

Research Project: Team 10
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Abstract:

The study examines the interlinkages between SDG 2 Zero Hunger and other SDGs. Any action taken towards one target affects the progress of others. South Asia has the highest amount of undernourished (299 million) and poor people, accounting for about 40 percent of the world's hungry population. While malnourishment is on the rise in India and Pakistan due to limited access to nutritious food and affordability. It aims to highlight the efforts to end hunger and food insecurity and provides insights into how Zero Hunger programs and schemes could be better targeted and implemented through policy interventions. It focuses on the role of government institutions in addressing malnutrition and hunger to improve health outcomes in both countries and suggests collaborations at national, regional, and global levels. The systematic literature review undertaken included interviews with scholars and policy experts on Food Security, Agriculture, and the Economy. The major obstacles affecting poor communities and worsening poverty and hunger are poor governance, political instability, climate change, war, and conflicts disrupting the food supply chain, all increasing food insecurity. Current efforts and progress are insufficient. Policymakers need to use multiple strategies to address the root causes. With effective policy interventions, both countries can overcome the hunger crisis and work towards a healthier and more prosperous future. This involves cash transfers, helping people learn about health and food, and school lunch programs in primary schools. Further, evaluation, improvement, and expansion with innovative technology and advanced practices of existing programs to make these programs overcome the hunger crisis and be effective in improving health outcomes.

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1. Introduction:

Sustainable development goal 2 (SDG2), is design with objective to end hunger, promote sustainable agriculture and improve nutrition by 2030. However, in 2020, 2.4 billion of world's population (30 percent) were moderately or severely food insecure. And 149.2 million children under age 5 years (22 percent) were reported to suffered with stunting (UN,2020). Sustainable agriculture practices are needed to achieve food security and eradicate poverty, inequality, and promote healthy lifestyles, especially among vulnerable communities such as the elderly, women, and youth. (UN,2022).

2. Problem Statement:

Undernutrition is on the rise in India and Pakistan due to limited access to nutritious food and affordability, particularly affecting poor communities and worsening poverty and hunger. This study focuses on examining the issue through the lens of SDG2 and the Zero Hunger Programs implemented in India (2017) and Pakistan (2012).

3. Methodology:

The systematic literature review undertaken included interviews with scholars and policy experts on Food Security, Agriculture, and the Economy, and recorded for the 3-minute video.

4. SDG2 interlinkages with other SDGs:

The SDG targets are interconnected. SDG2 tackles hunger by addressing poverty (SDG1) and improving health (SDG3), reducing dropouts and improving education quality (SDG4). SDG4 promotes gender equality (SDG5) and skill innovation for small and large scale industries (SDG9) that boost employment and equality (SDG10). This creates decent work and economic growth (SDG8) leading to safe, sustainable cities and communities (SDG11) with sustainable production and consumption (SDG12), and access to clean energy (SDG7). Thus, achieving one SDG target can facilitate the accomplishment of others, forming an interdependent network for sustainable development.

SDG2 also emphasizes the need to build human and institutional capacity for climate change (SDG13). At micro level, it urges individuals to reduce pollution and land degradation, including marine debris and nutrient trash (SDG14). At the macro level, SDG2 requires urgent action to reduce natural habitat degradation and integrate ecosystem and biodiversity values (SDG15) into national and local planning, development processes, and poverty reduction strategies, promoting peaceful and inclusive societies for sustainable development. Access to justice for all (SDG16) is essential to strengthening the means of implementation and revitalizing the global partnership for sustainable development (SDG17). Achieving SDG2 involves collaborative efforts and integrated approaches for sustainable development.

5. Insights from India and Pakistan:

India and Pakistan, formerly known as the subcontinent of Indo-Pakistan, have been struggling with hunger issues for decades. A significant proportion of their populations suffer from malnourishment and food insecurity, resulting in severe consequences, including stunted growth in children (Mahmood et al., 2011). These two countries face similar challenges, including poverty leading to starvation, climate change affecting agricultural productivity and disrupting food supply chains, lack of storage facilities to prevent food waste, inadequate knowledge of sound agricultural practices, and insufficient monitoring and focus on nutrition programs.

Both countries are facing a severe crisis of overpopulation and food insecurity. Around 200 million and 40 million people in India and Pakistan respectively are not receiving adequate nutrition, leading to alarming rankings on the Global Health Index (ranked 99 for Pakistan and 107 for India).

FAO statistics reveal that a significant proportion of the population in both countries is undernourished. The Proportion of undernourished (PoU) in Pakistan was 20.3% in 2016-18, while for India, it was 16.3%. Moreover, a large number of people in both countries are living below the poverty line and experiencing multidimensional poverty, as illustrated in Table 1. Addressing these challenges requires comprehensive strategies that prioritize food security and poverty reduction, as well as the implementation of effective nutritional programs.

	India (in percent)	Pakistan (in percent)
Global Hunger Index ranking	107	99
Total Population		
Below poverty line	269.3 million	24.3
Proportion of undernourished (PoU) population	16.3	20.3
Multidimensional poverty	25.01	40

Table 1: Sources: Authors' design based on multiple sources.

Both countries face multiple challenges in achieving SDG2, including traditional, socio-demographic, and political-development factors. Inaccessibility to food and poor income are traditional challenges, while illiteracy in nutrition, gender bias in consumption, lack of jobs, overpopulation, and poor agricultural practices are socio-demographic challenges. Political-development challenges include a lack of coordination between national and state bodies, corruption of funds on food security, and poorly monitored implemented programs on nutrition.

In both countries, malnutrition remains a significant problem, with a high prevalence of child malnutrition, including stunting, wasting, and underweight children. Furthermore, the prevalence of overweight children is also increasing, indicating a double burden of malnutrition. For instance, in case of Pakistan, globally it has high prevalence of child undernourishment. The statistics revealed four out of ten children under five years of age are stunted while 17.7% suffer from wasting. The double burden of malnutrition is becoming increasingly apparent, with almost one in three children underweight (28.9%) alongside a high prevalence of overweight (9.5%) in the same age group. The prevalence of overweight among children under five has almost doubled over seven years, increasing from 5% in 2011 to 9.5% in 2018 (National Nutrition Survey, 2018). Likewise, the Government of India's National Family

Health Survey 5 (NFHS 5), showed that 36 percent of children under the age of five years are stunted; 19 percent are wasted; 32 percent are underweight and 3 percent are overweight (NFHS 5, 2019-21).

Improving institutional and policy measures is crucial for achieving SDG2, and past initiatives to eradicate hunger in India and Pakistan should be examined to inform future strategies. The report will explore these initiatives and provide recommendations for achieving SDG2, which is critical to long-term economic success and human development.

3.1 Initiatives to achieve SDG2 in India and Pakistan

The following initiatives are taken in India to achieve SDG2.

Public Distribution System (PDS) 1960s

Aims to provide subsidized distribution of a few essential pantry commodities i.e. food grains, sugar, and kerosene to households across the country. Later, PDS transformed into the Targeted Public Distribution System (TPDS), emphasizing the poorest households. The central government sells food grains to individual states depending on the existing number of households below the poverty line (BPL) at price rates set by the Planning Commission. Whereas state governments classify eligible households BPL and sell them at greatly subsidized prices. It targets the poorest of the poor and sells low-price food grains including school mid-day lunches, and welfare programs. However, for households above the poverty line, rates remain unsubsidized or equal to the food production cost.

The National Food Security Mission (NFSM) 2007:

The NFSM carried forward eight strategies to meet the set goals. These strategies are to:

- Place focus on districts with low production.
- Establish cropping system-centric interventions.
- Inherit "agro-climate zone wise planning.
- Increase focus on annual crop (pluses) production.
- "Promote improved technologies
- "Closely monitor the flow of funds
- Combine multiple interventions and the goals of each district
- Implement agencies for assessing the impact of the interventions for a result-oriented approach (Jackson, 2021)

The National Food Security Act (NFSA) 2013:

The study revealed that the government of India spent about 1% of its GDP on its aid program in the past year (Sharad Tandon and Maurice Landes, n.d.). The National Food Security Act 2013 aims to ensure nutritious security and access to quality food for all exclusively for the most deprived segments at affordable prices. Through NFSA-associated programs and schemes, the Public Distribution marked 813 million people with subsidized monthly household rations such as rice, wheat, or millet. Also, through 543,562 fair-price shops and 237 million ration cards entitled to receive 5 kg of food grains each person per month at the issue prices (UN, 2022). Similarly, the Mahatma Gandhi National Rural Employment Guarantee Act and the National Rural Livelihoods Mission have provided support to agriculture and livelihood in rural areas (UN, 2022).

Zero Hunger Program (ZHP) 2017:

The Government of India established a national framework for achieving SDGs. The Zero Hunger Program started in 2017 in collaboration with the Indian Council of Agricultural Research, the Indian Council of Medical Research, the M.S. Swaminathan Research Foundation, and the Biotechnology Industry Research Assistance Council (BIRAC) to enhance agriculture, health, and nutrition. The program focuses on small farmers who are landless to grow and yield to feed their families. The development of farm equipment, agriculture system restoration, installing genetic gardens for biofortified plants in scarce-water areas, and initiation of zero hunger training are added to the program mandate (Jackson, 2021) .

The Zero Hunger Program aims to:

- 1) Decrease child stunting for children 2 years and younger.
- 2) Ensure access to food all year round.
- 3) Create stable food systems.
- 4) Increase small farmer productivity and income.
- 5) Eliminate food waste.

The National Nutrition Mission (NNM) 2018 or POSHAN Abhiyaan Jan Andolan:

The government of India has taken significant measures to fight against malnutrition. The launch of the National Nutrition Mission (NNM) in March 2018 also known as the POSHAN Abhiyaan initiative specifically addresses children, pregnant women, and lactating mothers. The purpose is to reduce stunting, undernutrition, anemia, and low birth weight babies. It uses Lives Saved Tool, also known as LiST, together results on increased interventions for maternal, newborn, and child health, and nutrition (Jackson, 2021). According to the USDA's International Food Security Assessment, 2013-23 estimates, India's food-insecure population at 255 million, or about 36.1 % of the 707 million food-insecure people among the 76 low-income countries studied.

National zero hunger program:

Zero hunger program was launched on World Food Day on 16 October 2017. (Nations) India is categorized among 45 countries facing severe hunger. India ranked 101 of 116 countries in global hunger index level. Indian government has introduced many schemes includes National Nutrition mission, mid-day meal scheme. It also works along with NGO's, funding partners and locals (Subhomay Saha, 2021).

Eat Right India Movement:

The Food Safety and Standards Authority of India initiated the Eat Right India Movement focusing on the access to safe and healthy food for Indian population. The program stands on the foundation of regulatory capacity building, collaborative and empowerment approach. Overall purpose is to encourage communities to consume healthy, safe, and sustainably. It aims to help all age groups since diet-related illnesses affect everyone if their eating habits are poor. With this common ground, the movement is banding with restaurants, agriculture, food producers, ministries, and professional cooks to ensure change.

Efforts toward Food Fortification:

In efforts to lower the extent of malnutrition and anemia, food fortification has been a common practice since the 1950s. Unfortunately, low-income women and children never consume 40% - 60% of fortified food. This is due to some states's failure to purchase fortified food, information disclosure in public supply chains and a shortage of distribution channels in rural areas. All five hunger-fighting initiatives in India are working towards the goal of combating hunger. Though some have met their targets, the fight is still ongoing. Incorporating more nutrients in daily diets could save many from hunger and diseases. With that, the government recognizes the severities and has established initiatives to address the problem.

Whereas, in case of Pakistan, following initiatives are taken by Government:



3.2 The Role of Private Sector in India and Pakistan:

The government of India introduced mid-day meal scheme and Anganwadi systems to improve the nutrition for children and pregnant women as an initiation for Zero hunger program. Society for Nutrition, Education and Health Action (SNEHA) in collaboration with Integrated Child Development Services (ICDC) and Health Department of Municipal Corporation of Greater Mumbai (MCGM) implemented child nutrition programme from 2011 to 2016 in Dharavi, Mumbai. It involved monitoring and categorising the children based on health complication and improving nutrition level for children under the age of 5 (Chanani et al., 2019).

WFP supports India in initiatives to enhance nutrition includes National Food Security Act, Targeted Public Distribution System, Mid-day meals scheme, Poshan Abhimanyu and Integrated Child Development Services. (Nations) WFP has been working from 1963 is now working towards food distribution for the rural areas along Indian government to prevent malnutrition due to inaccessibility (World Food Programme). FAO is working along with universities in providing nutrition education to improve the healthy food habits (FAO in India).

Whereas, in Pakistan, Private sector interventions have also played a critical role in addressing food insecurity in Pakistan. Many companies have taken steps to increase agricultural productivity and improve the quality and availability of food. These efforts have been facilitated by government policies aimed at incentivizing private sector investment in agriculture. Private sector initiatives include contract farming, which provides farmers with assured markets for their produce, and investment in research and development to improve seed varieties and crop yields. Private sector companies are also involved in food processing, packaging, and marketing, which can increase the value of agricultural products and provide employment opportunities.

Such government and private sector interventions have the potential to reduce food insecurity and malnutrition in Pakistan. However, there is a need for greater coordination and collaboration between the public and private sectors to ensure the effectiveness and sustainability of these programs.

6. Policy Recommendations:

The hunger crisis in both countries is rooted in a range of factors, including poverty, limited access to education, inadequate healthcare, and insufficient infrastructure. To address these issues, policymakers must adopt a multi-pronged approach that focus on these underlying causes. Such an approach could involve the implementation of programs that focus on poverty reduction, such as cash transfer programs, as well as initiatives that increase access to education and healthcare. Furthermore, there needs to be a concerted effort to address the inadequate infrastructure that has contributed to the lack of food security in both countries, including investment in irrigation systems, storage facilities, and transportation networks to ensure that food can be efficiently produced and distributed. Other recommended initiatives include:

- Increasing agricultural investment to support sustainable agricultural techniques and enhance farmers' access to financing and markets.
- Social protection programs, such as the BISP and Ehsaas Kafaalat Program, should also be strengthened and expanded.
- Additionally, enhancing access to healthcare, particularly in rural regions, encouraging nutrition education.
- Addressing climate change through promoting sustainable agriculture practices and investing in renewable energy are crucial steps to ensure food security.

- Policies for agricultural lands could improve the income of farmers, who are the most vulnerable, as agriculture is the primary occupation.
- Improving the distribution of subsidized ration food for people below the poverty line and providing free medical facilities, vitamin, and protein supplements in government hospitals for people below poverty level can help improve their health.
- Laws to plant fruit trees in degraded forest lands could increase the nutrition for the tribal people living in forest areas, while improving the accessibility of fruits, vegetables, vitamin, and protein medications for the tribal people by implementing weekly markets and camps.
- Increasing the employability and wages of women under the National Rural Employment Guarantee Act (NREGA) and introducing weekly farmer's markets where farmers can sell their products directly to the public can also improve their income and lifestyle.

7. Conclusion

In conclusion, the hunger crisis is a complex issue that requires a multifaceted approach to address. To address these issues, policymakers must adopt a multi-pronged approach that focus on these underlying causes. Such an approach could involve the implementation of programs that focus on poverty reduction, like cash transfer programs, as well as initiatives that increase access to education and healthcare. Also, previously implemented zero hunger initiatives in Pakistan and India should be evaluated, improved, and expanded to better cater the maximum population below the poverty line. With adequate policy interventions and implementation both countries can overcome its hunger crisis and pave the way for a healthier and more prosperous future.

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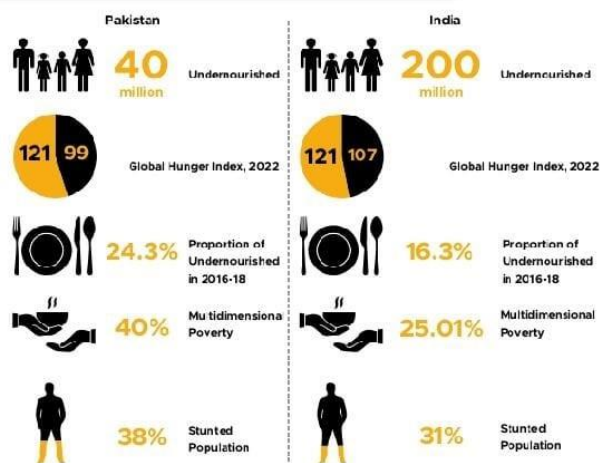
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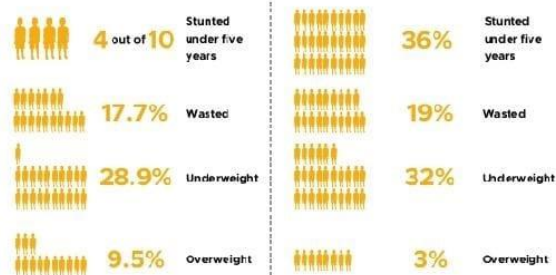
9. Appendix:

SDG2 and Zero Hunger Programs: Insights from India and Pakistan

1. Problem Associated with SDG2



Source: multiple sources



Source: (National Nutrition Survey, 2018)

Source: (NFHS 5, 2019-21)

2. Linkages to other SDGs



4. Contribution to SDG Principle "Leave No One Behind"

- Improving livelihoods** by community-level schemes provide a few chickens and two cattle to each poor family including coarse food for livestock; provide fruits and vegetable seeds for kitchen gardening.
- Skill development of marginalized communities** takes away gender discrimination and well-being for all.
- Healthy future generations** planting fruit bearing trees contributing to the healthy environment and well-being of all.

3. Future policymaking related to SDG2 at a national and global level:

National Level Policies

- Social Security Protection: **targeted** community kitchens, cash transfers, and malnutrition food supplements.
- Economic well-being: **source of income** for poor's livelihood, particularly for women households.
- Produce Human Capital: **market-competitive skilled labor** through formal and technical education.

Global Level Policies

- Scale-up interventions: **Learning from each other's success stories**.
- Collaborative interventions: **Mobilize resources** for the public-private and international partnership.