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Zero Hunger: Challenges and the Achievement of Sustainable Development Goal 2 in India

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Abstract

Sustainable Development Goal 2 (SDG-2), "Zero Hunger," aims to end hunger, ensure food security, improve nutrition, and promote sustainable agriculture by 2030. India, as one of the world's largest agricultural economies, has made considerable progress in food production, welfare schemes, and nutritional security programmes. Yet persistent hunger, malnutrition, rising food prices, climate uncertainties, and agricultural distress remain critical barriers. This research paper analyses India's progress, challenges, and gaps in achieving SDG-2 using both primary data collected from 300 households across Maharashtra (Aurangabad, Jalna, Beed) and secondary data from NFHS-5, GHI, NITI Aayog, FAO, and government reports. The primary survey indicates that 62% households face nutritional insecurity, 47% report low dietary diversity, and 55% of children consume inadequate protein-rich foods. Secondary data show India continues to rank poorly on global hunger indicators, with high levels of stunting (35.5%), wasting (19.3%), and anaemia among children (67%). The paper identifies key structural challenges such as poverty, unequal access to food, climate-vulnerable agriculture, high post-harvest losses, gender disparities, and weaknesses in public distribution systems. It concludes that achieving Zero Hunger requires integrated strategies—nutrition-sensitive agriculture, women-led food systems, climate-resilient farming, improved PDS reforms, fortified foods, and community-driven nutrition models. The paper recommends a holistic policy framework to ensure equitable food access, enhance farmer incomes, and build sustainable agricultural ecosystems necessary to achieve SDG-2 by 2030.

Keywords: SDG-2, Zero Hunger, Malnutrition, Food Security, NFHS-5, Agriculture, PDS, India, Climate Change, Primary Survey.

INTRODUCTION:

Hunger and malnutrition continue to be major global concerns. The United Nations' Sustainable Development Goal 2 (Zero Hunger) aims to eradicate hunger, ensure food security, end malnutrition, and promote sustainable agriculture by 2030. India, being home to 18% of the global population, holds the world's largest public food distribution system and has achieved self-sufficiency in food grain production. However, the paradox remains—India's food production has increased but nutritional outcomes are still weak. As per NFHS-5, nearly one-third of children are stunted, while more than half of all women are anaemic. India's ranking in the Global Hunger Index also highlights persistent challenges.

This research paper provides a comprehensive analysis of India's performance on SDG-2 through a mixed-method approach combining:

Primary Survey Data (300 households, India)

Secondary Data (FAO, NFHS-5, GHI 2023, NITI Aayog, MoAFW)

Objectives of the study

1. To analyse the current status of hunger and malnutrition in India.
2. To study India's progress toward achieving SDG-2 targets.
3. To examine structural and socio-economic challenges impeding Zero Hunger.
4. To analyse primary data from selected households to understand ground-level hunger conditions.
5. To evaluate government programmes addressing hunger and nutrition.
6. To provide policy recommendations for achieving SDG-2 by 2030.

Research Methodology

Research Design

Mixed-method research combining quantitative and qualitative techniques.

Primary Data

Primary data was collected from 300 households from districts in India

Primary Data Tools

Structured questionnaire, Household dietary recall, Anthropometric assessment (children's height & weight), Interview schedule, Key Primary Indicators Measured: Dietary diversity, Calorie intake, Food affordability, Child nutrition, Household income, Women's nutritional status and Access to schemes (PDS, ICDS, MDM)

Secondary Data Sources

NFHS-5 (2019–2021), Global Hunger Index 2023, FAO Food Security Reports, NITI Aayog SDG Index, MOSPI & Ministry of Agriculture Statistics, UNICEF Malnutrition Reports and Peer-reviewed journals (EPW, Lancet, IJLE, IJFS)

CONCEPTUAL FRAMEWORK OF SDG-2

SDG-2 targets include:

1. End hunger
2. End all forms of malnutrition
3. Double agricultural productivity and farmer incomes
4. Ensure sustainable food systems
5. Promote climate-resilient agriculture
6. Maintain genetic seed diversity

India's performance is evaluated on each target.

STATUS OF HUNGER AND MALNUTRITION IN INDIA

Global Hunger Index (GHI)

India's GHI Score (2023): Poor

High child wasting

Inequality in food access

NFHS-5 National Nutrition Indicators

Here is your data formatted as a clean table:

Indicator	Value

Stunting	35.5%
Wasting	19.3%
Underweight children	32.1%
Anaemia (women)	57%
Anaemia (children)	67%

These reflect serious nutritional challenges.

PRIMARY DATA ANALYSIS (300 Households)

Household Characteristics

Criteria	Percentage
BPL households	62%
Landless labourers	38%
Women-headed households	22%
Families with 3+ children	41%

Food Consumption & Dietary Diversity

Dietary Diversity Score (DDS)

(0–7 scale used in FAO guidelines)

Dietary Diversity Score (DDS)	Percentage
Low DDS (0–3 food groups)	47%
Medium DDS (4–5 groups)	39%
High DDS (6–7 groups)	14%

47% households lack nutritious food diversity

Nutritional Status of Children (Primary Data)

Indicator	% Children
Underweight	33%
Wasted	19%
Stunted	31%

These align with NFHS-5 findings, proving reliability.

Women's Health Indicators (Primary Data)

Indicator	% Women
Anaemia	54%
Low BMI	29%
Inadequate calorie intake	48%

Household Hunger Scale

Hunger Level (HHS)	% Families
Little/no hunger	38%
Moderate hunger	44%
Severe hunger	18%

Major Challenges to Achieving SDG-2 in India

India faces multiple structural, economic, climatic and social barriers that make the achievement of Zero Hunger difficult. Each challenge is interconnected, creating a cycle of deprivation.

Persistent Poverty

India has nearly 31 crore people living in multidimensional poverty, according to NITI Aayog's MPI Report. Poverty directly restricts a family's ability to purchase nutritious food such as milk, pulses, fruits, and proteins. Low-income households mainly rely on cereals (rice, wheat) due to affordability, resulting in poor dietary diversity. Poor households often spend 60–70% of income on food, and any rise in food prices forces the family to reduce quantity or shift to cheaper, less nutritious options. Thus, poverty is both a cause and consequence of hunger, creating a cycle that is difficult to break without targeted interventions.

Malnutrition Cycle

Malnutrition in India passes from one generation to the next. Poor maternal nutrition leads to low birth weight babies, who are more vulnerable to infections, stunting, and wasting. Stunted children have weaker immunity, lower cognitive development and reduced school performance. This results in lower productivity in adulthood, reduced earning capacity, and continued poverty. Thus, malnutrition is not a temporary condition—it is a biological and economic cycle that passes from mothers to children and affects the future workforce of the country.

Climate Change Impact

Climate change severely threatens India's food security. Irregular rainfall, droughts, floods, unexpected heatwaves, and cyclones damage crops and reduce yield. India loses 15–20% of food crops every year due to climate-related stress. Heatwaves reduce wheat production, drought affects pulses and oilseeds, and floods damage rice crops. When crop supply decreases, prices increase, making food unaffordable for the poor. Climate change also reduces soil fertility, groundwater levels and increases pest attacks Thus, climatic instability is one of the biggest threats to achieving SDG-2.

Agricultural Challenges

Indian agriculture is the backbone of food security, yet farmers face multiple challenges:

1. Fragmented landholdings: Average landholding is just 1.08 hectares, making farming unprofitable.
2. Dependency on monsoon: 50% of Indian farmland is still rain-fed.
3. Low irrigation coverage: In many states, only 35–40% farmland is irrigated.
4. Low farmer income: High input cost (seeds, fertilizers, diesel) and low MSP-based income result in debt cycles.
5. Post-harvest losses: India loses 40% vegetables & 30% fruits due to lack of cold chains, storage and transport.
6. Agricultural vulnerability directly affects food availability and hunger levels.

Food Distribution Issues

India has the world's largest Public Distribution System (PDS), but still faces:

1. Leakages and diversion of grains
2. Fake ration cards
3. Exclusion errors (eligible families not receiving ration)
4. Poor nutritional quality (mainly rice & wheat, not protein-rich foods)

Distribution problems mean that even if food is available, it does not reach the needy, weakening India's progress towards Zero Hunger.

Gender Inequality

1. Gender discrimination strongly influences nutrition in Indian households.
2. In many families, women eat last and least, prioritizing children and men.
3. Anaemia among women (57%) is among the highest in the world.
4. Girl children are more likely to suffer from stunting and wasting.
5. Women farmers form 33% of the agricultural workforce but have little ownership of land, reducing their access to income and nutrition.
6. Gender inequality thus creates a hidden form of hunger.

Urban Hunger

1. Urbanisation has created new forms of hunger.
2. Urban slum households face:
3. High food prices
4. Irregular jobs (daily wage work)
5. Poor sanitation
6. Dependence on street food
7. Limited access to government nutrition schemes
   Despite being close to urban markets, poor households cannot afford nutritious food. "Urban hunger" is now an emerging challenge in India.

GOVERNMENT INITIATIVES

National Food Security Act (NFSA), 2013

NFSA provides subsidised grains (rice, wheat) to 75% rural and 50% urban population, ensuring basic calorie intake for million of people. It includes:

1. Antyodaya Anna Yojana
2. Priority Household Scheme
3. Maternity benefits
4. Nutritional support for children & mothers
   NFSA ensures legal right to food, making hunger reduction a state responsibility.

PM Garib Kalyan Anna Yojana (PMGKAY)

Launched during COVID-19, this scheme provided free food grains to 80 crore people. It prevented mass hunger and starvation during the pandemic, and continues as a safety net for poor families.

POSHAN Abhiyaan

This national campaign focuses on reducing:

1. Stunting
2. Wasting
3. Anaemia

It uses technology-based monitoring, community nutrition workers, and behavioural change communication.

Integrated Child Development Services (ICDS)

Provides supplementary nutrition to:

1. Children (0–6 years)
2. Pregnant women

3. Lactating mothers

Anganwadi workers deliver meals, take-home rations and pre-school education.

Mid-Day Meal Scheme / PM-POSHAN

Nutritionally balanced meals are provided to school children to improve:

1. Attendance
2. Learning outcomes
3. Child nutrition

The inclusion of millets has made meals more nutritious.

PM-KISAN

Offers 6,000 per year as income support, helping small farmers purchase seeds, fertilizers and boost crop productivity.

PM Fasal Bima Yojana

Provides crop insurance against floods, drought, pests and diseases, protecting farmers against climate shocks.

PROGRESS MADE TOWARD SDG-2

India has achieved notable progress:

1. Food grain production crossed 330 million tonnes (2023–24)
2. This makes India self-sufficient in rice, wheat and pulses.

Nutrition schemes

POSHAN, ICDS, MDM and fortified foods have improved nutrient intake.

Digital PDS introduced

Reduces corruption and ensures transparency.

Improvement in underweight children

NFHS-5 shows mild improvement compared to NFHS-4.

Millet Revolution

1. 2023 was celebrated as International Year of Millets.
2. Millets are climate-resilient and highly nutritious, contributing to SDG-2.
3. However, malnutrition levels remain high, and progress is slow.

POLICY RECOMMENDATIONS

Nutrition-Sensitive Farming

Encourage farmers to grow:

1. Millets
2. Pulses
3. Oilseeds
4. Biofortified wheat & rice

These crops improve national nutrition and farmer income.

Strengthen ICDS & POSHAN

1. Enhance food quality
2. Provide eggs, milk, fruits weekly
3. Train Anganwadi workers

4. Community-based monitoring

Climate Resilience

Adopt:

1. Micro-irrigation
2. Solar pumps
3. Crop diversification
4. Climate-smart seeds

This protects farmers and ensures food supply.

Reduce Post-Harvest Losses

1. Build cold storage through farmers' producer organisations (FPOs)
2. Improve transportation
3. Use warehouse receipt systems
4. This will increase food availability and reduce wastage.

Strengthen PDS

1. Aadhaar-based distribution
2. Fortified grains
3. Mobile ration vans for tribal and remote areas

Empower Women

1. Give land rights
2. Promote SHG-led nutrition gardens
3. Provide direct cash transfers to improve nutrition

Urban Hunger Solutions

1. Community kitchens (Tamil Nadu model)
2. Low-cost canteens
3. Nutrition centres for children and women

Conclusion

India stands at a crucial point in its journey toward achieving Zero Hunger. While major advancements have been made in agriculture, welfare schemes, and food production, hunger and malnutrition persist due to socio-economic disparities, climate vulnerabilities, and nutrition gaps.

Zero Hunger requires more than food—it demands nutrition, equality, sustainability, and empowerment. Integrated strategies combining agricultural reforms, climate adaptation, women empowerment, strong PDS systems, and community-led nutrition initiatives can ensure that India achieves SDG-2 by 2030. India's success in Zero Hunger is essential not only for national progress but for global development.

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