committee (1943) was mainly focused on food availability, supplies, distribution and control

price because food availability situation in India worsened due to the Second World War and cessation of rice supplies from Burma. Immediately after attaining independence, government faced severe food shortage problem due to lower yield levels and the problem of refugees and constituted Foodgrain Policy Committee (1947). The committee was appointed to study the food distribution aspects, the committee recommend to progressively decontrol food. The main features of this policy were gradual withdrawal of control and removal restrictions on movements of foodgrains. However, this policy of decontrol could not be pursued due to persistent shortage and large imports. Subsequently Maitra Committee (1950), Mehta Committee (1957), Venkatappaiah committee (1966) were constituted. These three committees were appointed to enquire into food problems and solve the issues. During the late eighties, a high powered committee was appointed for a comprehensive agricultural policy which was chaired by Bhanu Pratap Singh, made recommendations covering all major sectors of agricultural economy. This committee provided a comprehensive document on agricultural policy dealing with agricultural sector in the most needed form. The National Agricultural Policy 2000 was introduced as a part of 9^{th} five year plan related to agriculture. The eleventh five year plan was aimed to attracting higher public investments and promoting diversification to higher value crops and livestock, decentralizing decision making to address location specific local problems and to improve the accessibility of land, credit to the farmers. Massive irrigation and soil and water harvesting program were launched to increase the country's gross irrigated. Fertilizer policy formulated time to time not only helped the farmers to use plant nutrients for enhancing the productivity of crops but also maintaining and improving the soil health though a lot remained to be achieved. Recent soil health card and neem coating of urea are examples of such steps. Development and extension of farm technologies by research institutes and Universities and supply of institutional credit helped the farmers to adopt modern farm technologies. Several programs like National Food Security Mission (NFSM), Rashtriya Krishi Vikasa Yojana (RKVY), Macro Management of Agriculture (MMA), Integrated Scheme of Oil Seeds, Pulses, Oil Palm, and Maize (ISOPOM), National Mission for Sustainable Agriculture (NMSA), National Project on Management of Soil Health and Fertility (NPMSHF) were introduced to enhance the productivity and production of agricultural crops.

Different initiatives were taken to overcome the generic problem of food and nutritional security some of them were popularly known as rainbow of revolution which include (i) Green

revolution which made 5.3 fold increase in food grains between 1950-51 to 2013-14 (50 to 265 Mt), (ii) Yellow revolution achieved 6.6 fold increase in oilseeds between1950-51 to 2013-14 (5 to 32.8 Mt), (iii) Blue revolution that achieved 14 fold increase in fish between 1950-51 to 2014-15 (0.75 to 10.4 Mt) (IV) Golden revolution resulted a 7 fold increase in fruits & veg. between 1950-51 to 2014-15 (38 to 253 Mt), (v) White revolution led to 8 fold increase in milk between 1950-51 to 2014-15 (18 to 146 Mt) and Eggs by 39 times (78.5 billions).

Food access to un-accessed was attempted through India's Public Distribution System (PDS), the largest distribution network of its kind in the world (Table 1). PDS was introduced around World War II as a war-time rationing was generally dependant on imports of food grains further expanded in the 1960s to meet the challenges of food shortages of the time. By the 1970s, PDS had evolved into a universal scheme for the distribution of subsidised food. In the 1990s, the scheme was revamped to improve access of food grains to people in hilly and inaccessible areas, and to target the poor. Subsequently, Targeted Public Distribution System (TPDS), with a focus on the poor was launched in 1997 aimed to provide subsidized food and fuel to the poor through a network of ration shops. Coarse cereals such as rice and wheat that are procured from farmers are provided under TPDS to states and delivered through ration shop where the beneficiaries identified by the states buys his entitlement. In September 2013, Parliament enacted the National Food Security Act, 2013. The Act relies largely on the existing TPDS to deliver food grains as legal entitlements to poor households. National Food Security Act aims to ensure greater access to adequate quantity of quality food at affordable prices. Up to 75 percent of eligible rural and 50 percent of eligible urban population as identified by States/UTs are entitled to receive food grains (five kg per person per month of rice, wheat, coarse grains at subsidised prices of INR 3/2/1 per kg, respectively) under the Targeted Public Distribution System (PDS) launched in June 1997. Besides ensuring access to food grains, the Act also provides for monetary maternity benefits, and the establishment of a grievance redressal mechanism to ensure compliance by State/District government functionaries. The Indian government has also taken significant steps to combat under- and malnutrition over the past two decades, such as through the introduction of mid-day meals at schools, *anganwadi* systems to provide rations to pregnant and lactating mothers.

Table 1: Evolution of food entitlement program in India

Evolution of PDS	Timeline	Details
PDS	1940s	General entitlement scheme
TPDS	1997	Revamped PDS to target poor households
Antyodaya Anna Yojana	2000	Target the "poorest of the poor"
PDS Control Order	2001	Framework for the implementation of TPDS
National Food Security Act	2013	Act to provide legal right to food to the poor

The Challenges

Despite the achievement of national food self-sufficiency, new challenges have emerged: Slowing agriculture growth, climate change, land degradation and shrinking bio-diversity. In order to feed the burgeoning population of India in future there has to be sustained effort to increase the food grain production. Major challenges faced by Indian agriculture need to be addressed are:

- Climate change and natural calamities
- Environmental pollution including land degradation
- Low per capita availability of resources
- Imbalance fertilizer use & indiscriminate use of plant protection chemicals.
- Heavy post harvest losses, poor processing, storage & value addition
- Unavailability of farm labour and low pace of mechanisation
- Declining growth rate in farm economy
- High incidence of poverty in rural areas causing mass migration
- Malnutrition of women and children particularly in tribal pockets
- Asymmetric market information and lack of organized marketing
- Wide gap between producer's and consumer's price
- Low investment in agriculture & limited access to institutional credit

The government has large food security and anti-poverty programs but there are critical gaps in terms of inclusion and exclusion errors. Women and girls are particularly disadvantaged. The challenges are daunting in the field of under nutrition that has dropped only marginally from 210.1 million in 1990 to 194.6 million in 2014, and India has failed to meet the Millennium Development Goal of halving the proportion of people who suffer from hunger

(Chakrabarty, 2016). Nearly 47 million or 4 out of 10 children in India are not meeting their full human potential because of chronic under nutrition or stunting (Swaminathan and Bhavani, 2013). Stunting has consequences such as diminished learning capacity, poor school performance, reduced earnings and increased risks of chronic diseases. The impacts are multi-generational as malnourished girls and women often give birth to low birth-weight infants. There has also been an increase in the prevalence of overweight and obesity in children and adolescents in India, which has life-long consequences of non-communicable diseases in adulthood.

Way forward

The imperative of food security in India is now widely acknowledged, but deep disagreements persist on the best way forward. The year 2014 saw the passing of the NFSA designed to be a comprehensive set of interventions support food security over the life cycle of an individual. Different developmental schemes and policies are to be formulated and practiced to overcome the inequalities in rural population. Proper mechanism for procurement and distribution under the TPDS, may be the best way to ensure food access in many contexts in rural India. The immediate challenges for India lie in revisiting operational aspects of food procurement and distribution for a more cost effective and nimble system. The priority of the Indian government should be to create a system of income support and economic security that in the long run will make people less dependent on the subsidies of the PDS and better able to ensure the needed food diversity for optimum nutrition.

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