

## Vision on India's hunger rate index with special reference to the mission of sustainable development reform

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### Abstract

Hunger is the one of the biggest challenges in independent India. To tackle this challenge sustainable development goals were adopted with the target year of 2023. This instigates the researchers to compare the pre and post sustainable development reform of zero hunger indicators to analyse the India's performance towards the vision of zero hunger. The result of the disclosed that India has made a progress towards the mission of sustainable development reform by reducing child stunting and undernourishment.

**Keywords:** Hunger, sustainable development, vision, mission, India.



<https://doi.org/10.31039/ljss.2024.7.195>

## 1. Introduction

உறுபசியும் ஓவரப் பீணியும் செறுபகையும்  
சேரூ தீயல்வது தூடு

**Kingdom is that which continues to be free from excessive starvation, irremediable epidemics, and destructive foes.**

**Thiruvalluvar**

The world has huge desire for food. From the very prehistoric stage of the civilization of mankind, man has realized the essential of food for the building up of a healthy body and a sound mind. Food holds cultural, social and emotional significance. Today, nearly 3-quarters of a billion people are experiencing hunger. World hunger is a social and constant problem. This problem can escalate quickly and dangerous if we do not urgently and radically take action on the quality and quantity of food.

Research into the human experience adds to our knowledge about our world and provides the ideal foundation for exploring and understanding how people process and take the human experience. Without the humanities and social sciences, we can never find responses to the urgent issues that trouble us. By understanding this **10th London International Conference** gives Priority to “**Social Science and Humanity**”. This inspires, the researchers to analyse the vision on India’s hunger rate index with special reference to the mission of sustainable development reform.

## 2. Statement of the problem

Food is a moral right, and it is the fundamental right of everyone to be free from hunger. To eradicate hunger and to feed the future, the United Nation Organisation has launched zero hunger goal by uniting the whole world on 2015 with an aim to end hunger, ensure food security and promote sustainable agriculture. To change our world for the better daily it is necessary to take a small action. This induces the researchers to analyse vision on India’s hunger rate index with special reference to the mission of sustainable development reform by connecting locally to go globally.

In achieving sustainable development goals, India ranked 112 positions among 166 countries. This shows, India is making a significant progress towards achieving sustainable development goals. However, the global hunger rate index pinpointed India’s global hunger rate as 28.7 in 2023 and sustainable report of achieving zero hunger shows that India’s goal of attaining zero hunger remains stagnating. Thus, it is necessary to disclose the commitment of India’ towards the zero hunger goal by framing the following hypothesis

H<sub>0</sub> - There is no significance difference in zero hunger indicators between the pre and post sustainable reform.

H<sub>1</sub> - There is a significance difference in zero hunger indicators between the pre and post sustainable reform.

### 3. Objectives of the study

- To make a comparative analysis of pre and post reform period of sustainable development goal of zero hunger indicators.
- To understand that impact of sustainable reform on zero hunger indicators

### 4. Review of literature

Before embarking upon the research study, an attempt is made to review the literature on the subject. The findings from the following literature are presented here.

**Jain et al. (2021)** studied the “Multilevel Analysis of Geographic Variation among Correlates of Child under Nutrition in India”. This study aims to analyse the risk factors responsible for geographical variations and child malnutrition in the villages, districts, and states or UTs of India. The main objective of this study is to examine variations in the 21 risk factors of child under nutrition and where the risk factors are specifically clustered in India. Their study is based on secondary sources from (NFHS-4, 2015-16), IIPS, and the stratified sampling method was used. The high variations in the 19 risk factors out of 21 and geographical variations found in the villages and Uttar Pradesh, Madhya Pradesh, Bihar, and Jharkhand were the highest risk clustered states. This study recommended that to address child malnutrition needs, particular nutrition policies and interventions in the worst and underscore performing states.

**Hookway, Lewis and Brown (2021)** conducted a study on “The Challenges of Medically Complex Breastfeed Children and Their Families”. This study aims to identify breastfeeding challenges among medically complex children and the gaps between healthcare delivery and barriers to keeping lactation or breastfeeding among the children. Their study was based on secondary sources. It found that the psychological and practical challenges of enduring breastfeeding in hospitals include a lack of specialists, hospital staff, and healthcare professionals and a paucity of specialist equipment for lactation support. This study suggested that we need to improve the quality of the healthcare system and more focused research areas.

**Yaya and Ghose (2020)** in their study entitled on “Change in Nutritional Status among Women of Childbearing Age in India (1998–2016)”. This study's main objective is to identify the 35 problem of obesity during the past two decades among all the non-pregnant and pregnant women in India. It showed that more than sub-Saharan African countries undernourished people living in India. Their study is a cross-sectional study based on secondary sources and data obtained from NFHS-4 (2015-16), IIPS. It is analysed by regression analysis,  $\chi^2$  tests. It found a significant relationship between wealth and age status and the prevalence of obesity among the non-pregnant and pregnant women; after 1998, underweight decreased and overweight increased. It proposed that socio demographic variations, financial and age status should be considered in the nutritional intervention programmes and policy making.

**Sharma, Singh and Srivastava (2020)** in their paper analysed the problem of anaemia among the children and anaemic disparities and inequalities across all Indian regions. This study is aimed to analyse the prevalence of anaemia is a significant health problem in developing countries. This study is based on secondary sources obtained from NFHS-4 (2015-16) IIPS, Mumbai and used the Binary and multivariate logistic regression analysis, Poor-rich Ratios, autocorrelation, auto-regression models, Concentration Index, Spatial Error Model

(SLM), and Spatial Error Model (SEM) to analyse anaemic disparities in India. It found a positive correlation between anaemia among the children with the uneducated mothers, underweight children, anaemic mothers, and the high-level prevalence of anaemic disparities among the children in India, Nagaland, and Mizoram were severely affected by anaemia problems. This study suggested promoting feeding practices and huge investments to reduce micronutrient deficiencies and anaemia.

**Barau.A.A and Afrad.M.S, (2017)** conducted a study on “Potentials of rural youth Agripreneurs in achieving zero hunger” with the objective of identifying various ways for engaging rural youth in agripreneurship in achieving zero hunger. The study concluded that there are many threats to the achievement of zero hunger due to the environmental evolution and parallel outcome of population increase and food output.

## **5. Scope of the study**

The following are the scope of the study:

### **5.1 Geographical Scope**

The study covers the data of zero hunger indicators of India.

### **5.2 Analytical Scope**

Zero hunger indicators such as prevalence of undernourishment, proportion of children moderately stunted, proportion of local breeds at extinction risk, Total official outflows and agriculture share of Government expenditure data of 14 years spreading from 2009 to 2022 from the official website of United Nation Sustainable Development Goals are taken into an account to make a comparative analysis of pre and post sustainable reform.

### **5.3 Functional scope**

By highlighting the issue of hunger, this study stresses the importance of the world with no hunger as it creates positive impact on education, health, economies and equality.

## **6. Pre and Post Reform of Zero Hunger Indicators on Sustainable Development Reform**

Interconnected issues of poverty, undernourishment, stunting, conflict, climate change, and gender discrimination, and Government plays a role in keeping nutritious food out of reach for millions of families around the world. The following Table 1 shows that the prevalence of Undernourishment of Pre Reform Period (2009 to 2015) and Post Reform Period (2016 to 2022).

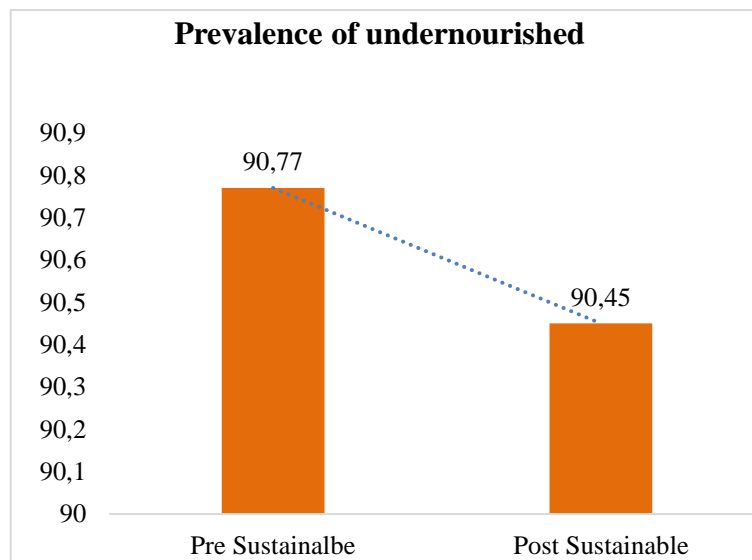
**Table 1. Prevalence of undernourishment**

Pre Reform Period		Post reform period	
Year	Value	Year	Value
2009	96.0	2016	81.1
2010	95.2	2017	74.3
2011	93.2	2018	79.4
2012	88.7	2019	99.7
2013	88.1	2020	99.1
2014	88.3	2021	99.7
2015	85.9	2022	99.9

Source: Secondary Data

**Table 1.1. Under nourished - paired samples statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Under Nourished	90.771	7	3.9605	1.4969
	Post Under Nourished	90.457	7	11.5873	4.3796



**Figure 1. Prevalence of undernourished**

Table 1.1 And Figure 1 Exhibit That Prevalence Of Undernourishment Has Been Reduced After The Implementation Of Sustainable Development Reform. This Shows That The Sustainable Reform Has Created A Positive Impact By Providing Enough Food To Lead A Normal, Healthy And Active Life.

**Table 1.2. Under nourished - paired sample test**

		Paired Differences					Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Pre Under Nourished - Post Under Nourished	.3143	15.3652	5.8075	-13.8961	14.5247	6	.959

Table 1.2 exhibits that the p value of 0.05 is less than the table value of 0.959. So, reject null hypothesis and conclude that the prevalence of undernourishment has been reduced after the implementation of sustainable development reform. This shows that the sustainable reform has created a positive impact by providing enough food to lead a normal, healthy and active life.

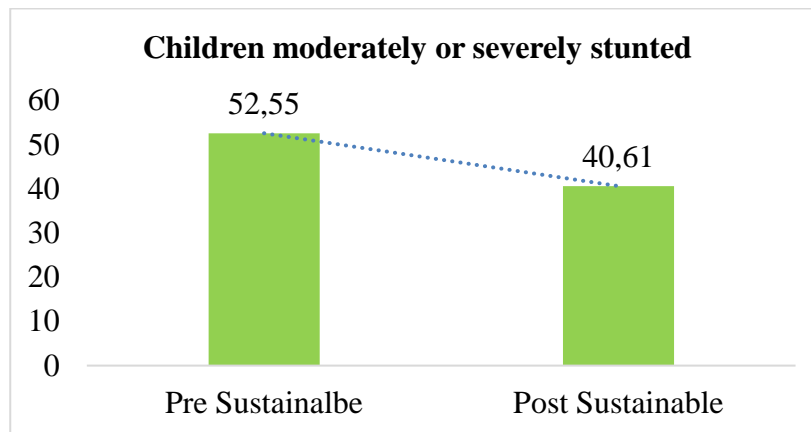
**Table 2. Proportion of children moderately or severely stunted**

Pre Reform Period		Post Reform period	
Year	Value	Year	Value
2009	57.8	2016	45.4
2010	56.1	2017	43.7
2011	54.3	2018	42.1
2012	52.5	2019	40.5
2013	50.7	2020	39.0
2014	48.9	2021	37.5
2015	47.6	2022	36.1

Source: Secondary Data

**Table 2.1. Children moderately or severely stunted - paired samples statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Children Who were Moderately or Severely Stunted	52.557	7	3.7523	1.4182
	Post Children Who were Moderately or Severely Stunted	40.614	7	3.3498	1.2661



**Figure 2. Children moderately or severely stunted**

Table 2.1 and Figure 2 illuminate that the children stunting under age 5 has been decreased after the implementation of sustainable development reform.

**Table 2.2. Children moderately or severely stunted - paired samples test**

		Paired Differences					df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Pre Children Who were Moderately or Severely Stunted - Post Children Who were Moderately or Severely Stunted	11.9429	.4158	.1571	11.5583	12.3274	6	.560

Table 2.2 illustrates that, the p value of 0.05 is less than the table value of 0.560. So, reject null hypothesis and conclude that the children moderately or severely stunted has been reduced after the implementation of sustainable development reform. This shows that the sustainable reform policies have created a new path to enriching the food quality by avoiding hazardous chemicals.

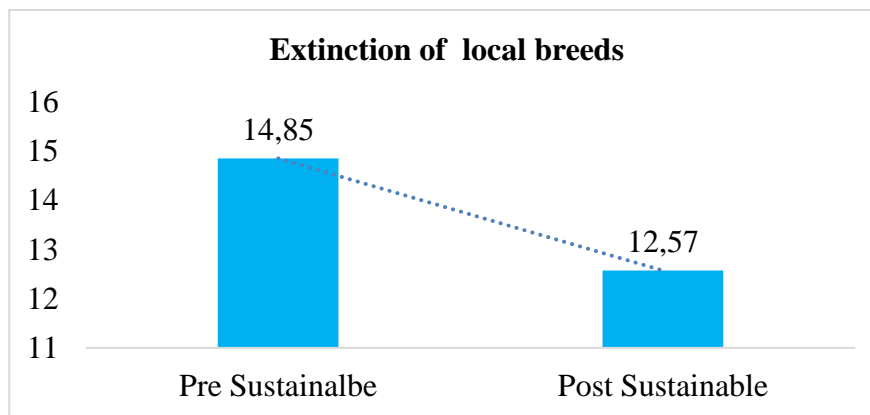
**Table 3. Extinction of local breeds**

Pre Reform Period		Post Reform period	
Year	Value	Year	Value
2009	15	2016	13
2010	13	2017	13
2011	27	2018	13
2012	15	2019	12
2013	11	2020	12
2014	11	2021	11
2015	12	2022	14

Source: Secondary Data

**Table 3.1. Extinction of local breeds - paired samples statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Extinction of Local Breeds	14.857	7	5.6104	2.1205
	Post Extinction of Local Breeds	12.571	7	.9759	.3689



**Figure 3. Extinction of local breeds**

Table 3.1 and Figure 3 shows that the local breed has been drastically reduced after the implementation of sustainable development reform.



**Table 3.2. Extinction of local breeds - paired samples test**

		Paired Differences					df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Pre Extinction of Local Breeds - Post Extinction of Local Breeds	2.2857	5.4380	2.0554	-2.7436	7.3150	6	.309

Table 3.2 indicates that the p value of 0.05 is less than the table value of 0.309. So, reject the null hypothesis and it is revealed that the proportion of local breeds at the level of extinction has been reduced after the implementation of sustainable development reform. Then, the local breeds helped farmers to increase in production and offers a great portion on nutritional intake to produce desired goods like milk and meat, thus addressing to the issue of undernourishment.

**Table 4. Total official flows**

Pre Reform Period		Post Reform Period	
Year	Value	Year	Value
2009	82.5	2016	97.5
2010	78.8	2017	70.4
2011	78.4	2018	68.6
2012	58.7	2019	70.9
2013	77.8	2020	70.0
2014	98.8	2021	89.1
2015	99.9	2022	92.3

**Table 4.1. Total official flows - paired samples statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Official Flows	82.129	7	14.0624	5.3151
	Post Official Flows	79.829	7	12.5504	4.7436

**Figure 4. Total official flows**

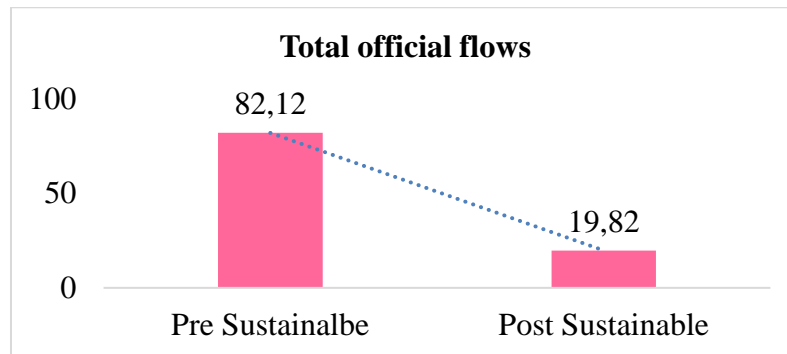


Table 4.1 and Figure 4 reveals that the official development assistance towards agriculture has been decreased during post reform period.

**Table 4.2. Total official flows - paired samples statistics**

		Paired differences					df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Pre Official Flows - Post Official Flows	2.3000	10.9247	4.1292	-7.8037	12.4037	6	.030

Table 4.2 reveals that the p value of 0.05 is greater than the table value of 0.030. So, accept null hypothesis and conclude that official outflow assistance for agriculture has no impact after the implementation of sustainable development reform.

**Table 5. Agriculture share of government expenditure**

Pre Reform Period		Post Reform period	
Year	Value	Year	Value
2009	8.6	2016	6.9
2010	8.5	2017	7.4
2011	8.4	2018	7.5
2012	8.0	2019	7.5
2013	8.4	2020	7.0
2014	7.7	2021	7.2
2015	7.7	2022	7.4

Source: Secondary data

**Table 5.1. Agriculture share of government expenditure – paired sample statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre Agriculture Share of Government Expenditure	8.186	7	.3805	.1438
	Post Agriculture Share of Government Expenditure	7.271	7	.2430	.0918

**Figure 5. Agriculture share of government expenditure**

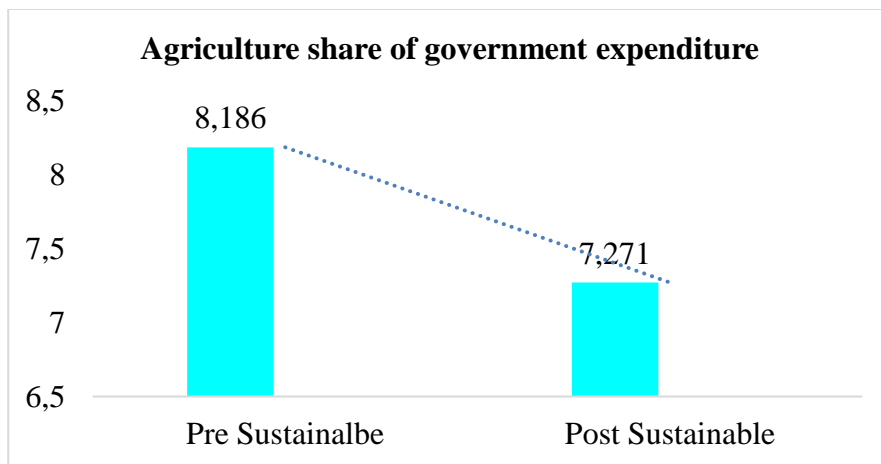


Table 5.1 and Figure 5 revealed that, the agriculture share of Government expenditure has reduced after the implementation of sustainable development reform.

**Table 5.2. Agriculture share of government expenditure – paired sample test**

		Paired differences					Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
					Lower	Upper		
Pair 1	Pre Agriculture Share of Government Expenditure - Post Agriculture Share of Government Expenditure	.9143	.5178	.1957	.4354	1.3932	6	.003

Table 5.2 shows that the p value of 0.05 is greater than the 0.003. So, accept the null hypothesis and it is disclosed that agriculture share of government expenditure has no impact after the implementation of sustainable development reform.

## **7. Findings**

Comparison of pre and post sustainable development reform of zero hunger indicators.

### **7.1 Prevalence of Undernourishment**

The result expressed that the sustainable development reform has created a positive impact on addressing the issue of undernourishment. Then, there is a significance difference between pre and post sustainable reform in undernourishment.

### **7.2 Proportion of children moderately or severely stunted**

The p value of proportion of children stunted is greater than 0.05 ( $p > 0.05$ ), the null hypothesis is rejected. The result indicated that the sustainable development reform has create a significant difference between pre and post proportion of children moderately or severely stunted.

### **7.3 Extinction of local breeds**

The extinction rate of local breeds have reduced during the post reform period of sustainable development, as the p value of 0.05 is greater than the table value. So, the null hypothesis is rejected by stating sustainable development reform has create a significant difference between pre and post extinction of local breeds.

### **7.4 Total official outflow**

The rate of total official outflow has decreased during the post sustainable reform and the p value of 0.05 is less than the table value. So, accept the null hypothesis. It is concluded that there is no significant difference between pre and post total official outflow in huger rate.

### **7.5 Agriculture share of Government expenditure**

The share of Government expenditure has no impact during post sustainable as the value of  $p < 0.05$ , the null hypothesis is accepted.

## **8. Suggestions**

### **8.1 Total official outflow**

Assistance and awareness on vertical farming should be initiated by the Government as it has the potential to take over global food demand for rising population.

### **8.2 Government share of expenditure**

Instead of spending huge amount on fertilizer of subsidy the government should make an effective policy in boosting integrated farming by making use of local resources and minimising external inputs.

Awareness on Smart agricultural management system using emerging technologies can be created.

### **8.3 Regarding food insecurity**

Eating Indigenous food can support the health and well-being of current and future generation.

Government have to make a policy for creating an effective Agri-value chain as it is concentrate from the producer to the final consumer by ensuring food wastage and with the goal of no one should left behind.

## **9. Conclusion**

Extreme hunger and malnutrition remain a barrier to sustainable development and creates a trap from which people cannot easily escape. However, the comparison between Pre and post sustainable reform, it is disclosed that India has made a progress towards the mission of sustainable development reform by reducing child stunting, undernourishment. Hunger may be a complex issue to address but together it is solvable. Let's work together to make zero hunger goal a reality by supporting local farmers, making sustainable food choices, supporting good nutrients for all and fighting food wastages.

## **Acknowledgements**

This article was presented at the 10th London International Conference, held from November 15 to 17, 2023, in London, United Kingdom. It has been published in the proceedings of the London International Conferences under No. 8(2003).

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