Impact of climate change on child malnutrition

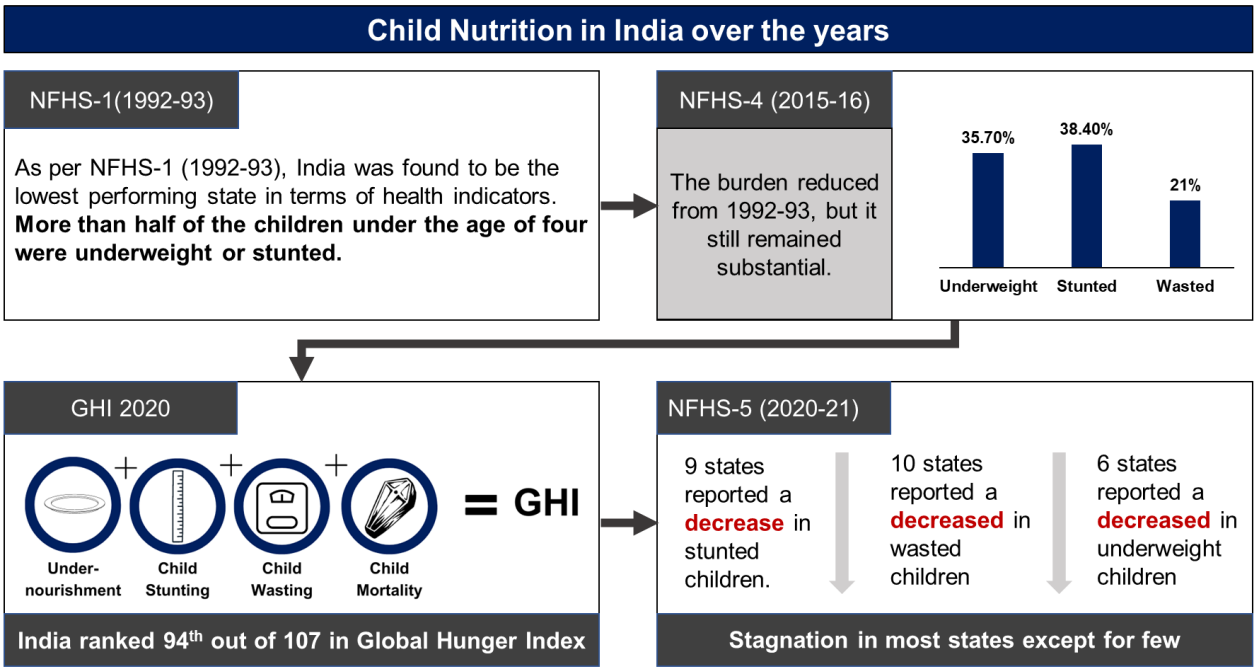
Child malnutrition is an acute global public health challenge, significantly raising the risk of mortality and prevalence of diseases. Its effects often stretch into adulthood.

While considerable progress has been made since 2000 to eliminate hunger and malnutrition, there is still significant distance to cover, particularly in Asia and Africa, to achieve the objective of Sustainable Development Goal 2, which seeks to "end hunger, achieve food security and improved nutrition, and promote sustainable agriculture".

To be sure, the underlying causes of child malnutrition are many, and a significant one that often goes unnoticed is climate change. Climate change has a substantial but indirect impact on food security, agricultural productivity and water availability, all of which affect child nutrition and health.

India, too, has grappled with child malnutrition for several decades. A survey by National Family Health Survey (NFHS) conducted between 1992 and 1993 revealed India's position among the lowest-performing nations in terms of child health indicators. Of concern was that over half of the children under four years of age were underweight or stunted, with one in every six children suffering from wasting, i.e., were too thin for their height.

Regrettably, despite years of focused efforts, child malnutrition rates in India have remained among the highest in the world, a reality reflected in the Global Hunger Index (2020). According to the index, which comprehensively assessed undernourishment in the overall population, and stunting, wasting and mortality in children, India ranked 94th out of 107 countries. Furthermore, child and maternal malnutrition contribute to 15% of the country's overall illness burden. Data from the fourth round of the NFHS between 2015 and 2016 highlighted the persistent nature of the issue, with 35.7% of children under five years of age underweight, 38.4% stunted, and 21.0% low weight-to-height (wasting).



In response to the formidable challenge of child malnutrition, the Indian government has launched several programmes. The Integrated Child Development Services (ICDS), established in 1975, assumes a pivotal role in delivering essential healthcare, nutrition and early childhood education to vulnerable populations. The National Nutrition Mission (Poshan Abhiyaan), which was introduced in 2017, adopts a multi-sectoral

approach towards eliminating malnutrition. Concurrently, initiatives such as Janani Suraksha Yojana and Pradhan Mantri Matru Vandana Yojana focus on enhancing maternal health and promoting optimal nutrition during pregnancy to improve the outcome for both mother and child.

Still, child malnutrition remains an enduring challenge, as substantiated by data from the fifth cycle of NFHS (2019 to 2021).

While progress has been noted in certain regions, with nine states reporting a decrease in stunted children, 10 states observing reduction in wasting, and six states seeing improvement in the number of underweight children, it is disheartening to note that other states continue to face stagnation or, even worse, increase in the prevalence of malnourished children.

This divergence in outcomes underscores the complexity of the issue and highlights the need for targeted interventions tailored to specific regional contexts to achieve more equitable and comprehensive reduction in child malnutrition across the country.

Taking concerted action on climate change mitigation and adaptation, alongside efforts to improve food security and access to nutritious food, is paramount to building resilience and securing a healthier future for vulnerable populations, especially children, who bear the brunt of indirect impacts of climate change.

Climate change's far-reaching effects on child nutrition

Recognising the interconnection between climate change and child malnutrition is crucial to developing comprehensive strategies to address this pressing global and domestic health challenge and protect the well-being of future generations. Some of these are:

- **Decreased agricultural productivity**: Climate change can lead to extreme weather events, such as droughts, floods and heatwaves, which directly impact agricultural productivity. These events can damage crops, reduce yields and disrupt food supply chains. As a result, food prices may rise, making nutritious food less affordable and accessible, especially for vulnerable populations with limited resources
- **Changes in food nutrient content:** Rising levels of carbon dioxide (CO_2) in the atmosphere can alter the nutrient content of certain crops. Studies have shown that elevated CO_2 levels can reduce protein, iron and zinc levels in staple crops, such as wheat, rice and soybean. This can have significant implications for the nutrition of diets and exacerbate micronutrient deficiencies in communities that heavily rely on these crops
- **Impact on livelihoods**: Climate change can adversely affect livelihoods, particularly in rural areas, where agriculture is a primary source of income. Loss of livelihood opportunities and income can disrupt food security and access to adequate nutrition, as households may be forced to cut back on food expenses or resort to cheaper, less nutritious options
- **Water scarcity**: Changes in precipitation patterns and increased evaporation rates because of higher temperatures can lead to water scarcity in certain regions. Water scarcity can hamper agricultural production and limit access to clean water for drinking, cooking and hygiene, further compromising nutrition and health outcomes, particularly for children
- **Spread of diseases:** Climate change can influence the geographical distribution and the prevalence of vector-borne diseases, such as malaria and dengue. These diseases can disproportionately affect children, and can lead to reduced appetite, nutrient absorption issues, and impaired growth, exacerbating the risk of malnutrition
- **Displacement and food insecurity**: Extreme weather events and environmental degradation caused by climate change can result in forced displacement and migration. Displaced populations often face food insecurity and limited access to nutritious food, which can contribute to malnutrition, especially among children who are more susceptible to its adverse effects
- **Vulnerability of farmers with small holding:** Farmers with small holding, who constitute a significant portion of the population in developing countries, are particularly vulnerable to the impacts

of climate change on account of their reliance on rain-fed agriculture. As climate variability increases, these farmers may struggle to adapt, thereby leading to reduced crop yields and income, affecting their nutrition as well as that of their communities

These challenges highlight the disproportionate impact of climate change on impoverished communities, further exacerbating the link between poverty and child malnutrition.

By understanding the various pathways through which climate change can impact malnutrition, it is evident that effective solutions must involve a multi-pronged approach.

Climate resilience, sustainable agriculture and robust social safety nets are essential components of a comprehensive strategy to safeguard child nutrition and public health in the face of climate change