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Hunger Amidst Plenty: The Case of Haryana

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Abstract

Hunger is usually understood to refer to the distress associated with lack of food. It is multidimensional in nature, best reflected in prevalence of undernourishment among people, child under nutrition revealed through child wasting (when they weigh too little for their height), child stunting (when children are unusually short for their age), and child mortality. Judged by measures such as the prevalence of stunting and wasting, below normal body mass index and micronutrient deficiency, Haryana, regional variations aside, emerges as a 'Hungry state'. It is a paradoxical situation for Haryana which is not onl y one of the high per capita income states but also exhibits low poverty rates. Besides, the state forms part of 'granary bowl', a 'focal' area of agriculture and livestock and is major contributor of cereals to the central pool. In this light the paper attempts to make an assessment and explanation of the emerging hunger scenario using data from National Family Health Survey-4, and Census of India, 2011. The determinants of this condition are equally varied ranging from social structure, inadequacy of quality nutrient-laden food, dietary habits, quality of living space or environment such as sanitation, open defecation causing recurrent diarrhea, untreated drinking water supply, and poor health care, to name a few. A strong political and administrative will is required to ameliorate the condition of hunger in the state.

Key words : *Hunger, Under nutrition, National Family Health Survey, Haryana, India*

At the world level, the challenge of hunger was first addressed in the Global Hunger Report, 2006 developed by the International Food Policy Research Institute (IFPRI) in 2006 (Wiesmann et al. 2006). These reports ranking countries on indices of hunger, considered as a multidimensional concept, put a spotlight on those regions and countries where action is most needed to address it. Since its initiation, the concept of hunger and its methodology has seen constant refinements. With each passing year the focus has been in tune with the concerns of the day: the decade since the first report was brought out has ended in 2015 with the conflict issue being raised again and coming full circle.

Focus

2015: Armed conflict and the challenge of hunger
2014: The challenge of hidden hunger
2013: Building resilience to achieve food and nutrition security
2012: Ensuring sustainable food security under land, water, and energy stresses
2011: Taming price spikes and excessive food price volatility
2010: The crisis of child undernutrition
2009: Financial crisis and gender inequality
2008: The vicious circle of hunger and poverty
2007: Measures being taken to reduce acute undernourishment and chronic hunger
2006: Case Studies in the post- conflict countries of Afghanistan and Sierra Leone

A country with vast disposition, all these concerns afflict India simultaneously, varying in degree and intensity in its different parts. India ranked 80 of 117 countries with a global hunger index score of 29.0 in 2015 (with data from'10–'16), its scores having declined from 48.1 in 1990 (with data from '88–'92). To put this in context, the higher the GHI score, the higher the level of hunger. Scores between 20.0 and 34.9 points are considered serious. In 2005 India fell in the alarming category with a score of 38.5 (International Food Policy Research Institute 2015).

Despite higher Gross domestic product (GDP) dollar estimates at purchasing power parity (PPP) per capita in comparison to several other countries, India ranks low in global hunger index and its performance in reducing hunger has been slow and has fallen shorter of the target envisaged in the Millennium Development Goals. In a similar tone, India State Hunger Index 2008 (ISHI) report brought out in 2009 while making a comparison of severity of hunger across 17 States had also observed lack of a clear relationship between state-level hunger and poverty and incomes (Menon, Deolalikar, and Bhasker 2008). Although per capita income of states has been found to be strongly correlated (r= 0.74) with percentage of population below poverty line (Tendulkar Methodology) in 2011-12 at constant prices (2004-05). It shows that there is more to counter hunger than merely higher per capita incomes and low poverty rates.

Of the four parameters to measure hunger—undernourishment among people, child under nutrition revealed through child wasting, child stunting, and child mortality—child underweight expressed through child wasting, child stunting has been seen to contribute more than either of the other two underlying variables to the Global Hunger Index (GHI) score for India and to State Hunger Index Scores for almost all states in India. Tackling child under nutrition, therefore, is crucially important for all states in India. It will require scaling up delivery of evidence-based nutrition and health interventions to all women of reproductive age, pregnant and lactating women, and children under the age of two years. This should be in addition to wide-scale poverty alleviation and direct investments in improving food availability and access for poor households.

There have been recent successes in the fight against child under nutrition in India, particularly since 2005 (Table 1). The Government of India has scaled up nutrition-specific interventions over the past decade, including (1) expansion of Integrated Child Development Services program that aims to improve the health, nutrition, and development of children in India; and (2) the creation of the National Rural Health Mission, a community-based health initiative designed to deliver essential health services to rural India (Avula et al. 2013). However, progress in reducing child undernutrition has been uneven across India's states. While the reasons for the improvements—or lack thereof—are not entirely clear, one factor that seems to correlate with undernutrition in India is open defecation, which contributes to illnesses that prevent the absorption of nutrients. Additionally, the low social status of women, which affects women's health and nutrition, makes it more likely that babies will be born underweight (Economist 2015).

Table 1 : India Global Hunger Index Scores and Rank, 1990-2015

Indicators of Hunger	**India***					**Haryana****
Year	90–92	94–96	99–01	04–06	14–16	2015-16
Proportion of undernourished in the population (%)	**23.7**	**21.6**	**17.0**	**21.2**	**15.2**	
Year	'88–'92	'93–'97	'98–'02	'03–'07	'10–'14	
Prevalence of wasting in children under five years (%)	**20.3**	**19.1**	**17.1**	**20.0**	**15.0**	**21.2**
Year	'88–'92	'93–'97	'98–'02	'03–'07	'10–'14	
Prevalence of stunting in children under five years (%)	**62.7**	**51.8**	**54.2**	**47.9**	**38.8**	**34.0**
Year	1990	1995	2000	2005	2015	
Under-five mortality rate (%)	**12.6**	**10.9**	**9.1**	**7.5**	**5.3**	**4.1**
Year	1990	1995	2000	2005	2015	
India Global Hunger Index Scores^	**48.1**	**42.3**	**38.2**	**38.5**	**29.0**	

Source: *International Food Policy Research Institute. 2015. Global Hunger Index: Armed conflict and the Challenge of Hunger, Washington, D.C.

** Government of India. 2015-16. National Family Health Survey-4: State Fact Sheet Haryana. Ministry of Health and Family Welfare, New Delhi.

^ with data from'88–'92, '93 –'97, '98–'02, '03–'07 and '10–'16 respectively

Note: All GHI scores have been calculated using a revised formula of 2015. The severity scale was adjusted to reflect this change.

In addition, in the mission to provide food security to all, the National Food Security Act, 2013 No. 20 of 2013 [10th September, 2013.] was enacted. It was an Act to provide for food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity and for matters connected therewith or incidental thereto (http://indiacode.nic.in/acts-in-pdf/202013.pdf accessed on 27.2.2016).

Despite this positive trend, there is still reason to be concerned as these incidences translate to huge absolute numbers in a population of 1.2 billion people. For example, more than 194 million (15.2 percent) people are reportedly undernourished in India (FAO 2015).

The issue of hunger assumes importance in an economically prosperous state of Haryana as National Family Health Survey-4 (2015-16) report for Haryana, regional variations aside, fairly high proportion of children under five years of age who are stunted, wasted and underweight. There is prevalence of undernutrition among adult women. Anaemia, another reflection of undernourishment is endemic among children and women. The state is a classic

example of a region with high per capita incomes, low poverty rates, and part of the granary bowl of the country but ranking poor in health parameters. It clearly shows that besides adequate food in quantity, its quality has to be ensured to satisfy everyone's dietary needs.

Haryana is one of the states that had shown worsening of nutritional status of children (in terms of underweight) during 1998-99 to 2005-06. The percentage of underweight children below 3 years had increased from 29.9 in 1998-99 to 38.2 in 2005-06; an increase of 8.3 points. The increase was second only to Meghalaya that had recorded the steepest hike. Bihar, Jharkhand and Madhya Pradesh in central India and Nagaland, Sikkim, and Arunachal Pradesh in the north-east were other states noted for a rise (National Family Health Survey -2, 1998-99; and -3, 2005-06).

In this light the paper attempts to make an assessment and explanation of the emerging hunger scenario in Haryana using data from different sources namely National Family Health Surveys, and Census of India, 2011.

Before leading further it would be in fitness of things if the concept of hunger is placed in its correct perspective and its parameters defined.

Understanding the Concept of Hunger

Hunger is usually understood to refer to the distress associated with lack of food. There can be situation when due to continued inadequacy in diet human body gets used to having less food than necessary for healthy development, and after a while the body does not even demand more food. In such cases hunger is not expressed, though lower intake of essential calories, proteins, fats, and micro-nutrients would result in under-development of the human mind and body. Thus indicators such as calorie consumption, body mass index (BMI), proportion of malnourished children, and child mortality capture hunger scientifically.

The Global Hunger Index 2015 identifies three dimensions of hunger: inadequate food supply, child undernutrition, and child mortality expressed through four indicators of undernourishment, child wasting, child stunting, and under-five mortality rate.

Undernourishment measures insufficient food supply or insufficient caloric intake. It refers to the entire population, both children and adults.

Child Stunting is the proportion of children under the age of five who suffer from stunting that is, low height for their age, reflecting chronic undernutrition. It is an indicator of linear growth retardation that results from failure to receive adequate nutrition over a long period and may be exacerbated by recurrent and chronic illness. It is sensitive to uneven distribution of food within the household.

Child wasting is the proportion of children under the age of five who suffer from wasting that is, low weight for their height, reflecting acute undernutrition. Child wasting goes beyond calorie availability considers aspects of diet quality and utilisation. Children are particularly vulnerable to nutritional deficiencies. Stunting and wasting are the suggested nutrition indicators for the Sustainable Development Goals.

Death is the most serious consequence of hunger, and children are most vulnerable. Child mortality is the mortality rate of children under the age of five partially reflecting the fatal synergy of inadequate food intake and unhealthy environments. According to recent estimates, undernutrition is responsible for 45 percent of deaths of children younger than five years old (Black et al. 2013). It Improves the Global Human Index's ability to reflect micronutrient deficiencies, while wasting and stunting only partially capture the mortality risk of undernutrition.

Micronutrient deficiency is a critical aspect of hunger and is also known as hidden hunger. In addition to affecting human health, hidden hunger can curtail socioeconomic development, particularly in low- and middle income countries. It affects more than an estimated 2 billion individuals, or one in three people, globally (FAO 2013). The effects of these vitamin and mineral deficiencies can be devastating, leading to mental impairment, poor health, low productivity, and even death. Its adverse effects on child health and survival are particularly acute, especially within the first 1,000 days of a child's life, from conception to the age of two, resulting in serious physical and cognitive consequences. Factors that contribute to micronutrient deficiencies include poor diet, increased micronutrient needs during certain life stages, such as pregnancy and lactation, and health problems such as diseases, infections, or parasites.

The Spatiality of Hunger in Haryana

Haryana is one of the economically prosperous states of the Indian Union with per capita Net State Domestic Product (NSDP) of Rs. 61,716/- in 2011-12 at 2004-05 prices. It ranks 3rd in per capita income among all states and 1st among bigger states in the country. Its NSDP has grown at 4.27 compound annual growth rates during 1980-81 and 2011-12; it was 4.01 for All-India. The state could attain this position with an intense administration, adoption of green revolution package that had coincided incidentally with its formation as a separate state in 1966, provision of basic infrastructure such as complete electrification, and all villages connected with all-weather roads. In addition, with one- third of its area falling in the National Capital Region, the state has derived benefit as a result of growth impulses emanating from the national capital of Delhi. Sharing border with Delhi on three sides, some of its towns have grown industrially consequent to the policy to shift the industries from Delhi Metropolitan Area to adjoining towns.

Haryana had 11.2 per cent people below poverty line in 2011-12, based on Tendulkar methodology; the proportion was higher in rural areas (11.6 per cent) than urban (10.3 per cent). In terms of numbers 28.8 hundred thousand persons were reported poor; 19.4 hundred thousand rural poor, and 9.4 hundred thousand urban poor, where population as on 1st March 2012 has been used for estimating number of persons below poverty line (2011 Census population extrapolated). Haryana state ranked 8th in poverty rates. The proportion of people reported poor were less than at All-India level where 21.9 per cent people were below poverty line; 25.7 per cent rural and 13.7 per cent urban (Government of India 2014, 31).

A granary bowl or focal area of cereal production in the country, Haryana increased its per cent share of foodgrains—largely rice and wheat—in India from 4.58 per cent in 1977-78 (triennium centered at mid-year) to 6.55 per cent in 2012-13, mainly on account of increase in yields with intensification of agriculture. With the onset of green revolution in late sixties coarse cereals and pulses gave way to rice-wheat system, helped by remunerative price structure and relatively easy and assured market clearance. Of recent oilseeds is regaining some ground.

At a perceptual level therefore hunger in Haryana seems a misnomer. However truism is that its achievement in the economic sector is not reflected in its performance vis-à-vis social parameters. States such as Tamil Nadu with lower incomes and higher poverty rates have been successful in altering the demographic scenario to their advantage. A comparison with other states with lowest per capita income such as Bihar and second highest such as Goa shows that Haryana is more inclined towards economically less developed states so far its demographic attributes are concerned (Table 2).

Table 2 : A comparative picture of population characteristics in select states, 2015-16

State	Under-five mortality rate (U5MR)	Stunted children	Wasted children	TFR (children per woman)	Women age 20-24 years married before age 18 years (%)
Madhya Pradesh	65	42.0	25.8	2.3	30.0
Bihar	58	48.3	20.8	3.4	39.1
Uttarakhand	47	33.5	19.5	2.1	13.9
Haryana	**41**	**34.0**	**21.2**	**2.1**	**18.5**
Andhra Pradesh	41	31.4	17.2	1.8	32.7
Telengana	32	28.1	18.0	1.8	25.7
Maharashtra	29	34.4	25.6	1.9	25.1
Tamil Nadu	27	27.1	19.7	1.7	15.7
Goa	13	20.1	21.9	1.7	9.8

Source: NFHS-4, 2015-16

Data is not available for several other states

4 A's of Food and Hunger

The issue of Hunger can be understood in view of 4 A's of food: its availability, access (economic), adequacy, and absorption of food/ nutrition.

Intake of dietary energy per person continues to be the most widely used indicator of the level of nutrition of a population. Levels of calorie intake are used, in particular, as indicators of adequacy of nourishment of populations of the developing countries. Haryana scores well above the All-India average. The calorie intake (Kcal) per day per consumer unit was

2992 for rural and 2988 for urban Haryana in comparison to 2752 and 2700 for All- India respectively. Likewise, calorie intake (Kcal) per day per capita was 2441 for rural and 2443 for urban Haryana (which is higher than the norm of 2400 in rural areas and 2100 in urban areas) and 2233 for rural and 2206 for urban all-India. This data on food consumption was collected for households as a whole and no break-up over individual household members is available.

The state expended lesser percentage of its total household consumer expenditure on food and cereals in 2011-12 in comparison to All-India average. In addition, the rural population obtained 43.9 per cent of calories from cereals. For urban population it was 39.4 per cent, the lowest among major states. The highest figures (69.7 per cent) were recorded by Odisha for rural areas and Odisha and Bihar (59.6) for urban areas. The percentage share of non-cereals in calorie intake was highest (60.6) in urban and fairly high (56.1) in rural Haryana (Table 3).

Seen in this light it should be noted that calorie consumption alone is a conceptually inadequate measure of hunger. Without data on physical activity and calories expended, it is difficult to truly judge if an individual is undernourished or not. Nevertheless, it is a common indicator of hunger and is used widely in food security and hunger indexes, including the GHI. There have been substantial debates on the use of this indicator in India (Dev 2005).

Table 3 : Percentage contribution of cereals to calorie consumption and average daily protein intake per capita and per consumer unit: Major states, 2011-12

State	% of calories from cereals		% share of non-cereals in calorie intake		protein intake (gm) per day per capita		protein intake (gm) per day per consumer unit	
	rural	urban	rural	urban	rural	urban	rural	urban
Haryana	43.9	39.4 (lowest)	56.1	60.6 (highest)	72.8 (highest)	68.6 (highest)	89.3 (highest)	83.9 (highest)
All-India	57.4	48.0	42.6	52.0	60.7	60.3	74.8	73.8
Highest	69.7 Odisha	59.6 Odisha and Bihar	57.5 Punjab	-	-	-	-	-
Lowest	42.5 Punjab	-	30.3 Odisha	40.4 Odisha and Bihar	51.7 Chhattisgarh	54.9 Assam	63.6 Chhattisgarh	67.0 Assam

Source: NSS Report No.560: Nutritional Intake in India, 2011-12, p.28

Availability of food partially takes care of the requirements and is not enough to meet the deficiencies in energy, protein, and/ or micronutrients. Undernutrition occurs when intake or absorption of vitamins and minerals is too low to sustain good health and development in children and normal physical and mental function in adults. It not only retards a child's growth but also affects their future productivity and

capabilities. First 60 months after birth is extremely important because at this delicate age, children are vulnerable to growth retardation, micronutrient deficiencies, and common childhood illness. A women's nutritional status has important implications for her health as well as the health of her children because a malnourished woman is very likely to give birth to a malnourished child vulnerable to disease and infection.

The right to adequate food is realized when every man, woman and child has physical and economic access at all times to adequate food or means for its procurement'. The hunger score figures of the state indicate that the distribution of food and its economic access across various classes of people and across strata of society and individuals among households is inequitable.

A distinct feature of the society is the social discrimination against girls/ females. In addition, dietary intake with respect to adequate availability of food in terms of quantity and quality (particularly, the mean caloric intake), ability to digest, absorb and utilise food can greatly affect the adequate nutrition of children. Poor nutrition and anaemia among adolescent girls and women is one of major factors responsible for high neo-natal mortality. Malnutrition is an underlying cause in a large proportion of U5 deaths. (Government of Haryana 2013: 43).

Measuring Hunger: Choice of Indicators

Hunger status for Haryana has been measured using three dimensions: child nutritional status, adults' nutritional status, and anaemia among children and adults. Anaemia reflects hidden hunger. Seven indicators given as below have been selected for the purpose for which data were available at a disaggregated level. Data were obtained from National Family Health Survey-4 State Fact Sheet of Haryana, 2015-16 for analysing undernutrient children.

Child Nutritional Status

- The percentage of children under five years old who suffer from stunting (low height for age)
- The percentage of children under five years old who suffer from wasting (low weight for height) (The data are below -2 standard deviations, based on the WHO standard)

Adults Nutritional Status (age 15-49 years)

- Women (age 15-49 years) whose Body Mass Index (BMI) is below normal (BMI < 18.5 kg/m2) (%). (It excludes pregnant women and women with a birth in the preceding 2 months).
- Men whose Body Mass Index (BMI) is below normal (BMI < 18.5 kg/m2) (%)

Anaemia

Among Children and Adults^

- Children age 6-59 months who are anaemic (<11.0 g/dl) (%)
- All women age 15-49 years who are anaemic (%) ^
- All men age 15-49 years who are anaemic (%)
- ^Haemoglobin in grams per decilitre (g/dl). Among children, prevalence is adjusted for altitude. Among adults, prevalence is adjusted for altitude and for smoking status.

The dimension on child mortality with data on infant and child mortality rates (per 1,000 live births), although important, could not be used for paucity of data at district level. Instead anaemia as an indicator of hidden hunger has been employed. At the state-level, mortality rates, both infant and child under-5 are fairly high. The infant mortality rate in the state was 41 as compared to All-India figure of 40 in 2013. Moreover, there is a distinct difference in infant mortality rates between western (ranging between 51-60) and eastern (ranging of 41-50) Haryana. Western region based on NSS Natural Divisions, 2013 comprises of Rewari, Narnaul, Jind, Fatehabad, Sirsa, Hisar, and Bhiwani districts. The under-five mortality rates (U5MR) were 45 for Haryana and 49 for All-India in 2013.

Given its high per capita income and low proportion of population below poverty line in comparison to other states and the country's average, Haryana's performance in matters of nutritional status in children and adults and anaemic condition is poor as is evident in Figures 1 to 3.

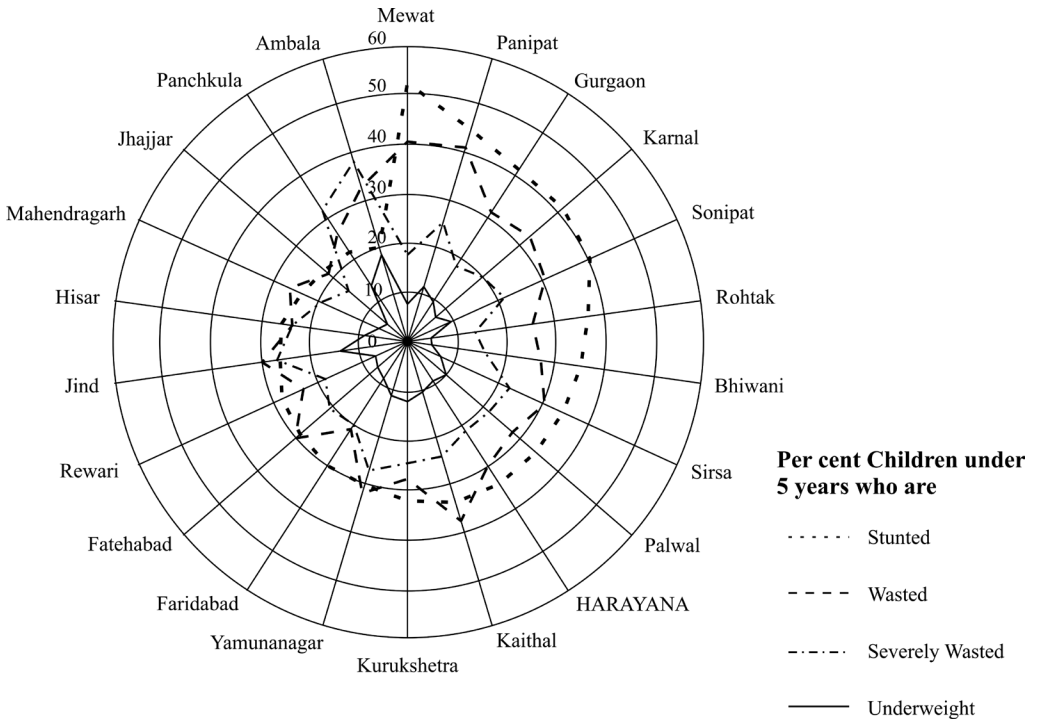

Fig. 1 : Haryana : Nutritional Status of Children, 2015-16.

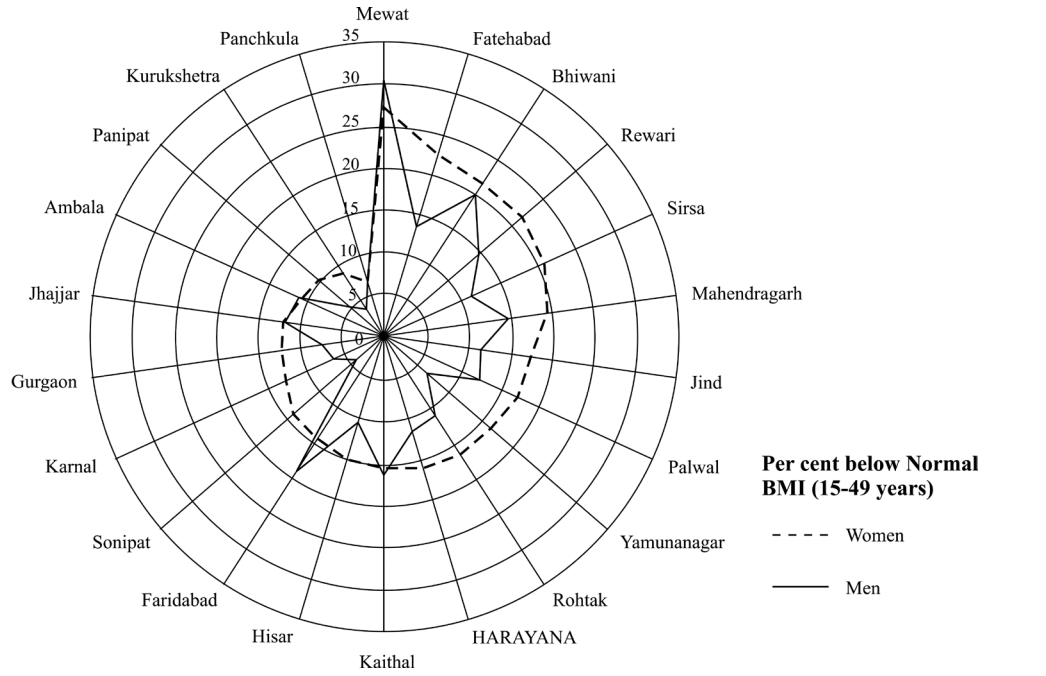

Fig. 2 Haryana: Nutritional Status of Adults, 2015-16

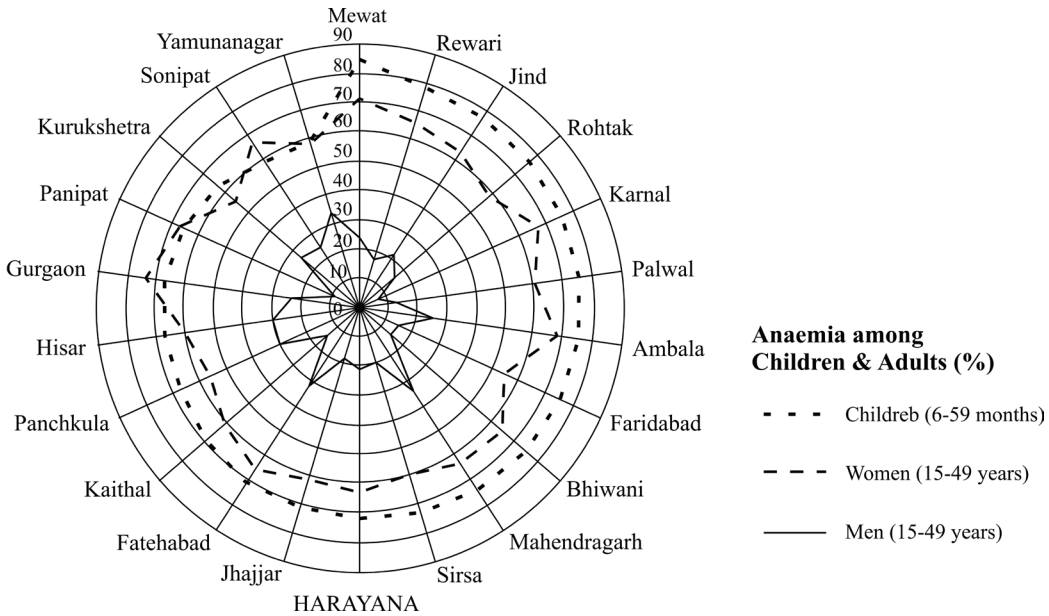

Fig. 3 Haryana: Anaemia among Children and Adults, 2015-16.

Some broad observations emerge from these figures. First stunting among children is more than wasting; districts of Panchkula and Ambala are exceptions. Cases of severely wasted condition can also be found. Understandably so as in a society guided by patriarchical norms there is unequal access to food. Second below normal body mass index showing nutritional status of adults (15-49 years) is highly gendered against females, but exceedingly variable for men inter-se districts. Third anaemia is all pervasive among children followed by women. Iron deficiency Anaemia (IDA) in Haryana is a serious public health problem and is a reflection of undernourishment and poor dietary intake of iron, an essential micronutrient. According to WHO, 40 per cent and above prevalence of anaemia in a population has been classified as a severe public health problem. Iron micronutrient deficient soils in particular in large parts of western Haryana, poor diets and dietary habits of people relying more on milk and milk products may partly explain this. Finally, Mewat region distinctly displays most poor scores in all respects. This district has a high concentration of Meo Muslims. Physical disabilities, poor demographic attributes, lack of basic amenities have worked in combination to keep it in this situation. It is noted for a very high fertility rate (4.9), high female illiteracy rates (63.4 per cent), large proportion of households defecating in the open (76.6 per cent), using untreated drinking water source (77.2 per cent) high proportion of wasteland (15.81 per cent) and large parts with marginal and saline ground water.

A regional picture depicting intra-district variation has been obtained through computation of hunger index score of the state.

Computing Hunger Index Score of Haryana

Select dimensions and indicators: three dimensions and seven indicators were identified, mentioned previously.

Hunger index scores were calculated using a three-step process and depicted in Fig.4: First, compute values of the component indicators.

Second, standardize component indicators. Each of the seven component indicators is given a standardized score based on thresholds set slightly above the highest district-level values observed in the state for that indicator. For example, the highest value for child stunting estimated is 52.3 per cent, so the threshold for standardization was set a bit higher, at 55 per cent. In a given year, if a district has a child stunting prevalence of 30 percent, its standardized child stunting score is 54.5.

For example,

Yamuna Nagar = Child Stunting 30%

Standardized Child Stunting = 30/55 x100

Third, the standardized scores are aggregated to calculate the hunger index score for each district. Each nutritional status indicator contributes one-sixth of the hunger index score, while each indicator pertaining to Anaemia contribute one-ninth of the score.

The index ranks districts on a 100-point scale, with 0 being the best score (no hunger) and 100 being the worst, although neither of these extremes is reached in practice. A

value of 100 would signify that a region's indicator levels each exactly meet the thresholds set slightly above the highest levels observed. A value of zero would mean that a region does not show hunger in terms of the defined dimensions and indicators.

The multidimensional approach of the hunger index offers several advantages. It captures various aspects of hunger in one index number, thereby presenting a quick overview of a complex issue. It takes account of the nutrition situation not only of the population as a whole, but also of a physiologically vulnerable group–children–for whom a lack of nutrients causes a high risk of illness, poor physical and cognitive growth, and death. In addition, by combining independently measured indicators, it reduces the effects of random measurement errors.

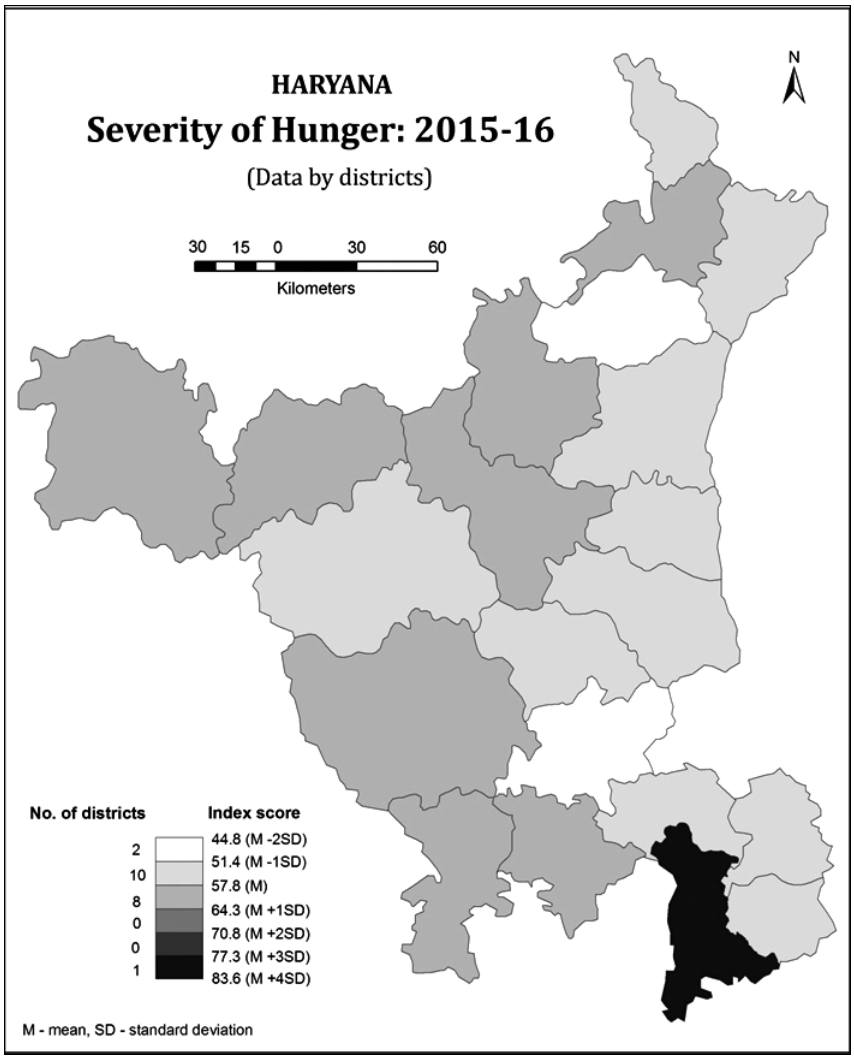

Fig. 4

Eastern part of the state is less hungry than its western counterpart. The district of Hisar falling in western Haryana is an exception. The district of Jhajjar and Mewat that lie locationally close to each other are at the two ends of the hunger spectrum. Mewat region is alarmingly behind other areas on the hunger score.

An Explanatory Note

Hunger correlates well with female illiteracy, lack of education, high fertility rate, open defecation, poor housing condition (kutchha (wall+roof) houses), unclean fuel used for cooking, early female marriage, absence of treated drinking water supply, and child sex ratio. The correlation has been found to be statistically significant. Geographical factors such as occurrence of wastelands and green revolution intensity do leave a mark.

Table 4: Correlates of Hunger in Haryana

Indicator	Pearson Correlation
Female Illiterates %	0.744**
#Population never attended educational institute %	0.727**
^Total fertility rate	0.648**
Defecation in the open, % households	0.640**
Kutchha (wall+roof) houses, % households	0.635**
Unclean fuel used for cooking , % households	0.602**
Women age 20-24 years married before age 18 years (%)	0.500*
Untreated drinking water source, % households	0.499*
Child (0-6 years) sex ratio	0.490*
Per cent wastelands	0.403
§Green revolution intensity %	-0.417

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Hunger index score pertains to 2015-16. Other indicators refer to Census of India, 2011
#(excluding 0-4 years age group)

^Christophe Z Guilmoto, S Irudaya Rajan. 2013. "Fertility at the District Level in India: Lessons from the 2011 Census". Economic & Political Weekly 48(23): 59-70 & Appendix 1-4

§Wheat and Paddy area as percentage of total cropped area, 2010-12 (Three years average). Data obtained from Statistical Abstract of Haryana for relevant years.

Wastelands include gullied and/ or ravinous land, land with dense and open scrub, waterlogged and marshy land (Permanent and seasonal), Land affected by salinity/alkalinity (medium and strong), degraded pastures/ grazing land and so on.

Linear regression computed between hunger index as dependent variable and green revolution intensity, per cent households residing in kutchha houses, defecation in the open, total fertility rate, child sex ratio (0-6 years), and per cent female illiterates as independent variables give the value of R as .887 and r2 value .787.

It is quite clear that a range of different factors covering a wide spectrum inform hunger.

Females through history have been the neglected lot. Their condition is rooted in the states' history of patriarchal structure, lineage and kinship according low status to females. The highly skewed child sex ratios at birth (864) and still lower (835) child sex ratio (age group 0-4) during 2011-13 in Haryana against 909 for All-India in both the cases (Government of India, 2013) are strong indicators of status accorded to females in the state. The state is often in news for all the less desirable reasons particularly in the matter pertaining to its more vulnerable section of gender. Haryana's root in patriarchy has accorded low status to women, famously regarded as a land of 'missing females'. The state has the lowest sex ratio in the country. The son's advantage and the daughter's disadvantage are seen as enduring and permanent.

Equally important is the need for a clean environment as poor hygiene, disease or limited access to clean water impede the body's ability to absorb nutrients from food and eventually result in manifestations of nutrient deficits such as stunting, wasting or underweight (CU5). The age-old habit of defecating in the open is more than enough to help spread diseases, worms and other parasites that make it more difficult to absorb nutrients even when food is abundant. In fact poor public hygiene may account for much of India's failure to make faster improvements in nutrition. There is a clear correlation between open defecation and hunger.

The effect of the feeding efforts can also decline if environmental hygiene and domestic health management practices are poor.

In such a scenario what could be the way forward.

Way Forward

A condition of hunger where a fairly high proportion of children under five years of age are stunted, wasted and underweight, high child mortality under five years, prevalence of undernutrition among adult women, anaemia, another reflection of undernourishment is endemic among children and women, does not augur well for a state that is economically prosperous and claims inclusivity in its approach. The sheer economics of its impact on the productivity leaves a question mark on the development model of the state. Additionally, even if equitable economic growth improves food availability and access, it might not lead immediately to improvements in child nutrition and mortality, for which more direct investments are required to enable rapid reductions.

A multipronged strategy needs to be adopted to prevent and ameliorate the condition of hunger and bring about improvements in public health. To break the vicious cycle of malnutrition, morbidity,

reduced learning capacity and mortality we need to go to the basic causative factors besides focusing on doctors, diseases and drugs. We also need to look at all dimension of health while focusing on key issues like medical issues, preventive issues, governance issues, infrastructure gaps affecting the quality of life of the people and their employability. A greater thrust on primary health care is the need of the hour.

First the biggest change has to come through female literacy and education. Investing in female education and empowering them should be the core of any development agenda.

Second although strides are being made on the public health front to ensure sustained reductions in child mortality, improvements in child nutrition are not satisfactory. Proper nutrition for public at large and girls and young mothers in particular should be a priority. Where teenage girls have a low body-mass index there seems a greater likelihood mothers will give birth to undernourished children. There is need to tackle issue of health of pregnant and lactating mothers. An evidence-based nutrition and health interventions to all women reproductive age, pregnant and lactating women, and children under the age of two years to improve nutrition and mortality outcomes for young children will serve the purpose.

Third food intake is not the only determinant of child's nutritional status. The effect of the feeding efforts can decline if environmental hygiene and domestic health management practices are poor. Open defecation should be stopped so as to take care of worm infestations, as recurrent diarrhoea is major cause of malnutrition and it is directly related with open defecation. In this context, convergence with public health department regarding total sanitation campaign and drinking water supply needs to be carried out.

A closer examination of the states' past and current investments in social protection, health, and nutrition programs can help inform the debate about policy instruments to protect populations against hunger among the most marginalised groups and children who have no access to schools or have dropped out from school. All statistics of mortality and morbidity will get distorted if we count the never reached population. In addition to wide-scale poverty alleviation, direct investments in improving food availability and access for poor households, as well as direct targeted nutrition and health interventions are required.

Finally the whole paradigm of development requires shifting from trickle down to 'pull up'. It's a grand task and requires a strong willed political dispensation and an equally responsive bureaucracy.

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