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IN AGRICULTURAL GROWTH AND MALNUTRITION: AN OVERVIEW

K. SWAROOPA & PROFESSOR C. BASAVIAIAH

INTRODUCTION

Agriculture is the backbone of the Indian economy. During the last four decades though major emphasis has been given to industrial sector, agriculture still occupies the place of pride in the Indian economy through its share in National Income, source of employment. provision of food grains and nutrition, supply of raw materials to industrial sector, earner of foreign exchange through exports, source of revenue for the government, its importance for internal trade and transport sector, etc. Indian economy is one of the world's largest economies with diverse regions having different resource base. The pattern of agricultural growth has wide variations across regions. Regional disparities in India is a matter of great concern and is the inherent phenomenon of both developed and developing nations. To design policies for the development of backward regions of the country proper information is prerequisite regarding the agricultural development of these regions. One of the most important indicators of development is agricultural production which gives big push for the development of other indicators.

Globally, the contribution of agriculture to GDP is declining, but agriculture still supports the livelihood of more than 2.6 billion people in the world, living mostly in rural areas. The tremendous progress in food production in the last four decades was also accompanied by unsustainable levels of consumption in some countries and hunger and malnutrition in some other countries, mostly in the developing South Asia and Africa leading to poor health. Reduced earning capacity and degradation of environment (ICAR, 2015).

The deprivation of the basic necessities and decline in the growth of the economy will lead to undernutrition, poverty and low productivity of the human capital resources. On the other hand loss due to extreme climatic conditions will lead to low agricultural production which will eventually lead to inflation,

poverty, unemployment and undernutrition of children due to lack of proper nutrition and sanitation. The table-1 below depicts the status of selected global parameters.

Table 1

Status of Selected Global Parameters

Sl. No	Parameters / Indicator	Value
1.	Population (2011)	7 billion
2.	Undernourished people	0.9 billion
3.	People living on less than US S 1.25 per day	1.4 billion
4.	Area of agricultural land (2009)	4.9 billion hectares
5.	Growth in agricultural production	2.2 percent per year
6.	Losses due to extreme climatologically events	US S 11.4 billion
7.	Food lost or wasted annually	1.3 billion tones

Source: Bedding ton et al. (2011); ICAR, (2015).

It is evident from the table-1 that a profound change in the global food and agriculture system is necessary if we are to feed today's 925 million hungry people, of which 20 I million live in India which means that every one person out of four persons is an Indian Out of a global population of 7 billion 0.9 billion are undernourished and 1.4 billion live on less than US\$1.25 per day, which means that one out of five persons is poor. Hence w more mouths to feed the agricultural production must be commensurate with the number of hungry people across the globe.

India has been on the economic front with overall economic growth of over 8 percent in the past decade. Even during the global recession GDP grew by 6.7 percent in 2008-09 7.2 percent in 2009-10, while economic growth in the developed countries declined sharply But despite steady economic growth, the agricultural sector is underperforming with a growth rate of 2.8 percent from 2000-01 to 2008-09, much below the 11 and 12" Five year plan targets of 4 percent (ICAR, 2011). The agricultural sector contributes only about 13.7 percent to the national GDP compared to 30 percent in 1990, though agricultural production was at an all-time high of 264 million tonnes. High dependence on agriculture for employment (nearly 53 percent) is the main factor responsible for high share of poverty in rural population.

According to the agriculture census 2010-11, the total number of operational boldings was 138.35 million with average size of 1.15 ha. Of the total holdings 85 percent are in the categories of small and marginal farm areas of less than 2 ha (GOI, 2014). These small farms, though operating only on 44 percent of land under cultivation, are the main providers of food and nutritional security to the nation, but have limited access to credit, technology. inputs, capital and markets. Hence agriculture which is main source of livelihood for nearly half of the country's population and provides food to the whole population has to be given the importance to improve the

nutrition of the nearly 38 percent of the malnourished children, which is the highest among all the nations in the world.

INDIA'S POSITION IN WORLD AGRICULTURE

India is the seventh largest country in area with only 2.4 percent of the world land area with a total population of 1.241 billion (Census 2011) of which 68 percent lives in the rural areas, constitutes 18 percent of the world population. India has occupied a place of pride in the world agricultural production. Though India's expanse are meagre it is the largest producer of many agricultural products. According to the FAO statistics, 2012, India is the largest milk producer in the world, second largest producer of wheat, rice, groundnuts, fruits and vegetables, sugarcane, cotton, etc. Third largest producer of total cereals, rapeseed, tea, tobacco leaves, etc. India has largest number of buffaloes in the world, second largest number of cattle and goats, third largest number of sheep. It is the second largest user of Agricultural tractors in use after USA. Though it is the highest producer of many agricultural commodities and animal products, the percentage of agricultural exports is only 14.2 percent to total national exports as of 2012-13 (DAC, 2015). Though India occupies a meagre land area of the world it is able to occupy distinct position in terms of agricultural production But on the other hand it is also having the distinction of having the highest number of malnourished children in the world.

Amongst the BRICS nations, India is the country with the highest number of malnourished children, Brazil, Russia, China and South African (BRICS) countries are far ahead of India in solving the malnutrition levels. Brazil stands at 2 percent, China at 3 percent and South Africa at 9 percent, which is much lower than the Indian levels (FAO, 2012). The prevalence of malnutrition in India is the country's failure to reduce it, despite its rapid growth and being one of the fastest growing economies in the world.

Against this backdrop the present study tries to assess the regional disparities in terms of agricultural production and malnutrition of children in India. The main objectives of the study are to explore the linkages between the regional disparities in agricultural growth and malnutrition indicators and see whether states that perform better in agricultural sector record better nutritional outcomes.

DEMOGRAPHIC INDICATORS OF GROWTH IN INDIA

The growth rate of agriculture Gross State Domestic Product is a very important economic measure to assess the production and productivity levels of agriculture within the boundaries of a particular state, and gives a relative measure to compare the speed and acceleration of the agricultural sector which provides employment to the maximum number of persons in the various states of India. Before analysing the state domestic product, it is imperative to assess the regional variations in demographic and economic indicators like share of the states in total population, percentage of population below the poverty line in rural and urban areas and the State Hunger Index

which helps to show the dependence of population on agricultural sector, their economic status and food security, and level of malnourishment in the specific regions.

The proportion of people below the poverty line in 2004-05 was roughly half of that in 1983, and the country has achieved the target of the Millennium Development Goal to reduce the poverty ratio to 23.9 percent by 2015, and in 2011-12 it has been reduced to 21.9 percent (Tendulkar Methodology). Poverty is often the root cause of insufficient intake, child malnutrition and child mortality. The association between the hunger index and the percentage of population below the poverty line is strong (ISHI, 2008).

In 2009 Global Hunger Index, India scored 23.7 and was put in the 'alarming' category. The India State Hunger Index developed by the IFPRI shows the ranking of 17 major states in India based on the severity of hunger which is calculated using the calorie undernourishment cut-off of 1632 kcal per person per day to compare with the Global Hunger Index 2008. The rankings of most of the states also fall in the 'alarming' category, with one state in Madhya Pradesh falling in the 'extremely alarming' category.

This highlights the continued overall severity of the hunger situation in India while revealing that most states in India have a serious hunger problem. Though the government has been making efforts through numerous programmes for the improvement in the nutritional status of the mother and child, direct investment in improving food availability and access for poor households, as well as direct targeted nutrition and health interventions to improve nutrition and mortality outcomes for young children is needed.

The table-2 suggests that states with higher percentage of population below poverty line like Chhattisgarh, Jharkhand, etc., show higher percentage of rural poverty and hunger index. From this it can be ascertained that higher hunger index is visible among states with more poverty in rural areas. Hence to reduce hunger poverty levels have to be reduced further with better policy implications. To know the reasons for more poverty in rural areas, a glance at the regional variations in agricultural production is essential.

Table 2

Regional Disparities in Demographic Indicators of Development in India

States	% Share in Total Population	% of population below Poverty line (Tendulkar Methodology) (2011 – 12)			State Huger Index 2009
		Total	Rural	Urban	
Andhra Pradesh	4.93	9.2	10.96	5.81	19.5
Assam	2.58	31.98	33.89	20.49	19.8
Bihar	8.58	33.74	34.06	31.23	27.3
Chhattisgarch	2.11	39.93	44.61	24.75	--
Gujarat	4.99	16.63	21.54	10.14	24.7
Haryana	2.09	11.16	11.64	10.28	20.0
Himachal Pradesh	0.57	8.06	8.48	4.38	--
Jammu & Keshmir	1.04	10.35	11.54	7.20	--
Jharkhand	5.05	36.96	40.84	24.83	28.6
Karnataka	1.04	20.91	24.53	15.25	23.7
Kerala	5.05	36.96	40.84	24.83	28.6
Madhya Pradesh	2.76	31.65	35.74	21.00	30.9
Maharashtra	9.29	17.35	24.22	9.12	30.9
Odisha	3.47	32.59	35.69	17.29	23.8
Punjab	2.29	8.26	7.66	9.24	13.6
Rajasthan	5.67	14.71	16.05	10.69	21.0
Tamil Nadu	5.96	11.28	15.83	6.54	20.9
Uttar Pradesh	16.49	29.43	11.62	10.48	22.1
West Pradesh	7.55	19.98	22.52	14.66	21.0
India	100	21.92	25.70	13.70	23.0

Source: Census of India 2011, Planning Commision, Gol, India State Hunger Index: Comparisons of Hunger across States, International Food Policy Research Institute.

REGIONAL DISPARITIES IN AGRICULTURAL PERFORMANCE

To make a comparative study of income levels of various states, of various states, agricultural Gross State Domestic Product (GSDP) is a better economic measure to guage domestic production among the states. But despite steady economic growth the contribution of agriculture in the gross domestic product is declining in India.

Table 3
Regional Share of Agriculture and Allied Sector in GSDP

States	Percentage of Agriculture and Allied Activates in GSDP at Current Prices		
	2004-05	2011-12	2013-14
Andhra Pradesh	25.1	21.97	22.96
Assam	25.6	25.28	25.55
Bihar	31.5	26.71	22.09
Chhattisgarh	21.2	20.19	20.09
Gujarat	16.1	18.95	NA
Haryana	23.1	21.15	20.20
Himachal Pradesh	25.5	18.95	19.50
Jammu & Kashmir	28.1	21.12	23.38
Karnataka	18.7	18.06	18.59
Kerala	17.5	16.11	13.99
Madhya Pradesh	10.8	26.97	NA
Maharashtra	10.8	26.97	34.24
Odisha	23.5	11.80	11.08
Punjab	32.6	17.34	19.61
Rajasthan	25.6	29.37	27.43
Tamil Nadu	11.1	30.15	29.25
Uttar Pradesh	29.7	13.28	11.71
West Pradesh	23.9.	28.84	29.34
India	19.0	22.35	21.69

Source: Central Statistical Office, Ministry of Statistics and Programme Implementation;

The table 3 shows that across the bigger states there was a decline in the share of agriculture in GSDP between 2004-05 and 2011-12 but there was a marginal increase during 2013-14 in Punjab, Andhra Pradesh, etc. Maharashtra topped the states in GSDP while Odisha and Uttar Pradesh are the states with lowest agricultural share in GSDP

AGRICULTURAL GROWTH DURING THE PLAN PERIODS

India has succeeded in raising the level of production of food grains in a big way since the green revolution during the 60's. The production of food grains increased from 50.8 million tonnes in 1950-51 to 257.44 million tonnes in 2011-12. India's agricultural sector has grown more than targeted growth rate during the 5, 6, 7, and 8^o Five Year plans but fell short of the targeted growth during the 9 and 10^o Plan. Eventually the growth rate of agricultural GDP decelerated from 5.8 percent in 6 Plan to about 2.8 percent in Tenth Plan, while that of non-agriculture GDP increased from 5.4 percent to 9.3 percent during the same period. But with more emphasis on agriculture during the Eleventh Plan the agriculture and allied sector recorded an average growth of 3.67 percent against the plan target of 4 percent per annum (Economic Survey, 2013-14). The new programmes during the

Eleventh Plan such as National Food Security Mission and Rashtriya Krishi Vikas Yojana have made considerable impact on food grains production in the country (Tripathy. 2011). The table-4 below depicts the growth of the major crops during the Eleventh and Twelfth Plan periods.

Table 4
Target and Achievement of Major Crops during Eleventh and Twelfth Plan

Crop	2007-08		Eleventh Plan average (2007 -12)		2013-14 (Twelfth Plan)	
	Target	Achievement	Target	Achievement	Target	Achievement
Rice	93.00	96.69	494.50	105.00	105.00	106.54
Wheat	75.50	78.57	399.0	421.80	92.50	95.91
Coarse Cereals	37.50	40.76	208.60	200.08	42.50	43.05
Pulses	15.50	14.76	81.00	79.32	19.00	19.27
Foodgrains	221.50	230.78	1183.10	1187.43	259.00	264.77
Oilseeds	30.00	29.76	160.15	144.85	31.00	264.77
Sugarcane	310.00	348.19	1655.00	1628.94	340.00	350.02
Cotton	22.00	25.88	134.00	140.38	35.00	36.59
Jut and Mesta	11.00	11.21	57.00	55.42	12.00	11.58

Source: Central Statistical Office, Ministry of Statistics and Programme Implementation:

The data in table 4 reveals that the country was able to produce the required quantity of wheat, cereals, foodgrains, sugarcane during the beginning of the Eleventh Plan while the agricultural production has not reached the target in the production of rice, cereals, pulses and sugarcane on an average during the Eleventh plan period. With better policies, irrigation facilities and favourable climatic conditions the agricultural production has achieved the required targets in all the food products during 2013-14 of the Twelfth Plan.

DISPARITIES IN AGRICULTURAL PRODUCTION AND YIELD

Irrigation plays important role in increasing crop intensity and yield. Hence in order to increase the production and yield per hectare there is the need for better irrigation facilities.

Table 5

Area, Production, Yield of Foodgrains in major producing States with coverage under irrigation

State	2013-14					Area under Irrigation (%) (2011 -12)
	Area (Million Hectares)	% to all India (million Hectares)	Production (million Tonnes)	% to all India (Million Tonnes)	Yield (Kg/Hectares)	
Uttar Pradesh	20.23	16.05	50.05	18.90	2474	76.1
Punjab	6.56	5.20	28.90	10.92	4409	98.7
Madhya Pradesh	14.94	11.85	24.24	9.15	1622	50.5
Andhra Pradesh	7.61	6.04	21.10	7.59	2641	62.5
Rajasthan	13.42	10.64	18.30	6.91	1364	27.7
West Bengal	6.24	4.95	17.05	6.44	2732	49.3
Haryana	4.40	3.49	16.97	6.41	3854	88.9
Maharashtra	11.62	9.22	13.92	5.26	1198	16.4
Bihar	6.67	5.29	13.15	4.97	1971	67.4
Karnataka	7.51	5.95	12.17	4.60	1622	28.2
Tamil Nadu	3.55	2.81	8.49	3.21	2396	63.5
Odisha	5.15	4.09	8.33	3.15	1617	29.0
Gujarat	4.29	3.40	8.21	3.10	1971	4.6
Chhattisgarh	4.95	3.93	7.58	2.86	1532	29.7
Assam	2.53	2.01	4.94	1.87	1952	4.6
Jharkhand	2.24	1.77	4.19	1.58	1874	7.0
Uttarakhand	0.89	0.71	1.78	0.67	2001	44.0
Others	3.26	2.59	6.38	2.41	@	-
All India	126.04	100.00	264.77	100.00	2101	49.8

Source: Directorate of Economics & Statistics, Department of Agriculture and Cooperation.

Note: States have been arranged in descending order of %share production during 2013-14

@ since area per production is low in individual states, yield rate is not worked out.

Fourth advance estimates; *Provisional.

DRIVERS OF AGRICULTURAL GROWTH

Agricultural productivity is affected by a large number of factors like availability of credit, usage of fertilizers, quality of seeds, irrigation facilities, infrastructure facilities like storage and warehousing, etc. The overall performance of agriculture was not upto the mark during 2000-01 to 2010-11, considering the fact that much emphasis was laid in this sector from 2008 onwards. Indian agriculture sector started reviving only during the Eleventh Plan.. However there are certain spatial and temporal differences in the performance of agriculture in different states.

It is understood from the table-6 that the net sown area is the highest among the states of Maharashtra, Rajasthan and Uttar Pradesh while the states with the least net sown area are Himachal Pradesh and Uttarakhand. Irrigation plays an important role in increasing cropping intensity, changes in cropping pattern and increasing the crop yield alongwith improved varieties of seeds and fertilizer use, but there is a wide variation in irrigation coverage across the states as there is uneven distribution of irrigated areas.

Table 6
Distribution of Net Sown area, Irrigation, Crop Intensity, Fertilizer Consumption and Institutional Agricultural Credit across major states.

States	Net sown area ('000' ha) 2008-09	Fertilizers (Kg/ hectares) 2011 -12	Crop Intensity (%) 2008 -09	Institutional Agricultural Credit (Rs./ha 2007 – 08)
Andhra Pradesh	10868	266	127	23441
Assam	2753	67	145	1979
Bihar	5662	184	138	8880
Chhattisgarh	4710	107	121	-
Gujarat	9810	156	118	12626
Haryana	3576	225	181	34012
Himachal Pradesh	541	55	123	19490
Jammu & Kashmir	739	87	154	7893
Jharkhand	1504	122	112	-
Karnataka	10174	181	122	15448
Kerala	2089	113	129	56890
Madhya Pradesh	14941	88	138	9627
Maharashtra	17426	134	127	12138
Odisha	5604	57	162	6730
Punjab	4169	244	190	46593
Rajasthan	17551	62	130	6673
Tamil Nadu	5043	227	115	52427
Uttar Pradesh	16417	170	156	29065
Uttarakhand	754	143	158	-
West Bengal	9294	170	185	14025
India	-	144	-	15939

Source: State of India Agriculture, Ministry of Agriculture, 2011-12, 2012-13; Report of Advisory Committee on Flow of Credit to Agriculture and related activities from Banking system, RBI, Mumbai, 2004

Fertilizer is an important input of agricultural growth. The overall consumption of fertilizers has increased from 70 kg per ha in 1991-92 to 144 kg per ha by 2010-11. The per hectare consumption of fertilizers is the highest in

Andhra Pradesh, Punjab, etc and lowe in the states of Himachal Pradesh, Assam etc. Taking into consideration the net sown area, extent of irrigation and cropping intensity, it is evident that Uttar Pradesh, Bihar, Andhra Pradesh and Tamil Nadu have the scope to improve their crop intensity and yield with the availability of better irrigation facilities. It can be observed that distribution of institutional credit is higher in the states of Kerala, Tamil Nadu, etc., and lower in states of Assam Rajasthan etc. It is a known fact that institutional credit is directly related with the higher agricultural growth and hence there is still the need for easy access to credit to the farmery in rural areas to improve the agricultural production.

Though India has occupied a distinct position in terms of agricultural production, the per unit productivity of agriculture is much lower when compared to major crop producing countries. There are also wide variations in the yield among and within the states. China has yield rates far ahead of India in all other major food grain crops cultivated. Improvement in yields holds the key for India to remain self-sufficiency in food grains - Economic Survey (2012-13). India is a land with many diversities across the states in climate and soil resources, abundant sunshine throughout the year, a long coast line and rich agro-biodiversity. Tapping these available natural resources for productive purposes to improve the productivity of the people is the way forward for the country.

MALNUTRITION IN THE WORLD

India is one among the many countries where child malnutrition is severe and a major cause of child mortality in India. The nutritional security of children and women is a serious issue that needs to be addressed urgently (World Bank, 2009). Ensuring food and nutritional security is thus a challenge for India. The number of undernourished people was 210.1 million during 1990-92, which decreased to 189.9 million in 2010-12 and further increased to 194.6 million in 2014-16 (FAO, 2015).

Table 7
Distribution of Huger in the World by Region

Regions	Number in Millions		Regional Share (%)	
	1990-92	2014-16	1990-92	2014-16
Developed regions	20	15	2.0	1.8
Southern Asia	291	281	28.8	35.4
Sub-Sahara Africa	176	220	17.4	22.7
Eastern Asia	295	145	29.2	18.3
South-Eastern Asia	138	61	13.6	7.6
Latin America and the Caribbean	66	34	6.5	4.3
Western Asia	8	19	0.8	2.4
Northern Africa	6	4	0.6	0.5
Caucasus and Central Asia	10	6	0.9	0.7
Oceania	1	1	0.1	0.2
Total	1011	795	100	100

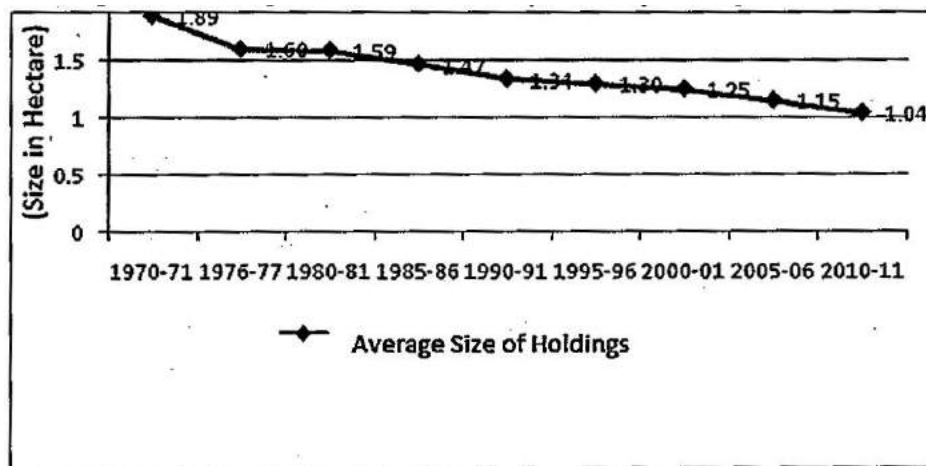
Source: The State of Food Insecurity in the World, 2015. Pp 10-15.

It is evident from the Table-7 that the highest burden of hunger in absolute terms is found in Southern Asia. Estimates for 2014-16 suggests that about 281 million people are undernourished in the region marking a slight reduction from the number in 1990-92. The region is on a trajectory towards a more manageable hunger burden. Though there is decline in the number of people undernourished, the region has the highest share of undernourished compared to all other regions (FAO, 2015).

The Graph-1 below shows the BRICS (Brazil, Russia, India, China and South Africa) countries with underweight children less than five years of age in which India takes the first position with highest percentage of underweight children in the world.

Graph 1

Percentage of Underweight Children under five years of age among the BRICS Nations



Source: World Health Organisation

The Graph-1 reveals that 44 percent of the total children in India are underweight, with which it seems to miss one of its key Millennium Development Goals of halving malnutrition by 2015. The Brazil, Russia, China and South African (BRICS) countries are far ahead of India in solving the malnutrition levels. Brazil stands at 2 percent, China at 3 percent and South Africa at 9 percent, which is much lower than the Indian levels (FAO, 2012). The prevalence of malnutrition in India is the country's failure to reduce it, despite its rapid growth and being one of the fastest growing economies in the world.

DEMOGRAPHIC PROFILE OF THE MALNOURISHED CHILDREN IN INDIA

Malnutrition is high among children whose mothers are illiterate or only with primary education. Anaemia prevalence among children (6-59 months) is more than 70 percent in Bihar, Madhya Pradesh, Uttar Pradesh, etc. In a survey conducted by RSOC (2013-14) it is found that the percentage of children under 5 years affected by stunting were 38.8 percent, with 41.6 percent in the rural areas and 32 percent in the urban areas. Thus indicating that there is still the persistence of high rate of malnourished children when compared to NFHS- 3. Though the percentage of stunted children has decreased but still it is at an alarming rate which needs to be addressed at the earliest.

According to the Human Development Report 2011, the average per capita rural caly consumption per day has fallen from 2.221 calories in 1983 to 2047 calories in 2004-05 a decline of 8 percent. The urban per capita calorie consumption per day has falles fros 2080 calories in 1983 to 2020 calories in 2004-05, while the rural-protein consu registered a fall of 8 percent, it remained unchanged in the urban areas. The nutrition requirement recommends a national norm of 2400 kilocalories a day for rural areas 2100 kilo calories a day for urban areas, the difference being attributed to the lower rate physical activity in urban areas.

The malnutrition problem at the early stage of a child occurs in two phases, durin pregnancy, a baby in utero, and when they are below two years of age(Save the Child 2009) In the first phase during pregnancy malnutrition occurs primarily during the 3 months, from conception to the child's second birthday. This short period is critical beca most growth faltering and developmental delays occur during this time.

The consequences of child malnutrition for child morbidity and mortality are enormo One of the important adverse impacts of malnutrition is on productivity and failure to com child malnutrition which reduces the long term potential of economic growth. At the m level, malnutrition both protein energy malnutrition and micronutrient deficiencies direct affects children's physical and cognitive growth and subsequently increases susceptibility infection and diseases. The golden interval for intervention is believed to be from preg to 2 years of age, after which under nutrition may cause irreversible damage to fume development (Save the Children, 2009).

Poor foetal growth or stunting in the first two years of life leads to irreversible damage. Inadequate cognitive or social stimulation in first to three years has lifelong negative impact on educational performance and psycho-social functioning.

In the present study the nutritional status of children which includes the stunting, wasting and underweight levels of the children of less than 5 years of age is taken into consideration 35 percent of the developing world's malnourished children live in India. 22,000 pregnant women die every year in India from severe anaemia. 6.6 million children are born meekly impaired every year in India due to iodine deficiency (IMNIP. 2007-2011). These statistics expose the need for better nutrition and interventions to combat malnutrition.

THE VICIOUS CYCLE OF INADEQUATE FOOD INTAKE AND INFECTION

Children are particularly at risk when combined with poor diet and infection causing their immune systems to become immature. In general, when human body is undernourished priorities essential functions and directs fewer nutrients to growth, repair and immune functions and ultimately increasing the risk of infection. When a child has a severe infection or when his or her diet rapidly deteriorates the child may suffer sudden weight loss leading to Wasting, if the infection is less severe or the diet deteriorates more slowly or if a child is born small as a result of poor maternal nutrition, the result may be Stunting (Gra et al., 2007).

REGIONAL DISPARITIES IN NUTRITIONAL STATUS OF CHILDREN

India is a country having the highest number of child malnutrition which is a major underlying cause for child mortality. Various studies and surveys have been conducted to find out the important causes of child malnutrition. Nutritional adequacy of a child below two years of age is largely determined by the nutritional intake of the pregnant woman and lactating mothers, Hence the present study stresses the need for better nutritional intake of the pregnant woman and lactating mothers and their children of less than two years of age

Table 8
Regional Disparities in Nutritional Status of Children
(Percentage aged 0-59 months)

States	NFHS-3 (2005 -06)			NFHS -4 (2015 -16)/ RSOC (2013 -14)		
	Stunting	Wasting	Underweight	Stunting	Wasting	Underweight
Andhra Pradesh	42.7	12.2	32.5	31.4	17.2	31.9
Assam	46.5	13.7	36.4	36.4	17.5	29.8
Bihar	55.6	27.1	55.9	48.5	20.8	43.9
Goa	25.6	14.1	25.0	20.1	21.9	23.8
Gujarat	51.7	18.7	44.6	41.7	18.6	33.5*
Haryana	45.7	19.1	39.6	34.0	21.2	29.4
Himachal Pradesh	38.6	19.3	36.5	34.2	10.1	19.5*
Jammu & Kashmir	35.0	14.8	25.6	31.7	7.1	15.4*
Karnataka	43.7	17.6	37.6	36.2	26.1	35.2
Kerala	24.5	15.9	22.9	19.4	15.5	18.5*
Madhya Pradesh	50.0	35.0	60.0	42.0	25.8	42.8
Maharashtra	46.3	16.5	37.0	34.4	25.6	36.0
Manipur	35.6	9.0	22.2	28.9	6.8	13.8
Meghalaya	55.3	30.7	48.8	43.8	15.3	29.0
Odisha	45.0	19.5	40.7	38.2	18.3	34.4*
Punjab	36.7	9.2	24.8	38.2	18.3	34.4
Rajasthan	43.7	20.4	39.9	36.4	14.1	31.5*
Sikkim	38.3	9.7	19.7	29.6	14.2	14.2
Tamil Nadu	30.9	22.2	29.8	27.1	19.7	23.8
Telangana	--	--	--	28.1	18.0	28.5
Tripura	35.7	24.6	39.6	24.3	16.8	24.1
Uttar Pradesh	56.8	14.8	42.4	50.4	10.0	34.4*
Uttarakhand	44.4	18.8	38.0	33.5	19.5	26.6
West Pradesh	44.6	16.9	38.7	32.5	20.3	31.5
All India	48.0	19.8	42.5	38.8	15.1	29.4*

Source: NFHS-3, NFHS-4, RSOC (2013-14)

From the table 8 it is revealed that the bigger states are grappling with higher levels of malnourished children having Stunting levels above the national average and least in th states of Goa and Kerala. The levels of Wasting among the states are lowest in Jammu Kashmir, Manipur, etc., but higher in the states of Maharashtra, Madhya Pradesh, etc. the other hand, the levels of underweight children is the highest in the states of Bihar a MP and lowest in Manipur and Sikkim. Though the levels of malnourishment have decrea considerably between NFHS-3 and NFHS-4 periods of survey, the country has still a l way to go to reduce the levels of malnutrition further.

Strategies to Increase Agricultural Production and Interventions to reduce Malnutrition

To enhance farm productivity attention towards soil health, access to water, quality seeds and other inputs and practices suited to the crop is needed.

As a single agronomic intervention, supply of needed micronutrients to address the hidden hunger in the soil has the greatest impact on increasing yield (Swaminathan et al., 2013)

Water harvesting and recharge of wells and groundwater resources can enhance water availability

Access to timely and adequate credit facilities and crop insurance facilities Provision of minimum support price and remunerative price to the farmers will increase the productivity of the farmers

Promote group farming and economies of scale among the small farmers to improve production and sustainability of small holdings.

Need for conservation farming and tapping the unutilised natural resources with the guidance of experienced farmers and scientists will improve production.

The immediate prospect lies in the areas of post-harvest technology by setting up agro- processing industries and value addition to primary produce (NCF, 2004).

In India only fifty percent of the land area is irrigated and there is still huge scope to improve the irrigation facilities. The state with the maximum irrigation is able to produce high yield when compared to states with less irrigation and maximum land area.

To protect our future generations and also to reap the demographic dividend, it is of utmost importance to prevent malnourishment of children even before they are born i.e during pregnancy, by educating the pregnant mothers about the importance of proper nutrition to the mother and child and health and hygienic practices to be followed, Proper feeding as well as caring practices of the child by the mother to avoid unnecessary illness will prevent infection and frequent illness of the child which will have an affect on the linear growth of the child. The prevention of malnutrition in early life will bring about good health, education and economic benefits and thereby pulls him/her out of the vicious circle of poverty.

CONCLUSION

An analysis of the growth performance shows that there is a vast variation in the productivity of agricultural sector across most of the states. The analysis highlighted that states which have high irrigation facilities, credit

facilities, higher fertilizer consumption and low number of small and marginal farmers, low population below poverty line, low hunger index have performed better. The study brings out that states with high levels of malnutrition are also having high levels of food production like as in Uttar Pradesh and Madhya Pradesh This reveals that increase in agricultural production is not sufficient for the improvement in the nutrition levels of children but better policies and interventions are the need of the hour to reduce malnutrition among the children, thus indicating that growth in agricultural production is essential along with proper nutrition, sanitation, health, education for better.

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