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Review of national policies and programs targeting improvement of wasting among under-five years old children in Bangladesh

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ABSTRACT

Background and Objectives: A balanced diet is critical for health, enhancing immune function and reducing disease risk. Bangladesh's National Nutrition Policy (NNP) focuses on achieving optimal nutrition through secure access to nutritious food across life stages, emphasizing marginalized groups such as mothers, adolescents, and children. Earlier efforts, like the Nutrition Action Plan (1997-2010), addressed maternal and child nutrition but lacked multi-sectoral integration. The revised NNP (2015) employs a collaborative approach, promoting dietary diversity and high-quality food intake. Policies such as the Food Policy Plan of Action (2008-2015) and the Bangladesh National Food and Nutrition Security Policy (2021-2030) further support Sustainable Development Goals (SDGs). **Methods and Study Design:** Key nutrition-related policies, including NNP 2015, the Food Policy Plan of Action, and the 8th Five-Year Plan, were reviewed. Special attention was given to maternal and child nutrition interventions, particularly Integrated Management of Childhood Illness (IMCI) services and Severe Acute Malnutrition (SAM) management through Community-based Management of Acute Malnutrition (CMAM). Facility readiness and the availability of Ready-to-Use Therapeutic Foods (RUTF) were also assessed. **Results:** The NNP 2015 advances multi-sectoral strategies, prioritizing marginalized groups and promoting diet diversity. Policies emphasize food and nutrition security, but challenges persist in SAM management, especially in remote areas. Limited facility readiness and inadequate RUTF provision hinder CMAM program effectiveness. **Conclusions:** To address gaps, strengthening multi-sectoral collaboration, enhancing facility readiness, and ensuring RUTF availability in CMAM programs are crucial. Focused efforts in underserved regions are essential for improving nutritional outcomes and achieving SDG targets.

Key Words: national policies, wasting, children, Bangladesh

INTRODUCTION

The caseload of childhood undernutrition, especially wasting and its consequences is a global delinquent including Bangladesh. Wasting results from short-term or acute undernutrition. In under five (U-5) years old children wasting is defined as weight-for-length or height z-score (WHZ) $<-2SD$ (Standard Deviation); that includes moderate wasting or Moderate Acute Malnutrition (MAM): WHZ $<-2SD$ to $-3SD$, and severe wasting or Severe Acute Malnutrition (SAM): WHZ $<-3SD$ with or without nutritional edema. In community settings use of Mid-Upper Arm Circumference (MUAC), an easy-to-perform measure, has been suggested by the

World Health Organization (WHO).¹ For children aged between 6 and 59 months, the recommended MUAC cut-offs are from 11.5 to <12.5 cm for diagnosing moderate wasting or MAM, and <11.5 cm with or without nutritional edema for diagnosing severe wasting or SAM.

According to global estimates for 2022, over 45 million children under the age of 5 (6.8%) experienced wasting, with 13.6 million (2.1%) suffering from severe wasting. The majority of children with severe wasting, namely over 75%, reside in Asia, whereas 22% are located in Africa.² Prevalence of wasting only measured by WHZ <-2SD among U-5 children in Bangladesh was ~11%, severe wasting (SAM) 1.8%, and a much greater proportion (9.2%) were moderately wasted (MAM).³ There is a lack of national data on U-5 wasting status by MUAC measurement.

The condition leads to an increase in both illnesses and deaths, and among those who survive, it results in reduced physical growth and impaired development of the brain and central nervous system, as well as other abnormalities.⁴ Childhood undernutrition has enduring effects, including decreased educational achievement, diminished economic prospects, and the development of chronic diseases in adulthood. Mortality associated with wastage was shown to be more prevalent in younger children than in older children (aged 5 and 6). A recent study,⁵ revealed a correlation between a greater number of malnourished children under the age of 2 and a larger percentage of mortality in that age group, in comparison to children older than 2 years. Nevertheless, no disparities in the risk of mortality were seen among different age groups. This indicates that although a larger percentage of younger children may be the focus of wasting treatment programs, older children with anthropometric deficiencies are also at risk of mortality and should not be overlooked.⁵

Although child nutritional status in Bangladesh has been gradually improving as reflected by different nutritional indices including WHZ among U-5 children over the last decades as evidenced by the prevalence of U-5 wasted children was 16% in 2011,⁶ 14% in 2014 and 8% in 2017,³ Nevertheless, it remains higher than the Global Nutrition target set by the WHO of <5%.⁷ Although globally, a decreasing trend of U-5 wasting rate has been observed over recent years, these statistics are influenced by the COVID-19 pandemic, which has led to a decline in household wealth and disruptions in the accessibility and affordability of nutritious food, as well as essential nutrition services.⁸ Similarly, this decreasing trend of wasting status has been impeded by the latest data on the prevalence of malnutrition among U-5 children that has been reported in Bangladesh. Only by WHZ was a bit higher, ~11% than the previous DHS survey.

Bangladesh's nutrition strategy has been formulated through multiple stages. The initial phase commenced shortly after the country gained independence in 1971, with the inclusion of a clause in the 1972 constitution that mandated the state to prioritize the enhancement of residents' nutritional well-being as a fundamental duty. The Institute of Public Health Nutrition (IPHN) was created by the Government of Bangladesh (GoB) in 1974. Its purpose is to aid in the development of policies and strategies for nutrition-related activities and programs, as well as to conduct research, training, and surveillance. The IPHN researches the nature and extent of the nutrition issue and formulates recommendations for the establishment of a national nutrition program. It also designs suitable interventions to address nutritional difficulties. Subsequently, the Bangladesh National Nutrition Council (BNNC) was established in 1975. The National Food and Nutrition Policy (NFNP) of 1997 recognized undernutrition as a significant developmental issue. Following the NFNP, the GoB implemented several programs. The Bangladesh Integrated National Plan was established in 1996, shortly before the policy was formulated. It initiated the start of the second phase and is regarded as the initial extensive policy intervention for nutrition implemented by the government.⁹ After 2002, the GoB began the National Nutrition Project, which was later incorporated into the Health, Nutrition, and Population Sector Programme (HNPSPP) in 2006. The government initiated the program 'Mainstream Nutrition' with funding from the World Bank between 2006 and 2009.

Bangladesh's Health, Population, and Nutrition (HPN) sector has made significant advancements in various crucial health and demographic measures. Although there have been achievements and the introduction of many nutrition initiatives, the issue of inadequate nutritional status continues to be prevalent. Consequently, the HPN sector is striving to enhance the nutritional status of the country. For numerous years, the GoB has implemented various methods and programs to address the issue of malnutrition within the nation.

Emerging issues, which have been worsened by the COVID-19 pandemic, encompass rising income disparity, a shortage of agricultural labour, the negative effects of climate change on food production, and obstacles to obtaining safe and nutritious food. Approximately 50% of the population continues to consume diets that lack essential micronutrients, and only 33% of young children have diets that meet the minimum tolerable standards. Furthermore, the uneven development in wasting or acute malnutrition might be attributed to food insecurity caused by seasonal shortages and disasters, geographical differences, inadequate diets, and substandard cleanliness and care practices.

Policy and program analysis allow us to gain a deeper understanding of and enhance the policy framework and the execution of intervention programs. The objective of this review was to gain a deeper understanding of the nutrition-related interventions and optimal strategies in Bangladesh, with the ultimate goal of attaining nutrition-related Sustainable Development Goals (SDGs) by 2030.

MATERIALS AND METHODS

This review included the existing nutrition-related policies and programs that are in place for the management of all forms of undernutrition, including wasting. Policy documents are systematically summarized to include the goal, objectives, action plan undertaken, identified gaps, and recommendations. The search strategy used for this review was: 'Nutrition policy' OR Nutrition programme AND Malnutrition AND Bangladesh using Google Scholar and PubMed. A total of eight related policy documents and guidelines were found in Bangladesh. These papers were read fully and assessed as goals, actions, identified gaps, and some recommendations, as stated in Table 1, to identify existing strategies for malnutrition in policy and programs in Bangladesh.

Ethics approval and consent to participate

Not applicable.

DISCUSSION

The successful implementation of nutrition policies aimed at ending all kinds of malnutrition, as outlined in the SDGs, requires a strong commitment from government and political leaders, funders, professionals, and beneficiaries. The current deficiency is in the allocation of funding for the execution, synchronization, and oversight of the policy. Allocating resources towards nutrition investments will yield a plethora of advantages, such as enhanced well-being, educational outcomes, and economic output. Wasting is a significant health issue that necessitates immediate attention from both policy-makers and program implementers because of its linked hazards for morbidity.

Most of the policies have overall nutritional improvement among children, women, and adolescent girls. Nutritional improvement is a multi-sectoral approach. There is no existing policy that is solely related to child undernutrition. An important aspect of multi-sector programs is to prevent malnutrition during the first 1,000 days,¹⁰ and that should be strengthened in Bangladesh. Significant advancements in nutrition policy can be achieved

through effective leadership and collaboration across several government ministries. Various comprehensive methodologies must be employed to enhance the recognition, quantification, and comprehension of wasting, as well as to expand the provision of services for the identification and treatment of wasting. Furthermore, it is imperative to generate empirical support for efficient preventive measures aimed at diminishing the impact of wasting. This data can then be utilized to inform policy decisions and promote the allocation of sustained financial resources towards the prevention and treatment of acute malnutrition. The strategies that have the most extensive evidence base include the utilization of additional food products, cash-based interventions, behavior modification to enhance baby and young child feeding, and the combination of these interventions.^{11, 12}

Although the evidence base is not always reliable, it is recommended to adopt a comprehensive approach based on the United Nations Children's Fund (UNICEF) conceptual framework and context-specific causal analysis. This approach involves implementing many interventions to address both the immediate and underlying causes of undernutrition.¹³ There was a consensus that it was necessary to enhance our knowledge of the epidemiology and etiology of wasting to more effectively identify and focus on children who are at the greatest risk. Important knowledge gaps regarding the causes of wasting were identified, including the occurrence of kwashiorkor/nutritional edema; the connection between stunting and wasting; variations based on age and geographic location; the impact of interventions before conception; the link between maternal nutrition, maternal health, and child nutrition; the extent to which non-nutritional factors, like low birth weight, contribute to wasting in infants under six months of age; and the reasons behind relapse after successful treatment for wasting. Additional gaps encompassed the influence of infection and gut flora, as well as the enduring health and developmental consequences of juvenile wasting.

However, the policy field is becoming more accessible, allowing external factors such as development partners, national and international NGOs, commercial organizations, civil society organizations, and think tanks to engage in the policy-making process. This research on the process of formulating nutrition policy suggests that, in this specific area, both government agencies and specialists from development partners play a crucial role in influencing the issue and finding solutions. The modernization of agriculture has a significant role in achieving poverty alleviation, as well as ensuring food and nutrition security. To address the nutritional condition of children and achieve SDG-3 by 2030, the government of Bangladesh and non-governmental organizations must adopt a coordinated strategy at the community level. Nevertheless, BCC materials and anthropometric tools need to be available

in all community clinics for improvement in overall nutrition status and to improve health system performance.

According to the latest Bangladesh Demographic and Health Survey (BDHS) data published in 2022, the burden of childhood wasting/acute malnutrition only estimated by one index (WHZ), is substantial (11%) in Bangladesh, and there are 1.8% U-5 children suffering from severe wasting. Thus, close to two million U-5 children suffer from dreadful SAM all over the country according to WHZ criteria. These figures underscore the huge gap between the SDG and the WHZ target and the current situation prevalent in the country. The true prevalence of SAM among U-5 children in Bangladesh would be much higher if the children could be screened by additional MUAC measurement and edema examination. A globally updated guideline since 2013 is available,¹⁴ which was further improved and published by WHO with revised and updated information on the management of SAM in infants and children.¹⁵ In contrast to numerous other nations, Bangladesh has established national standards for the Facility-based Management of Children with SAM and the Community-based Management of Children with SAM (CMAM).¹⁶

It is therefore imperative that there is now serious discussion on how we can have effective community-based programs, particularly targeting children with SAM, even if an intervention is not considered feasible for a huge number of children with MAM, at least these children should be brought under a growth monitoring and promotion program. The community clinics established in rural Bangladesh (BD) are likely to be appropriate platforms from which screening, community-based management, and Growth Monitoring and Promotion (GMP) can be undertaken.

Despite significant advancements in the HPN sector in Bangladesh, the recent surge in the COVID-19 pandemic, along with the ongoing demographic transition, presents numerous challenges in ensuring the optimal health and well-being of the population. This situation particularly hinders progress in improving child nutrition, specifically addressing the issue of under-5 wasting. Therefore, future nutrition policies and governance, as outlined in the Perspective Plan 2041 (PP2041), should place greater emphasis on addressing this issue. Significant disparities in health and nutrition services persist and must be resolved. The allocation of public funds for HPN has remained relatively unchanged at 0.7% of GDP for a considerable period, necessitating urgent action to boost it [as stated in the 8th Five-Year Plan of Bangladesh]. Furthermore, the incorporation of Growth Monitoring and Promotion into the EPI platform is crucial for enhancing the quality and reach of nutrition services, as well as

improving the overall health insurance system. This is a significant gap in the Bangladesh HPN plan that requires immediate attention.

Conclusion

To effectively reduce and sustain reductions in acute malnutrition, it is essential to enhance identification and treatment techniques within healthcare and other sectors. Long-term progress hinges on robust, preventive strategies and decentralized, community-based services for severe acute malnutrition. In Bangladesh, where ready-to-use therapeutic food (RUTF) is not yet available at the community level, the Ministry of Health and Family Welfare (MoHFW) could take the initiative to integrate RUTF into community-based management of SAM (CMAM) programs. Additionally, establishing a support unit within MoHFW could provide technical guidance and coordination for CMAM implementation, ensuring early detection and treatment of SAM while safeguarding vulnerable families from food insecurity.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

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Table 1. Incorporating a focus on the prevention and management of wasting, with identified gaps and recommendations specifically targeting these areas

Nutrition intervention policies and programmes	Goal	Objective
National Food Security and Nutrition Policy 2021-2030	To reduce malnutrition through nutrition-specific and nutrition-sensitive programs	- Scale-up interventions targeting undernutrition and micronutrient deficiencies
Bangladesh National Food and Nutrition Security Policy 2021-2030	To improve food and nutrition security status to achieve SDG targets and fulfill related national and international commitments by 2030	- Strengthen cross-sectional governance and improve access to nutrition-sensitive social protection
8 th Five-Year Plan 2020-2025	Increase the program's quality improvement for wasting prevention and treatment as well as other facility-level nutrition services.	- Enhance essential nutrition services and address wasting among children
National Agriculture Policy 2018	Achieve safe, affordable, sustainable food and nutrition security	- Increase the productivity of crops through research and technological innovation
Bangladesh National Plan of Action for Nutrition 2018-2019	Improve the nutritional status of all people, with special attention to the first 1000 days and disadvantaged groups	- Increase the rate of breastfeeding and reduce stunting and wasting
4 th Health Population and Nutrition Sector Program (HPNSP) 2017-2022	To enhance population health outcomes through nutrition and population services	- Ensure quality, accessibility, and sustainability of population and nutrition services
National Facility-Based Dietary Guidelines for Severe Acute Malnutrition 2017	To ensure proper inpatient therapeutic care of severely malnourished children	- Provide model guidelines for inpatient therapeutic care of malnourished children
Second National Plan of Action for Nutrition (NPAN2) 2016	To improve maternal and child nutrition and to accelerate the reduction of malnutrition	- Strengthen nutrition programs in health, education, agriculture, and social safety nets
National Nutrition Policy 2015	To ensure proper nutritional care for all people, particularly women, children, and disadvantaged groups	- Implement nutrition programs that address malnutrition
Nutrition intervention policies and programmes	Gap identified	Recommendation
National Food Security and Nutrition Policy 2021-2030	Limited progress in reducing undernutrition and addressing micronutrient deficiencies	1. Strengthen micronutrient supplementation programs 2. Improve data collection on nutrition outcomes
Bangladesh National Food and Nutrition Security Policy 2021-2030	Lack of good governance and commitment to enforcing interventions	Enhance community participation and political commitment
8 th Five-Year Plan 2020-2025	Nutritional inadequacy due to poverty and lack of awareness	Sufficient allocation of resources toward health and social protection
National Agriculture Policy 2018	Lack of implementation at the grassroots level	More crops need to be fortified with essential micronutrients
Bangladesh National Plan of Action for Nutrition 2018-2019	Barriers to effective use of MNPs and zinc fortification	Increase awareness of home fortification and micronutrient-rich diets
4 th Health Population and Nutrition Sector Program (HPNSP) 2017-2022	Limited reach and quality of nutrition services in rural and underserved areas	1. Expand access to nutrition services in rural areas 2. Improve the quality of care and service delivery
National Facility-Based Dietary Guidelines for Severe Acute Malnutrition 2017	Lack of CMAM policy implementation in the health system	A combination of economic growth and public sector programs focusing on nutrition
Second National Plan of Action for Nutrition (NPAN2) 2016	Lack of inter-sectoral coordination and limited capacity at the local levels	1. Strengthen coordination between sectors 2. Improve funding for local-level nutrition programs
National Nutrition Policy 2015	Inadequate governance structures and coordination across sectors	1. Strengthen multi-sectoral governance 2. Enhance nutrition education and advocacy

Table 1. Incorporating a focus on the prevention and management of wasting, with identified gaps and recommendations specifically targeting these areas (cont.)

Nutrition intervention policies and programmes	Goal	Objective
National Nutrition Services 2011-2016	To reduce the prevalence of malnutrition with special emphasis on children, women, adolescents, and the underprivileged sections	- Implement a mainstream, comprehensive package of nutrition services
Bangladesh Country Investment Plan 2011	To ensure dependable, sustained food security for all people at all times	- Plan and invest in food availability, access, and utilization
Food Policy Plan of Action 2008-2015	U-5 wasting – Target: reduced from 12% (2000) to 10% by 2010 and 7% by 2015	- Long-term targets for physical growth established
National Nutrition Program (NNP) 2004	To improve the nutrition status of women and children through targeted interventions	- Promote community-based nutrition interventions and enhance education on maternal and child nutrition
Bangladesh National Plan of Action for Nutrition 1997-2010	Improve nutritional status to reduce malnutrition as a public health problem by 2010	- Increase institutional capacity and ensure food security
Bangladesh Integrated Nutrition Project (BINP) 1995-2003	To improve food and nutrition security, focusing on reducing malnutrition	- Strengthen nutrition-sensitive interventions and enhance food security programs
National Guidelines on Management of Severe Acute Malnutrition 2017	To provide standard guidelines for managing severe acute malnutrition in children	- Provide treatment and care for children suffering from severe acute malnutrition
Community-Based Management of Acute Malnutrition (CMAM) Guidelines 2016	To scale up community-based management of acute malnutrition	- Scale up CMAM services and strengthen community health systems
Nutrition intervention policies and programmes	Gap identified	Recommendation
National Nutrition Services 2011-2016	Lack of good governance and enforcement of interventions	Promote large-scale implementation of CMAM with NGO support
Bangladesh Country Investment Plan 2011	Lack of an affordable, nutritious food supply	Strong coordination and political commitment to ensuring food security
Food Policy Plan of Action 2008-2015	Emerging new varieties of food require nutrient analysis	1. Increased coverage of vitamin A supplementation 2. Improved access to safe drinking water and sanitation
National Nutrition Program (NNP) 2004	Inadequate resources and coordination for community-based nutrition programs	1. Enhance funding for community-based nutrition programs 2. Improve education on maternal and child health
Bangladesh National Plan of Action for Nutrition 1997-2010	Lack of combined efforts from different ministries	1. Early initiation of breastfeeding 2. Improve exclusive breastfeeding rates 3. Prevent early marriage
Bangladesh Integrated Nutrition Project (BINP) 1995-2003	Limited financial and human resources for effective implementation	1. Increase budget allocation for nutrition programs 2. Strengthen monitoring and evaluation of food security initiatives
National Guidelines on Management of Severe Acute Malnutrition 2017	Detailed guidelines for the management of infants 0-6 months are missing	1. Increase funding for managing SAM at health facilities 2. Train more healthcare workers on SAM management
Community-Based Management of Acute Malnutrition (CMAM) Guidelines 2016	No coverage of CMAM services and a lack of RUTF guidelines	1. Expand coverage of CMAM services 2. Increase community engagement and training of health workers

Table 2. Summary of different nutrition-related policies and programs related to wasting in Bangladesh

Nutrition intervention policies and programme	Goal	Objective	Action plan
1.Bangladesh National Plan of Action for Nutrition 1997-2010	Improve the nutritional status of the people of Bangladesh to the extent that malnutrition is no longer a public health problem by 2010	<ul style="list-style-type: none"> -Increase institutional capacity -Empower communities and households to understand the nutrition problem -Ensure food security among household members by adequate calorie intake, and reduce severe protein energy malnutrition <1% by 2010. -Provide support to socioeconomically deprived and vulnerable people -Reduce micronutrient deficiency -Promote an appropriate diet and healthy lifestyle -Promote nutrition education and advocacy 	<p>Reduce malnutrition and achieve physical and mental growth when the following action plans are undertaken:</p> <ul style="list-style-type: none"> -Poverty alleviation -Safe water and sanitation -Food-based intervention -Child spacing and childcare practices -Improved literacy
2.Bangladesh Country Investment Plan, 2011	To ensure dependable, sustained food security for all people of the country at all times	CIP focused on investments having a direct impact on food availability, access, and utilization	<ol style="list-style-type: none"> 1. Plan and invest resources in a coordinated way to achieve adequate nutrition for all individuals, especially women and children 2. Adequate and stable supply of safe and nutritious food 3. Mobilize additional resources to monitor commitments, pledges, expenses, and remaining gaps 4. Monitor and evaluate investments in food security

Nutrition intervention policies and programme	Gap identified	Recommendation
1.Bangladesh National Plan of Action for Nutrition 1997-2010	Policy focuses mainly on marginalized groups such as mothers, adolescent girls, and children. There is a lack of combined efforts from different ministries to mitigate the stated problem.	<ol style="list-style-type: none"> 1. Enhance the early initiation of breastfeeding within the first hour after birth. 2. Improve the exclusive breastfeeding rates in infants under 6 months of age. 3. Raise the percentage of children aged 6-23 months receiving a diet meeting the minimum acceptable standard. 4. Incorporate legislation to prevent early marriage.
2.Bangladesh Country Investment Plan, 2011	There is a lack of affordable, nutritious food supply to combat the nutritional needs of women and children	Sufficient leadership, strong coordination, and political commitment from government and partner organizations are required to ensure food security

Table 2. Summary of different nutrition-related policies and programs related to wasting in Bangladesh (cont.)

Nutrition intervention policies and programme	Goal	Objective	Action plan
3.Food Policy Plan of Action (2008-2015)	U-5 wasting (Weight for height <- 2SD) – Target: reduced from 12% (2000) to 10% by 2010 and 7% by 2015	Adequate nutrition for all individuals, especially women and children	1. Long-term planning for balanced food 2.Balanced and nutritious food for vulnerable people 3.Nutrition education on dietary diversification 4.Food supplementation and fortification 5.Safe drinking water and improved sanitation
Nutrition intervention policies and programme	Gap identified	Recommendation	
3.Food Policy Plan of Action (2008-2015)	1. The food chain of the country has changed enormously during the last decades with the emergence of new varieties of foods that require analysis of their nutrient composition 2. 40% of the population (nearly 60 million) lives below the poverty line and is undernourished. Improving poor and vulnerable people's access to nutritious food requires a comprehensive strategy, involving both long-term (diversification) and short-term (targeted programs) efforts 3. Comprehensive nutrition education efforts and other demand-side interventions will need to be intensified to improve nutrition outcomes 4. This area of intervention is concerned with the mitigation of gaps in diets deficient in micronutrients through supplementation and fortification. 5. In the area of water and sanitation, important issues include reducing water-borne morbidity and mortality, reducing the number of people subjected to and at risk of arsenic contamination, and ensuring access to community latrines in villages, bazaars, mosques and schools, and public places, with particular attention to women's needs	1. Long-term targets for physical growth established; standard food and nutrient intake established for different population groups; integrated plan for attaining standard food intake targets established 2. Increased availability through local production of low-cost items; poor, distressed and vulnerable women and children effectively covered by food-based nutrition programs, including Growth Monitoring and Promotion (GMP). 3.Increased percentage of women educated in nutrition and primary health care activities through formal and non-formal education; increased home gardening and poultry-raising activities by poor households 4. Increased coverage of vitamin A; increased coverage and compliance of iron folate supplementation, and increased coverage of households with adequately iodized 5. Safe water and sanitation facilities available and accessible for all by 2010.	

Table 2. Summary of different nutrition-related policies and programs related to wasting in Bangladesh (cont.)

Nutrition intervention policies and programme	Goal	Objective	Action plan
3.Food Policy Plan of Action (2008-2015)	U-5 wasting (Weight for height < 2SD) – Target: reduced from 12% (2000) to 10% by 2010 and 7% by 2015	Adequate nutrition for all individuals, especially women and children	6.Safe, quality food supply women's and children's health 7.Promotion and protection of breastfeeding and complementary feeding Growth Monitoring and Promotion (GMP) - Behavior Change Communication to Promote Good Nutritional Practices. - Micronutrient supplementation - Management of Severe Acute Malnutrition (SAM) and Community Management of Acute Malnutrition (CMAM) - Nutrition interventions in hard-to-reach areas, chars, hill tracts
4. National Nutrition Services 2011-2016	To reduce the prevalence of malnutrition among the people of Bangladesh, with special emphasis on the children, women, adolescents, and the underprivileged section of society	To implement a mainstream, comprehensive package of nutrition services to reduce maternal and child malnutrition, and ensure universal access -To strengthen the human resource capacity to manage, supervise, and deliver nutrition services at the different levels of the health & family planning services -To strengthen nutrition management information systems and operations research	
Nutrition intervention policies and programme	Gap identified	Recommendation	
3.Food Policy Plan of Action (2008-2015)	6. Key issues related to food safety include access to safe and quality food for the people, reduction of foodborne illnesses, and behavioral change of people towards consumption and demand of safe and hygienic food 7. Those who enter pregnancy malnourished or who do not gain sufficient weight during pregnancy are more likely to deliver low birth weight babies. Babies who are born malnourished face a heightened risk of dying within the first week of life	6. Enhanced access to safe and quality food, for domestic consumption and also for international trade. 7. Increased primary health care (PHC) and antenatal care (ANC) coverage; increased skilled attendance at birth; improved access to health services; healthy lifestyles and behavior.	
4. National Nutrition Services 2011-2016	There is a lack of good governance and commitment to enforcing nutrition-sensitive and specific interventions	1. Non-governmental organizations might help to move the large-scale implementation of CMAM in Bangladesh using locally produced RUTF. 2. Convincing policymakers to promote CMAM in the country	

Table 2. Summary of different nutrition-related policies and programs related to wasting in Bangladesh (cont.)

Nutrition intervention policies and programme	Goal	Objective	Action plan
5. National Facility-based Dietary Guidelines for Severe Acute Malnutrition, 2017	To ensure proper inpatient therapeutic care of severely malnourished children -Improve the nutritional status of the Bangladeshi population and prevent nutritional deficiency diseases. -Ensure adequate nutritional status starting from pregnancy. Provide nutritious food to combat malnutrition.	-Eat a well-balanced diet with a variety of foods at each meal; -Use in moderation foods high in fat and minimize fats and oils in food preparation; -Limit salt intake and condiments, and use only iodized salt -Maintain desired body weight through a balanced food intake and regular physical activity; -Adopt and follow appropriate preparation and cooking practices, and follow healthy eating habits -Exclusive breastfeeding for the first six months of life; -Introduce appropriate complementary foods after completion of 6 months and continue complementary feeding along with breastfeeding for up to 2 years.	-Provide model guidelines for the development of facility-based and CMAM management in under five children
6. National Agriculture Policy 2018	Achieve safe, affordable, sustainable food and nutrition security	1. Increase the availability of food and purchasing power by increasing the productivity of crops. 2. Ensure nutritious and safe food production	1. Increase production of advanced technology-based research for nutrition-rich crops. 2. Enhance hybrid and mutation breeding activities for cultivating nutritious and hygienic crops 3. Promote the development of nutritious, non-conventional crops in hostile environments.
Nutrition intervention policies and programme	Gap identified	Recommendation	
5. National Facility-based Dietary Guidelines for Severe Acute Malnutrition, 2017	1. There is no policy for the implementation of CMAM with the health system, by utilizing existing health resources, such as community clinics, and by involving CHWs of nongovernmental organizations. 2. Programmatic gap in identification, management, and prevention of under 6 months wasting	1. Required a combination of economic growth and the use of public sector programs that directly affect nutrition, such as breastfeeding and complementary feeding support. 2. Policymakers and strategists need to put in more effort, to assess the continued effectiveness of implementation.	
6. National Agriculture Policy 2018	There is a lack of an implementation plan to incorporate the policy objectives at the grassroots level.	1. More crops need to be fortified in addition to rice with essential micronutrients to meet adequate nutrition. 2. Need more community awareness on the importance of nutritious and affordable crop production	

Table 2. Summary of different nutrition-related policies and programs related to wasting in Bangladesh (cont.)

Nutrition intervention policies and programme	Goal	Objective	Action plan
7. Bangladesh National Plan of Action for Nutrition 2018-2019	Improve the nutritional status of all people, with special attention to the first 1000 days and disadvantaged groups, including mothers, adolescent girls, and children; prevent and control malnutrition; and accelerate national development through raising the standard of living.	<ol style="list-style-type: none"> 1. Increase the rate of initiation of breastfeeding in the first hour of birth 2. Increase the rate of exclusive breastfeeding in infants less than 6 months of age 3. Increase the rate of continued breastfeeding in children aged 20 to 23 months 4. Increase the proportion of children aged 6-23 months receiving a minimum acceptable diet 5. Reduce the rate of low birth weight 6. Reduce Stunting, SAM among underweight < 5 children 7. Increase Vitamin A capsule supplementation coverage in children aged 6- 59 months 	<ol style="list-style-type: none"> 1. Improve the nutritional status of all citizens, including children, adolescent girls, pregnant women, and lactating mothers 2. Ensure availability of adequate, diversified, and quality safe food and promote healthy feeding practices 3. Strengthen nutrition-specific or direct nutrition interventions 4. Strengthen nutrition-sensitive or indirect interventions 5. Strengthen multi-sectoral programs to ensure countrywide efforts toward ensuring nutrition, including necessary financing for such programs
Nutrition intervention policies and programme	Gap identified	Recommendation	
7. Bangladesh National Plan of Action for Nutrition 2018-2019	<ol style="list-style-type: none"> 1. Home fortification of multiple micronutrient powder (MNP) among under-5 children in Bangladesh 2. Zinc bio-fortified rice in Bangladesh - Program Gaps and Research Priorities 3. Vitamin A fortification in edible oil in Bangladesh - Program Gaps and Research Priorities 4. Nutrition-Sensitive Agriculture in Bangladesh - Program Gaps and Research Priorities 	<ol style="list-style-type: none"> 1. The effective interventions to address the barriers of MNP usage among children of 6-59 months. 2. The effectiveness of MNP usage on addressing micronutrient malnutrition among under-five children <ol style="list-style-type: none"> 1. Generate zinc-fortified rice varieties containing zinc in such an amount that it can control the zinc deficiency in the absence of a sufficient amount of animal products in the diet. 2. Breed rice varieties that contain different essential micronutrients 1. Generate evidence on the vitamin A deficiency status to find out whether there is fortification of edible oil with vitamin A 2. Explore the factors responsible for the availability of unfortified bulk oil in the market 1. Research is needed to know how different technologies can be promoted in hard-to-reach areas and how nutrition education can be given with traditional agricultural extension services. 2. Promotion of more nutrient-rich fish needs to be included in the cultural practice. 	

Table 2. Summary of different nutrition-related policies and programs related to wasting in Bangladesh (cont.)

Nutrition intervention policies and programme	Goal	Objective	Action plan
8. National Agriculture Policy 2018	Achieve safe, affordable, sustainable food and nutrition security	<ol style="list-style-type: none"> 1. Increase the availability of food and purchasing power by increasing the productivity of crops. 2. Ensure nutritious and safe food production 	<ol style="list-style-type: none"> 1. Increase production of advanced technology-based research for nutrition-rich crops. 2. Enhance hybrid and mutation breeding activities for cultivating nutritious and hygienic crops 3. Promote the development of nutritious, non-conventional crops in hostile environments.
Nutrition intervention policies and programme	Gap identified	Recommendation	
8. National Agriculture Policy 2018	There is a lack of an implementation plan to incorporate the policy objectives at the grassroots level.	<ol style="list-style-type: none"> 1. More crops need to be fortified in addition to rice with essential micronutrients to meet adequate nutrition. 2. Need more community awareness on the importance of nutritious and affordable crop production 	

Table 2. Summary of different nutrition-related policies and programs related to wasting in Bangladesh (cont.)

Nutrition intervention policies and programme	Goal	Objective	Action plan
9. 8 th Five-year Plan June 2020-June 2025	Increase the program's quality improvement for wasting prevention and treatment as well as other facility-level nutrition services.	<ul style="list-style-type: none"> -Improve the incidence of wasting -Reduce prevalence of wasting from 9.8%-7% (baseline year-target year) -Enhancing the extent and quality of essential nutrition services; 	<ul style="list-style-type: none"> -Vitamin A supplementation and deworming are provided during measles vaccination, national events, and dietary fortification with vitamin A, iron, and iodine. -Educating and counseling adolescent girls, pregnant and nursing moms on proper feeding practices, including breastfeeding, supplementary feeding, and micronutrients. -Expanding community-based malnutrition prevention through C-IMCI programs, CC programs, and managing patients at community and facility levels, including IYCF. -Enhance nutrition practices through SBCC, promoting the uptake of essential services, food safety, healthy diets, and complementary issues like water, sanitation, EPI, and NCD prevention. -Ensuring timely, quality nutrition service reporting and follow-up.
Nutrition intervention policies and programme	Gap identified	Recommendation	
9. 8 th Five-year Plan June 2020-June 2025	-Nutritional inadequacy in Bangladesh can be attributed to two distinct factors: poverty and a lack of awareness.	-Sufficient and efficient allocation of resources towards Health and Social Protection is important to enhance the current state of affairs.	

Table 2. Summary of different nutrition-related policies and programs related to wasting in Bangladesh (cont.)

Nutrition intervention policies and programme	Goal	Objective	Action plan
10. Bangladesh National food and nutrition security policy 2021-2030	To improve food and nutrition security status to achieve SDG targets and fulfill related national and international commitments by 2030	<ul style="list-style-type: none"> -To ensure the availability of safe and nutritious food for healthy diets - To improve access to safe and nutritious food at an affordable price -Enhance the consumption and utilization of healthy and diversified diets to achieve improved nutrition -Increased access to nutrition-sensitive social protection and safety nets across lifestyles with a focus on vulnerable groups -Strengthen cross-sectional governance, coordination, capacity building, and partnership for the effective implication of policy 	<ul style="list-style-type: none"> -A nutrition-sensitive food systems approach -Policy consistency -A consultative process with relevant ministries, departments, and agencies.
Nutrition intervention policies and programme	Gap identified	Recommendation	
10. Bangladesh National food and nutrition security policy 2021-2030	There is a lack of good governance and commitment to enforcing nutrition-sensitive and specific intervention	<ol style="list-style-type: none"> 1. Enforce community participation 2. Strengthen community clinics to deliver all appropriate nutrition care on the community level 3. Enhance political commitment and increase budget allocation 	