

P-ISSN: 2706-7483
E-ISSN: 2706-7491
NAAS Rating (2026): 4.5
IJGGE 2026; 8(5): 23-27
www.geojournal.net
Received: 12-02-2026
Accepted: 18-03-2026

Kumar P
Executive Assistant, Haryana
Dairy Development Co-
operative Federation Limited,
Government of Haryana,
Haryana, India

Jyoti
Trained Graduate Teacher
(Science), The Sanskar Plateau
School, Hisar, Haryana, India

Anita
Masters of Arts, Swami
Vivekanand Subharti
University, Meerut, Uttar
Pradesh, India

Somveer
Assistant Manager, Haryana
Dairy Development Co-
operative Federation Limited,
Government of Haryana,
Haryana, India

Corresponding Author:
Kumar P
Executive Assistant, Haryana
Dairy Development Co-
operative Federation Limited,
Government of Haryana,
Haryana, India

Food security, quality, and sustainability: A review of strategies for achieving 2030 SDGs in India and globally

Kumar P, Jyoti, Anita and Somveer

DOI: <https://www.doi.org/10.22271/27067483.2026.v8.i5a.749>

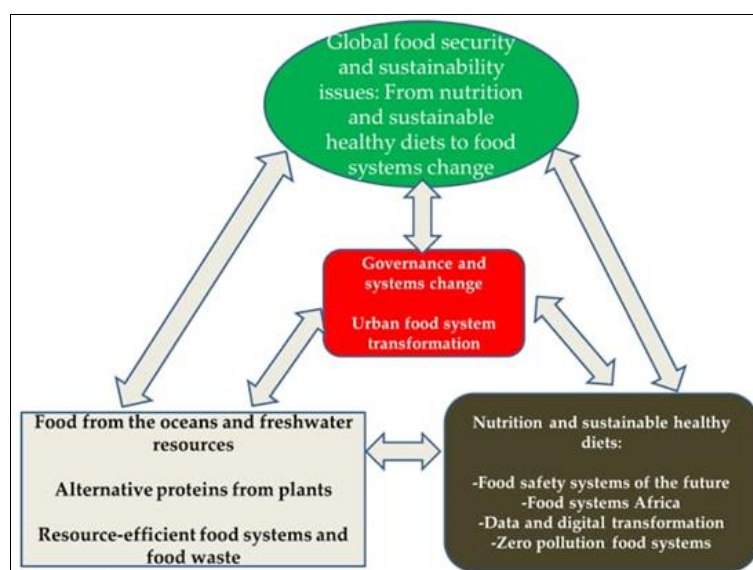
Abstract

Food security and food quality are central to achieving the United Nations Sustainable Development Goals (SDGs), particularly SDG 2 (Zero Hunger) and its interlinkages with health, poverty reduction, and environmental sustainability. This review paper analyzes the role of food security and food quality in achieving sustainable development in India and globally within the target timeline of 2030 and the extended vision toward 2047. Based on recent global reports, research studies, and policy frameworks (2023-2026), the paper highlights progress, challenges, and future strategies. Despite improvements in food production and availability, issues such as malnutrition, climate change, and inequality remain significant barriers. The study concludes that integrated approaches combining food security, quality, sustainability, and governance are essential to achieving SDGs.

Keywords: Food security, food quality, SDG 2, sustainable development, nutrition, India, global hunger

Introduction

Food security and food quality are critical determinants of sustainable development. The United Nations defined Sustainable Development Goal 2 (SDG 2) as ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture by 2030.



Food security encompasses four pillars:

- Availability
- Accessibility
- Utilization
- Stability

Globally, despite progress, hunger remains a serious concern. Around 673 million people (8.2% of the global population) experienced hunger in 2024. India, despite being a major food producer, faces a paradox of surplus production and nutritional deficiency.

2. Concept of Food Security and Food Quality

Food security exists when all people have constant physical and economic access to sufficient, safe, and nutritious food

that meets dietary needs. It encompasses four main pillars-availability, access, utilization, and stability-often with sustainability and agency increasingly included. Food quality refers to the nutritional value, safety, and hygiene of this food.

3. Food Security

Food security is defined as access to sufficient, safe, and nutritious food for all people at all times.



3.1 Food Quality

Food quality includes:

- Nutritional value
- Safety standards
- Hygiene and processing quality
- Food quality directly impacts:
- Human health
- Productivity
- Economic development

4. Global Status of Food Security and SDGs

Global food security is in a critical state, with hunger and malnutrition rising, far from the 2030 Zero Hunger (SDG 2) target. As of 2024, approximately 8.2% of the world population faces hunger, with 28% facing moderate or severe food insecurity. Driven by conflict, economic shocks, and climate change, over 673 million people are undernourished.

4.1 Hunger and Malnutrition Trends

There are approx. 720 million people globally were undernourished in 2024. Acute food insecurity affected 266 million people in 2025 across the globe.

4.2 Climate Change Impact

- Extreme heat is reducing crop yields and livestock productivity
- Food systems are being pushed to the brink due to climate stress
- Climate change could significantly worsen global food insecurity

4.3 SDG Progress

- Hunger reduction progress is slow and uneven
- Many countries are off track to achieve SDG 2 by 2030

5. Food Security Scenario in India

India faces a "food paradox": it is a top global food producer yet struggles with widespread undernourishment, ranking 105th out of 127 countries in the 2024 Global Hunger Index with a score of 27.3, signaling serious hunger. Over 195 million people are undernourished, and 35.5% of children under five suffer from stunting

5.1 Achievements

- Increased food grain production
- Expanded Public Distribution System (PDS)
- National Food Security Act implementation

5.2 Challenges

- High population with food insecurity (~307 million)
- Child malnutrition and stunting
- Regional disparities

5.3 Government Initiatives

India ensures food security through the National Food Security Act (NFSA) 2013, which legally entitles ~81 crore people to subsidized food grains. Key initiatives include PMGKAY (free food grains), PM POSHAN (mid-day meals), National Food Security Mission (crop production), and price controls via Bharat Dal/Atta. These programs address availability, accessibility, and affordability of food.



- National Food Security Act (NFSA)
- Mid-Day Meal Scheme
- Poshan Abhiyaan
- India aims to ensure affordable and nutritious food access for all by 2027.

6. Role of Food Quality in Sustainable Development

Food quality is central to sustainable development, linking human health directly to environmental stewardship and economic viability. High-quality, nutritious food ensures better health (SDG 3), while sustainable production methods protect ecosystems (SDG 15) and reduce food waste (SDG 12). It promotes food security by minimizing waste and encouraging resilient, efficient agricultural systems.

6.1 Nutrition and Health

- Food quality ensures:
- Balanced diet
- Reduced malnutrition
- Improved immunity

6.2 Economic Productivity

- Healthy populations contribute to:
- Higher labor productivity
- Economic growth

6.3 Food Safety

- Prevention of foodborne diseases
- Compliance with international standards

7. Link Between Food Security, Food Quality, and SDGs

Food security and quality contribute to multiple SDGs:

SDG Contribution

- | | |
|-------------------------------------|-----------------------------------|
| 1. SDG 1 (No Poverty) | Reduces hunger-related poverty |
| 2. SDG 2 (Zero Hunger) | Ensures food availability |
| 3. SDG 3 (Good Health) | Improves nutrition |
| 4. SDG 12 (Responsible Consumption) | Promotes sustainable food systems |
| 5. SDG 13 (Climate Action) | Supports resilient agriculture |

8. Challenges in Achieving SDGs

According to the Sustainable Development Report 2025, India's SDG score is 65.0, ranking 143 out of 193 countries. Progress is visible in areas like health, energy access, and digital connectivity, but major challenges remain in gender equality, the environment, and institutional strength.

8.1 Climate Change

- Extreme heat reduces agricultural productivity
- Increases food insecurity

8.2 Population Growth

- Rising demand for food
- Pressure on resources

8.3 Food Loss and Waste

- Significant post-harvest losses

8.4 Inequality

- Unequal food distribution
- Rural-urban disparities

9. Role of Sustainable Agriculture

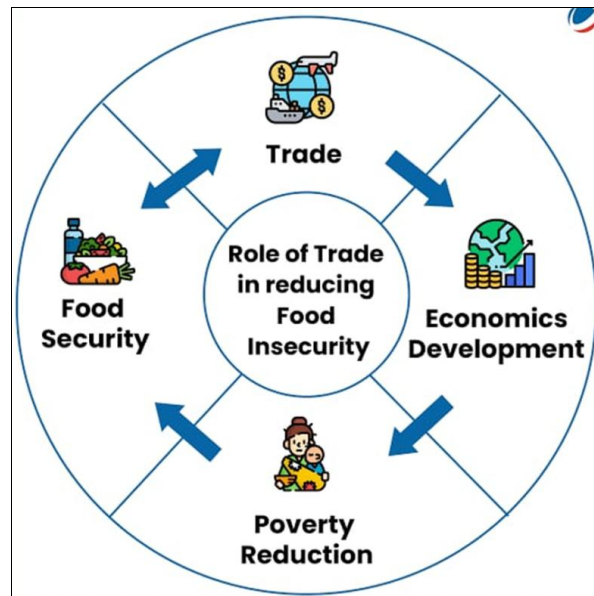
- Sustainable agriculture ensures:
- Efficient resource use
- Climate resilience
- Biodiversity conservation

UN recommends

- Investment in resilient agri-food systems
- Improved infrastructure and policies

10. Role of Technology and Innovation

Technology acts as a critical enabler and catalyst for innovation, accelerating the creation of new products, services, and business models while optimizing operational efficiency. It drives innovation by facilitating data-driven decision-making, enabling rapid prototyping, and fostering collaboration via tools like AI, cloud computing, and IoT.



10.1 Digital Agriculture

- Precision farming
- Data-driven decision-making

10.2 Food Processing Technologies

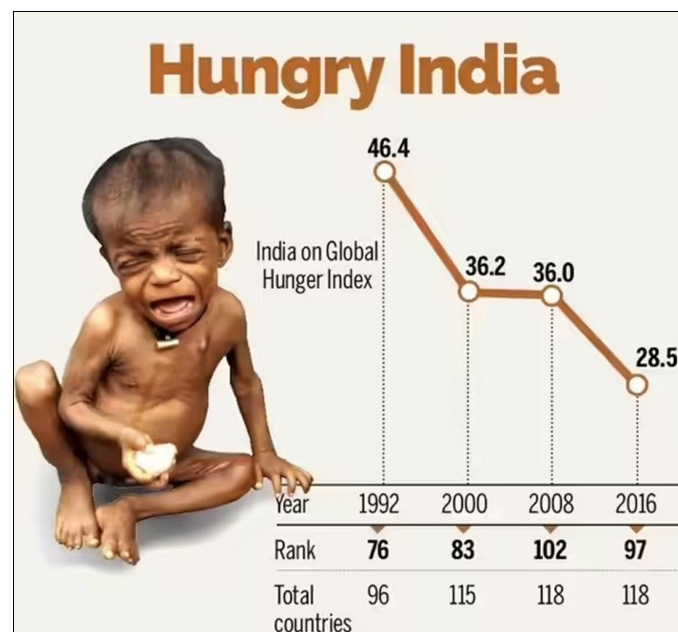
- Improved food quality

- Reduced wastage

10.3 Biotechnology

- Enhanced crop yield
- Nutritional fortification

11. Opportunities for India and the World



11.1 Strengthening Food Systems

- Integrated supply chains
- Cold storage infrastructure

11.2 Policy and Governance

- Better implementation of food security programs

11.3 Global Cooperation

- International trade
- Knowledge sharing

12. Conclusion

Food security and food quality are fundamental to achieving sustainable development goals. While India and the world

have made progress, significant challenges remain. A holistic approach integrating nutrition, sustainability, technology, and governance is essential to achieve SDGs within the target timeline and beyond (Viksit Bharat @2047).

References

1. FAO, IFAD, UNICEF, WFP, WHO. The state of food security and nutrition in the world 2025. Rome: FAO; 2025.
2. Our World in Data. Sustainable Development Goal 2: zero hunger. 2023. <https://ourworldindata.org/sustainable-development-goal-2>

3. Statista. Food security in India - statistics & facts. 2024. <https://www.statista.com/topics/5013/food-security-in-india/>
4. United Nations India. Nutrition and food security initiatives. 2023. <https://india.un.org/en/sdgs/2>
5. GK Today. State of food and nutrition in the world 2025. 2025. <https://www.gktoday.in/topic/state-of-food-and-nutrition-in-the-world-2025/>
6. Reuters. Global report on food crises. 2026. <https://www.reuters.com/world/global-report-food-crises-2026/>
7. The Guardian. Extreme heat and food systems. 2026. <https://www.theguardian.com/environment/2026/extreme-heat-food-systems>
8. Times of India. Climate impact on agriculture and food systems. 2026. <https://timesofindia.indiatimes.com/india/climate-impact-on-agriculture/articleshow/2026.cms>