

# GH Index

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## Introduction

One in nine people or around 795 million people in the world sleeps hungry everyday or do not have enough food to lead a healthy active life. Around 12.9 percent of the population is undernourished and they live in developing countries. Two third of total hungry people live in Asia, which placed it on top among all continents. Around 45% or 3.1 million age under 5 children are died due to poor nutrition every year. Roughly around 100 million children in developing countries are underweight or can say that one out of six children. One in four children are stunted in developing countries, the proportion can rise to one in three.

And among Asian countries, India has a “serious” hunger problem and it ranks 100th out of 119 countries on the global hunger index — behind North Korea, Bangladesh, and Iraq but ahead of Pakistan. The country's serious hunger level is driven by high child malnutrition. About 195 million peoples in India sleep hungry every day. And again this year ranking of India on the GHI brings forward the disturbing reality of the country's stubbornly high proportions of malnourished children.” According to the report of IFPRI, more than one-fifth of Indian children under five weight too little for their height and over a third are too short for their age. Compare to last few years India is improving its GHI score but not to the great extent. According to IFPRI score is 31.4 in 2017. Which is towards the higher end of seriousness on GHI scale. According to the World Bank's the poverty rate in India is around 21.2 % and the malnutrition rate is 38.4% according to latest NFHS 4 report, this is due to poor diet, poor sanitation, and most importantly poor healthcare facilities. Some other reasons are:-

- food grain production,
- breastfeeding practices,
- Income and gender inequalities
- Political involvement
- Accessibility, affordability, and availability of healthcare services.
- U5MR
- Stunting
- Wasting
- Poverty

There are some more reasons depending on the status of country itself as well as states and districts too. Like the way, GHI of India is calculated by IFPRI in the same way GHI score can be calculated for all states, UT's and 114 backward districts of India given by NITI AAYOG. So we can track, assess and come to know which state or a district is lagging behind and to assess the progress and setbacks in combating hunger and what all are the reasons for this lag.

We are having a formula which is given by IFPRI with the help of which GHI score can be calculated.

## OBJECTIVE

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1. To obtain the Global hunger index of States, UT's and 114 backward Districts of India.
2. To discuss the general factors responsible for serious hunger situation.

## Review of literature

1. Global hunger index of India based on National family health survey-IV with special reference to some states and critical review by Ashish Wasudeo Khobragade, K. Rajan was reviewed in which the author has focused on hunger situation in 4 different states of India and remedial measures. He has selected Kerala, Maharashtra, Bihar and MP. Out which GHI of MP is worsened (comes under alarming condition)
2. Article by PRS team by Nivedita Rao in which author has explained about the nutritional strategy for overcoming the problem of malnutrition. In which Indian government has taken many initiatives to overcome the problem of malnutrition and 7. mately improving U5MR whose one of the cause is malnutrition.
3. The 2009 Global Hunger Index: More Attention to Women's Role Needed by Joachim von Braun – in this article author has described the role of women to improve the hunger state of country. Various reason are mentioned by author which plays major role in hunger situation of the country out which food and financial crisis and gender in equality 7 are one of them. There is relationship between gender inequality and hunger, policies that eradicate disparities between men and women, girl and boy , particularly in health and education are of great urgency and key to reducing global hunger. Giving economic opportunities, social status and political empowerment can help in reducing hunger as well as malnutrition.
4. Hunger, ethics and right to food by Srijit Mishra, in this article has mentioned that having food is the right of every one. Main problem of hunger and malnutrition is unavailability. Inaccessibility, inadequacy and non affordability of food. But to make this viable , government should or has to take appropriate and effective food security and nutrition bill, address the issue of inadequate provision of storage of food due to which food got rotten and not available to people. This is ethically not correct, it's a criminal waste when people are dying of hunger. Author has raised he issues related to food security, inadequate storage and rotting of food, national food security bill and 14 is in Indian agriculture and concomitant ethical challenges.
5. Hunger and Malnutrition in India by N.C Saxena, according to author 14 spite excellent economic growth of india from last two decades it is still facing alarming hunger and acute malnutrition among under 5 children. For this government has tried and come up with national food security bill in which they have to improve the public distribution system design and identified the needy one by UID. This would help in food subsidy and ICDS programme too. However food alone can not improve the hunger but need multidimensional thrust that is water sanitation, health, hygiene etc.

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## METHODOLOGY

### Data Collection and Analysis

A secondary research was conducted using NFHS 4 and CENSUS 2011 data in which we have selected 36 states and UT's as well as 114 backward districts of India given by NITI Aayog. Data of the entire four components GHI was present in the sources. In case of states and UT's all data such as U5MR, stunting and wasting were available in NFHS 4 reports, whereas data for district basically the U5MR was taken from census 2011 and rest from NFHS 4. Some districts are formed after 2011. There U5MR was not present. So we did not consider that districts in our study. Due to non availability of data the national average of the undernourished population of India was taken i.e. 15.2 % according to World Bank.

All the data is entered into excel sheet and data is analyzed in Microsoft Excel with the new formula given by IFPRI and to find out GHI the score. According to GHI score, we rank the States and UT's and Districts as top 10 and bottom 10.

As U5MR of districts are not present in NFHS 4 so that is taken from census 2011. As Telangana was founded in 2014 so data of its districts was not available in census 2011.

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### Brief introduction to GHI

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### Global Hunger Index

The Global Hunger Index (GHI) is designed to comprehensively measure and track hunger globally and by country and region. The International Food Policy Research Institute (IFPRI) calculates GHI scores every year to assess progress and setbacks in combating hunger.

### GHI Methodology

GHI scores are based on four indicators:

- **UNDERNOURISHMENT**: the percentage of the population that is undernourished (that is, whose intake of calories are insufficient);
- **CHILD WASTING**: the percentage of children under the age of five who are wasted (that is, who are having low weight according to their height, reflecting acute under nutrition);
- **CHILD STUNTING**: the percentage of children under the age of five who are stunted (that is, who is having low height for their age, reflecting chronic undernutrition); and
- **CHILD MORTALITY**: percentage of number of deaths of children under the age of five (in part, reflection of dire mix of unhealthy environment and under nutrition. )

Data on above indicators are mainly obtained from UN agencies such as FAO, UNICEF, WHO and World Bank and data for Indian states and districts we use NFHS 4 and census

2011 reports. There are 3 steps to calculate the GHI score and for interpretation, GHI scale is also there.

That three steps are:

**1. To determine the values for each of the component indicators.**

CWA:- wasting children whose age is under5 (Prevalence)

CM:- the proportion of children dying before age of 5

PUN:- undernourished population in percentage.

CST:- stunting in children under 5 years old. (Prevalence)

All indicators are in percentage (%)

**2. Standardization of the component indicator:-** the determined score need to be standardized and it can be done by setting a threshold value above the highest country level between 1988 to 2013 and it is applicable for all the four components or in other words, that country is approximately halfway between reaching the maximum observed levels and having no undernourishment.

Standardized CWA =  $CWA / 30 * 100$

Standardized CM =  $CM / 35 * 100$

Standardized PUN =  $PUN / 80 * 100$

Standardized CST =  $CST / 70 * 100$

“The thresholds for standardization are set slightly above the highest observed values to allow for the possibility that these values could be exceeded in the future”.

“The threshold for undernourishment is 80, based on the observed maximum of 76.5 percent; the threshold for child wasting is 30, based on the observed maximum of 26.0 percent; the threshold for child stunting is 70, based on the observed maximum of 68.2 percent; and the threshold for child mortality is 35, based on the observed maximum of 32.6 percent”

**3. Aggregate component indicators:-** Now to calculate GHI score the standardized score is aggregated in which contribution of undernourishment and child mortality is one sixth, whereas, child wasting and stunting is one third.

**4.** The above steps give rise to results which is measure against 100 point scale GHI score. In which 0 is the best score means, “no hunger” and 100 is the worst score. But practically these two extremes are not possible to reached. A value of 100 would signify that a country’s undernourishment, wasting, stunting, and under 5 mortality levels each exactly meets the thresholds set slightly above the highest levels observed worldwide in recent decades. Whereas a value of 0 would mean that a country had no undernourished people in the population, no children younger than five who were wasted or stunted, and no children who died before their fifth birthday.

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#### 5. The scale is shown below:-

s.no	GHI score	Category
1	$\leq 9.9$	Low
2	10.9 to 19.9	Moderate
3	20.0 to 34.9	Serious
4	35.0 to 49.9	Alarming
5	$\geq 50.0$	Extremely alarming

According to this formula, we get the values GHI for each state, UT, and district. And we interpret that values according to this scale and ranked them accordingly as top 10 states or districts and vice versa.

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### Result

There are wide disparities in hunger situation of Indian states and UT's and Districts. Global Hunger Index (GHI) score of Jharkhand is highest and comes under an alarming category with a score of 38.37, after that Madhya Pradesh and Dadar and Nagar Haveli with the scores 36.86 and 35.60 respectively, (means require the immediate attention of the government of India). Out of 10 worst districts according to GHI 4 districts are of Jharkhand. They are West Singhbhum, Kunti, Dumka, and Simdega. First two are in Extremely alarming condition with a score of 52.55 and 50.82 respectively and rest two are in an Alarming category with the score of 47.95 and 47.77 respectively, both categories require an immediate attention and action to improve the indicators of GHI which if improve will help in the growth of the country. There are various factors responsible for an increase in hunger index of districts of Jharkhand and they are as follows:-

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1. Rural stagnation,
2. Low level of technology,
3. Low productivity in agriculture,
4. Areas with threatened,
5. Displacement, remoteness,
6. Interior areas with very poor connectivity and access to infrastructure.

Himachal Pradesh and Manipur are in good condition as they fall in the Moderate category of GHI with score 15.38 and 19.47. Whereas Kerala whose other indicators are good, their health system is good but hunger index is not up to the mark that is in a Serious category with the score of 20.41.

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Out of all UT's best UT is Lakshadweep with score 22.62, though it is in the serious category its GHI score is better than other UT's.

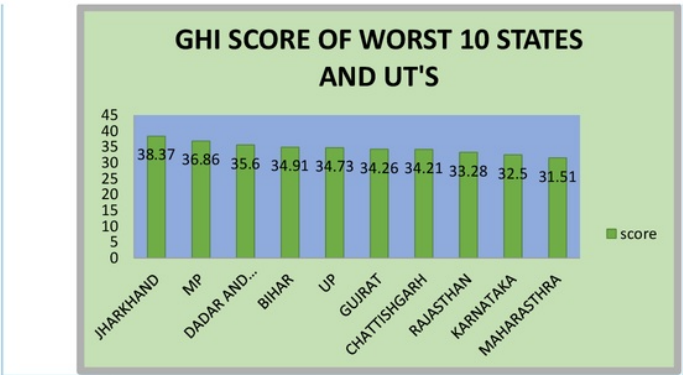
On assessing the complete state and districts none of these falls in the low category. In case of states moderate is the last and in districts serious category is last. This GHI score gives us alert warning to improve the condition with the help of strengthening the existing system.

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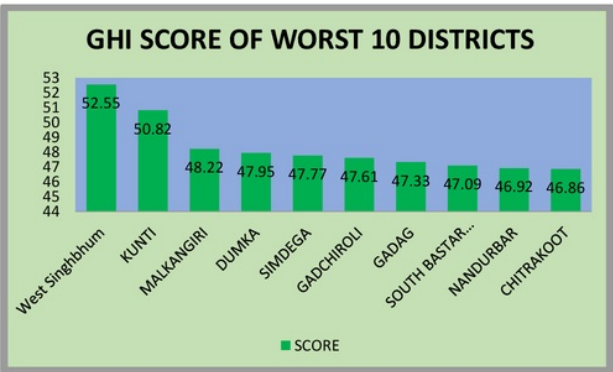
Graph 1



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Graph 2



Given table shows the list of states and UT's and Districts which are ranked according to GHI scale.

s.no	States or UT's	Score and rank	Category
1	JHARKHAND	38.37	Alarming
2	MADHYA PRADESH	36.86	Alarming
3	DADAR AND NAGAR HAVELI	35.60	Alarming
4	BIHAR	34.91	Serious
5	UP	34.73	Serious
6	GUJRAT	34.26	Serious
7	CHHATTISGARH	34.21	Serious
8	RAJASTHAN	33.28	Serious
9	KARNATAKA	32.50	Serious
10	MAHARASHTRA	31.51	Serious

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s.no	Districts	Score	Category
1	West Singhbhum	52.55	Extremely Alarming
2	Khunti	50.82	Extremely Alarming
3	Malkangiri	48.22	Alarming
4	Dumka	47.95	Alarming
5	Simdega	47.77	Alarming
6	Gadchiroli	47.61	Alarming
7	Gadag	47.33	Alarming
8	South Bastar- Dantewada	47.09	Alarming
9	Nandurbar	46.92	Alarming
10	Chitrakoot	46.86	Alarming

Given tables are states, UT's and Districts who are best in GHI score scale.

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S.NO	States/ UT's	Score	Category
1	HIMACHAL PRADESH	15.38	Moderate
2	MANIPUR	19.47	Moderate
3	KERALA	20.41	Serious
4	MIZORAM	20.77	Serious
5	LAKSHADWEEP	22.62	Serious
6	CHANDIGARH	22.75	Serious
7	NAGALAND	22.89	Serious
8	J AND K	23.20	Serious
9	ANDAMAN AND NICOBAR	23.62	Serious
10	PUNJAB	24.26	Serious

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S.NO	District	Score	Category
1	Nadia	21.89	Serious
2	Kupwara	22.97	Serious
3	East Sikkim	24.31	Serious
4	Chandel	24.56	Serious
5	Ramanathapuram	25.67	Serious
6	Baksa	25.90	Serious
7	Baramulla	27.69	Serious
8	Mamit	27.73	Serious
9	Udham Singh Nagar	27.77	Serious
10	Wayanad	28.05	Serious

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## General Factors responsible for this situation are:-

### 1. U5MR

The most common causes of U5MR are prematurity and infections like Pneumonia(13%), diarrhoeal (9%) diseases, malaria(7%), injury(5%) and measles(2%). Both malnutrition and Infections are interrelated. 45% of childhood deaths are attributed to malnutrition. The Poverty is the leading cause of malnutrition. So to reduce U5MR early diagnosis and prompt management are at utmost importance.

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### 2. Stunting

9.4% of the under-five children are stunted in India down from 48% (NFHS-III). The manifestation of chronic malnutrition is Stunting. Stunting and other forms of nutrition problems are the major reason for child death not in India but globally too. Stunting reflects the cumulative effect of intergenerational poverty, poor maternal health, malnutrition, and recurrent childhood illness.

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India has the highest number 10 stunted children in the world even though its economy is increasing at impressive rate. Stunting starts from pre-conception when an adolescent girl and who later becomes a mother is undernourished and anemic; it worsens when infants' diets are poor, and

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when sanitation and hygiene are inadequate. By the age of two stunting is irreversible. So measures to be taken during pre and peri-conception and also in pregnancy and post pregnancy period.

### 3.Wasting

According to UNICEF report in India 21% children age Under 5 are wasted due to acute malnutrition. The reason behind this is undernourished mother during her pre, periconception and pregnancy period and their after also. Contribution of rural population is more due to many factors.

### 4.Poverty

Poverty is a significant issue in India despite increase or fastest growing economy around 22% population living below official poverty line. The main reason is the rate of growth of population, illiteracy, poor health facilities, lack of access to financial sources and many more. According to the Tendulkar methodology (2011-12), an almost 1/3rd population is below the poverty line in Bihar and MP. The national average is about 1/5th.

### 5.Food grain production in India

Malnutrition status of the community depends on the agricultural performance of that region but there are other factors which also affects it. Despite MP is one of the high foodgrains producing state, but hunger situation is the worst.

Natural calamities, sudden climatic changes, and less rainfall affect the agricultural production. Environment-friendly modern agricultural technologies are required to deal with this issue.

In this perspective, Sikkim has taken initiative by introducing organic farming. There is need to promote home farming. Decreasing cultivable land, scarcity of energy and less rainfall are the challenges to the food production. The food production should be increased but without compromising its safety and quality. Each state should have adequate facilities for the storage of food grains.

### 6.Income and gender inequalities

There is the inequitable distribution of income in India. Gender inequalities in education, literacy, job opportunities and political involvement are related to hunger situation. According to 2011 census, a male and female literacy rate in India is 82.14% and 65.46% respectively.<sup>12</sup> There is a difference of 13% points in male and female literacy. The numbers of women representatives in the parliament of India are only 12%.

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## 7. Political involvement

A serious hunger situation of India is due to many reasons out of those one is lack of political will. Public distribution system (PDS) is functional all over India. There should be transparent<sup>18</sup> the working of PDS so that targeted beneficiaries will get the benefits at right time. The government of India launch<sup>1</sup> integrated child development scheme (ICDS) in 1975. One of the objectives of ICDS is to improve malnutrition by providing supplementary nutrition to 0-6 children, pregnant and lactating women. It is one of the largest programmes in World. But merely by providing food only hunger situation is not going to improve. Action at various levels is required such as the provision of safe and potable water, changes in feeding practices of children, healthy environment, accessible and affordable health care services.

## 8. Availability, accessibility, and affordability of healthcare services

Government spending on health care in India is only 1.3% of the total GDP in 2015-16. New National health policy 2017 ensures that public health expenditure on health care will be at least 2.5% of the total GDP. Most of the health care is given by the private sector in India which is not affordable to the poor section of the society.

## 9. Breastfeeding practices

Poor breastfeeding practices are the most common cause of growth faltering in children. Only 54.9% children are exclusively breastfed up to the age of 6 months. Mothers start breastfeeding within 1 hour after birth only in 41.6% children.

National food security act is passed by government of India in 2013. Goal number 2 of sustainable development goals (SDG) is zero hunger by 2030. Sustainable food security can be one of the ways to achieve the SDG.

## Conclusion

Despite various strategies and attempts to improve the hunger index of India government is not able to achieve the target. Strong dedication, accountability, transparency, quality etc. is needed to improve the status of states and districts who are in extremely alarming, alarming and serious category of GHI score.

Different states and districts have different reasons for hunger status, therefore require different or according to situations interventions to overcome the hunger.

## Limitations

Data for undernourished population state and district wise was not available so standard percentage for India i.e 15.2% given by world bank is used.

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